Wednesday, February 8, 2023  
10:30 AM – 12:00 PM  

Virtual via WebEx  

Dial in: 1-415-655-0001 | Access code: 2424 799 7624#  

MEMBERS  

Dr. David Williams, Chair  
Dr. Susan LeFrancois  
Dr. Narendra Kini, Vice Chair  
Melia Rodriguez  
Dr. Laine Powell  
Lyn Stanfield  

AGENDA  

I. Call to Order  
   Dr. David Williams, Chair  

II. Roll Call  
   Zaira Medina  

III. Public Comment  
   Dr. David Williams  

IV. Approval of the November 15, 2022 Minutes*Action Required*  
   Dr. David Williams  

V. 2020-22 Academic & Student Affairs Committee Work Plan Review  
   Dr. Terry Parker  
   EVP & Provost  

VI. Provost’s Report  
   Dr. Terry Parker  

A. Academic Calendar (AY+1 and AY+2)*Action Required*  
   Dr. Terry Parker  

B. Approval of Two New Degrees: Civil Engineering and Industrial Engineering*Action Required*  
   Dr. Terry Parker  

C. Graduate Student Tuition Waiver*Action Required*  
   Dr. Terry Parker  

D. Student Success Plan Status Review and Report Approval*Action Required*  
   Dr. Terry Parker  

E. Regional Accreditation Discussion  
   Dr. Tom Dvorske  
   Vice Provost  
   Academic Affairs  

F. All Other Academic and Student Affairs Discussion Items  
   Dr. Terry Parker  

VII. Closing Remarks and Adjournment  
   Dr. David Williams
DRAFT MEETING MINUTES

Tuesday, November 15, 2022
10:30 AM – 12:00 PM

Florida Polytechnic University
Applied Research Center & via WebEx

I. Call to Order
Committee Vice Chair Narendra Kini called the Academic and Student Affairs Committee meeting to order at 10:04 a.m.

II. Roll Call
Zaira Medina called the roll: Committee Vice Chair Narendra Kini, Trustee Laine Powell, Trustee Susan LeFrancois, Trustee Melia Rodriguez, Trustee Lyn Stanfield were present (Quorum)

Other Trustees Present: Board Chair Cliff Otto, Trustee Mark Bostick, Trustee Gary Wendt, and Trustee Bob Stork

Staff Present: President Randy Avent, Provost Terry Parker, Dr. Allen Bottorff, David Fugett, Mike Dieckmann, Kathy Bowman, David Blanton, Dr. Kathryn Miller, Dr. Tom Dvorske, Maggie Mariucci and Kristen Wharton

III. Public Comment
There were no requests received for public comment.

IV. Approval of Minutes
Trustee Melia Rodriguez made a motion to approve the Academic and Student Affairs Committee meeting minutes of September 21, 2022. Trustee Lyn Stanfield seconded the motion; a vote was taken, and the motion passed unanimously.

V. 2020-22 Academic & Student Affairs Committee Work Plan Review
Committee Chair Kini reviewed the Academic and Student Affairs Committee Work plan. There was no discussion on this item.

VII. Provost Report
A. Regulation FPU-3.006 Student Code of Conduct

The revised regulation clarifies that actions that constitute expressive activities are not misconduct, when medical and hazing amnesty can be applied, the hearing process for interim suspension, and how the Student Code of Conduct interacts with other relevant University policies.
Trustee Lyn Stanfield made a motion to recommend approval of the revised regulation FPU-3.006 Student Code of Conduct to the Board of Trustees. Trustee Melia Rodriguez seconded the motion; a vote was taken, and the motion passed unanimously.

B. **FIPR Institute Annual Report FY22**

Provost Parker presented the annual Florida Industrial and Phosphate Research Institute (FIPR) report for fiscal year 2022. FIPR’s severance tax income has decreased over the past several years. This loss of income has been balanced with contract funds. For fiscal year 2022, the Institute’s net income is $122,377.

Trustee Gary Wendt inquired if there are any current projects on the removal of phosphate from Florida waterways. Provost Parker responded the research for using biochar relates directly to removing phosphate from both processed and runoff waters.

Committee Chair Kini inquired if there is an opportunity for development of intellectual property or patents for the University. Provost Parker responded in the affirmative stating the University is in the process of applying for patent protections on two projects: the Packed Column Jig, and the use of phosphogypsum stack materials for road base. Committee Chair Kini inquired if this allows the University to research joint venture or other monetization possibilities. President Randy Avent replied once the projects mature and are proven to work, the University will seek partners to license them.

Trustee Laine Powell made a motion to recommend approval of the Florida Institute of Phosphate Research Annual Report for fiscal year 2022 to the Board of Trustees. Trustee Lyn Stanfield seconded the motion; a vote was taken, and the motion passed unanimously.

C. **Advanced Mobility Institute Annual Report FY22**

President Avent presented the first annual Advanced Mobility Institute (AMI) report for fiscal year 2022. The Florida state legislature awarded the Institute $1M for use over two years, with only $146,660 expended in fiscal year 2022.

Committee Chair Kini inquired if development of a universal charger for electrical vehicles is underway. President Avent responded it is a standardization issue; the Institute for Electronic and Electrical Engineers (IEEE) will be the entity to establish this standardization.

Trustee Susan LeFrancois inquired if a faculty member will manage the equipment and the students’ projects. She also asked if this Institute will be incorporated into the University’s curriculum. President Avent responded his office currently oversees the program, and curriculum integration is at the discretion of the faculty members engaged in AMI and their department chairs. He does not foresee a specific program/degree in autonomous or electrical vehicles.

Trustee Wendt asked if the million-dollar grant is part of the University budget. President Avent responded in the affirmative. As AMI did not spend all of the appropriation, the balance was moved into the University’s carryforward funds. Trustee Lyn Stanfield inquired if there are any concerns with the underspending of funds. President Avent stated the majority of the funds have been expensed over the two years.

Trustee Melia Rodriguez made a motion to recommend approval of the Advanced Mobility Institute Annual Report for fiscal year 2022 to the Board of Trustees. Trustee Laine Powell seconded the motion; a vote was taken, and the motion passed unanimously.
D. Student Success Plan Status Review

Provost Parker reviewed progress made on the University’s Student Success Plan which is required by the BOG. Trustee Bob Stork inquired how achieving high marks in Performance Based Funding (PBF) helps the University be a better institution versus achieving them simply to obtain funding. Provost Parker responded this system of metric achievement has improved the University, particularly in retention and graduation rates.

Trustee Stork further inquired how growing and supporting the Graduate program assists the University versus having the Institution’s attention on something else. Provost Parker responded that having a healthy Graduate program is important to support faculty and senior-level students from Florida Poly’s undergraduate programs.

Trustee Stanfield asked for additional information on metric number seven: University Access Rate. Provost Parker responded this metric is measured by the percentage of Pell students enrolled at the University and must be balanced carefully. President Avent stated Florida Poly’s percentage of 30% Pell students is higher than its peers, yet lower than the rest of the institutions in the SUS as Florida Poly is not a comprehensive university.

Provost Parker also reviewed admissions for Fall 2023, as well as various Student Affairs and Student Life activities. He announced two new Bachelor of Science degree programs, Civil Engineering and Industrial Engineering, which will be formally presented to the Board in February 2023. The goal is to offer these degrees to incoming first-year students in fall 2024.

Provost Parker stated rental rates for Phase II housing will increase by 7%; the University expects Phase I rental rates will also increase by 7%. Chair Otto inquired when rates were last increased. Last year there was a 2.25% increase, which is according to the contract.

Provost Parker reviewed SB7044, specifically the portion regarding changing accrediting agencies. Trustee Laine Powell inquired about the timeline for this process. Following a reaffirmation decision from SACSCOC in December, the University will send a letter of intent to change accreditors to the Department of Education (DOE). Once the DOE accepts the University’s proposal, the new accreditation process will begin with another accreditor.

Trustee LeFrancois expressed the concern among SUS faculty senates regarding the requirement of post-tenure review in SB7044 and the ability to attract qualified faculty to the state of Florida. Provost Parker responded this legislation was written specifically for tenure campuses; Florida Polytechnic University and Florida Gulf Coast University are non-tenure campuses. However, this regulation requires Florida Poly to adhere to additional review processes in addition to the ones already in place.

Chair Otto inquired if the faculty job market is improving. Provost Parker responded it depends on the field. The applicant pool for Computer Science candidates is mixed, while the pool for Engineering Physics candidates has been particularly good.

Trustee Stork inquired how not having tenure affects Florida Poly’s faculty. President Avent responded the strong faculty leave because they can, but not because the University does not offer tenure.

VIII. Closing Remarks and Adjournment

With no further business to discuss, the Academic and Student Affairs Committee Meeting adjourned at 11:12 a.m.
Florida Polytechnic University
Academic and Student Affairs Committee
Board of Trustees
February 8, 2023

Subject: 2022-2024 Academic and Student Affairs Committee Work Plan

Proposed Committee Action

Review only. No action required.

Background Information

Provost Terry Parker will review the Committee’s 2022-2024 Work Plan.

Supporting Documentation: Academic and Student Affairs Committee Work Plan 2022-2024

Prepared by: Dr. Terry Parker, EVP and Provost
ACADEMIC & STUDENT AFFAIRS

Committee Work Plan

Academic & Student Affairs Committee Work Plan
2022-2024

SEPTEMBER

- Academic & Student Affairs Committee Charter *(review and approve every two years – due September 2022)*
- Civil Discourse: Initial review of student orientation programming and student code of conduct
- Annual Textbook and Instructional Materials Affordability Report *(review and approve)*
- Renewal of Out of State Fee Waiver *(review and approve)*
- Institutional Accreditation Activity *(review as needed)*
- Admissions and Financial Aid *(review as needed)*
- Student Services *(review as needed)*
- Four-year graduation improvement plan *(review as needed)*
- Degree Program Additions and Faculty Hiring *(review as needed)*
- Student and Faculty Diversity *(review as needed)*
- Graduate programs *(review as needed)*
- Technology and Pedagogy *(review as needed)*

NOVEMBER

- Advanced Mobility Institute Annual Report *(review and approve)*
- FIPR Institute Annual Report *(review and approve)*
- FIPR Institute Seven-Year Review *(review and approve)*
- Revision of student code of conduct *(review and approve)*
- Institutional Accreditation Activity *(review as needed)*
- Admissions and Financial Aid *(review as needed)*
- Student Services *(review as needed)*
- Four-year graduation improvement plan *(review as needed)*
- Degree Program Additions and Faculty Hiring *(review as needed)*
- Student and Faculty Diversity *(review as needed)*
- Graduate programs *(review as needed)*
- Technology and Pedagogy *(review as needed)*

FEBRUARY

- CITF Increase, Inc. to Existing Fees or New Fees *(review and approve only if changes are proposed)*
- Academic Calendar (AY+1 and AY+2) *(review and approve)*
- Institutional Accreditation Activity *(review as needed)*
- Admissions and Financial Aid *(review as needed)*
- Student Services *(review as needed)*
- Four-year graduation improvement plan *(review as needed)*
- Degree Program Additions and Faculty Hiring *(review as needed)*
- Student and Faculty Diversity *(review as needed)*
- Graduate programs *(review as needed)*
- Technology and Pedagogy *(review as needed)*
APRIL

- University Accountability Report (review and approve)

JUNE

- Civil Discourse: Annual review of student orientation programming and student code of conduct
- Institutional Accreditation Activity (review as needed)
- Admissions and Financial Aid (review as needed)
- Student Services (review as needed)
- Four-year graduation improvement plan (review as needed)
- Degree Program Additions and Faculty Hiring (review as needed)
- Student and Faculty Diversity (review as needed)
- Graduate programs (review as needed)
- Technology and Pedagogy (review as needed)
Subject: Approval of the Proposed Final 2023-24 Academic Calendar

Proposed Committee Action
Recommend approval of the proposed final 2023-2024 Academic Calendar to the Board of Trustees.

Background Information

Purpose:
Per BOG Regulation 8.001 University Calendars, each university shall adopt an annual calendar to be filed with the BOG by March 1 prior to the start of the academic year. By practice, the University approves the calendar for the upcoming academic year and also provides a tentative calendar for following academic year.

Background Information:
The dates noted on the following page for the 2023-24 Academic Year Calendar were previously approved by the Board on February 16, 2022, as tentative dates. While these dates have not changed there was a typo identified in the previously approved calendar where the Summer "A" 2024 First Day of Classes was noted as 5/3/2023 rather than 5/13/2023. We are requesting Board approval to file this adjustment to the BOG using their requested format. The Academic Year dates follow the requirements of the regulation and notes the specific activity/event items requested by the BOG for their purposes.

As a note, the file submission format and activity/event items requested this year are the same format as last year.

Supporting Documentation: Proposed Final 2023-2024 Academic Calendar

Prepared by: Andrew Konapelsky, University Registrar; Dr. Terry Parker, EVP & Provost
## Academic Calendar for 2023-2024

<table>
<thead>
<tr>
<th>Term</th>
<th>Activity/Event</th>
<th>Start Date</th>
<th>End Date (If Applicable)</th>
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<td>Fall 2023</td>
<td>Resident Move-In</td>
<td>8/18/2023</td>
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<td>First Day of Classes</td>
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<td>Fall 2023</td>
<td>Breaks - Labor Day Holiday</td>
<td>9/4/2023</td>
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<td>Fall 2023</td>
<td>Breaks - Veteran's Day Holiday (observed)</td>
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<td>Fall 2023</td>
<td>Breaks - Thanksgiving Holiday Break</td>
<td>11/22/2023</td>
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<td>Breaks - Martin Luther King Jr. Holiday</td>
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<td>Spring 2024</td>
<td>Breaks - Career Day</td>
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**Institution Name:** Florida Polytechnic University
Subject: Approval of the Tentative 2024-25 Academic Calendar

Proposed Committee Action

Recommend approval of the Tentative Academic Year Calendar for 2024-25 to the Board of Trustees.

Background Information

Purpose:
Per BOG Regulation 8.001 University Calendars, each university shall adopt an annual calendar to be filed with the BOG by March 1 prior to the start of the academic year. By practice, the University approves the calendar for the upcoming academic year and also provides a tentative calendar for following academic year.

Background Information:

The dates noted on the following page for the 2024-25 Academic Year Calendar are tentative dates for planning purposes. These dates follow regular campus operations and should remain unchanged, barring any unforeseen circumstances. Any adjustments required will be submitted to the Board in 2024 for final approval before filing to the BOG.

The Academic Year dates follows the requirements of the regulation and notes the current activity/event items requested by the BOG for their purposes.

Supporting Documentation: Proposed Tentative 2024-2025 Academic Calendar

Prepared by: Andrew Konapelsky, University Registrar; Dr. Terry Parker, EVP & Provost
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**Institution Name:** Florida Polytechnic University
Subject: Approval of the Proposed Degree Program: B.S. Civil Engineering

Proposed Committee Action

Recommend approval of the proposed degree program, Bachelor of Science in Civil Engineering, to the Board of Trustees.

Background Information

The formal degree proposal is included with this agenda item sheet.

Supporting Documentation: Bachelor of Science in Civil Engineering

Prepared by: Dr. Tom Dvorske, Vice Provost Academic Affairs; Dr. Terry Parker, EVP & Provost
Board of Governors, State University System of Florida
REQUEST TO OFFER A NEW DEGREE PROGRAM
In Accordance with BOG Regulation 8.011
(Please do not revise this proposal format without prior approval from Board staff)

Florida Polytechnic University
Institution Submitting Proposal

Name of College(s) or School(s)

Civil Engineering
Academic Specialty or Field

14.0801
Proposed CIP Code (2020 CIP)

Fall 2023
Proposed Implementation Term

Civil and Environmental Engineering
Department

Name of Department(s)/Division(s)

Bachelor of Science in Civil Engineering
Complete Name of Degree

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

Date Approved by the University Board of Trustees

President’s Signature ___________________________ Date 2/3/23

Provost’s Signature ___________________________ Date 2/3/2023

Board of Trustees Chair’s Signature

PROJECTED ENROLLMENTS AND PROGRAM COSTS

Provide headcount (HC) and full-time equivalent (FTE) student estimates for Years 1 through 5. HC and FTE estimates should be identical to those in Appendix A – Table 1. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Appendix A – Table 3A or 3B. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 by dividing total E&G by FTE.

<table>
<thead>
<tr>
<th>Implementation Timeframe</th>
<th>HC</th>
<th>FTE</th>
<th>E&amp;G Cost per FTE</th>
<th>E&amp;G Funds</th>
<th>Contract &amp; Grants Funds</th>
<th>Auxiliary/Philanthropy Funds</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>23</td>
<td>20</td>
<td>$44,649.90</td>
<td>$892,998</td>
<td>0</td>
<td>0</td>
<td>$892,998</td>
</tr>
<tr>
<td>Year 2</td>
<td>46</td>
<td>44</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Year 3</td>
<td>94</td>
<td>68</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 4</td>
<td>119</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year 5</td>
<td>150</td>
<td>134</td>
<td>$10,074.51</td>
<td>$1,349,984</td>
<td>0</td>
<td>0</td>
<td>$1,349,984</td>
</tr>
</tbody>
</table>
Additional Required Signatures

I confirm that I have reviewed and approved Need and Demand Section III.F. of this proposal.

Gloria Nelson
Signature of Equal Opportunity Officer

January 23, 2023
Date

I confirm that I have reviewed and approved Non-Faculty Resources Section VIII.A. and VIII.B. of this proposal.

Kathryn M. Miller
Signature of Library Dean/Director

1-23-2023
Date
Introduction

I. Program Description and Relationship to System-Level Goals

A. Describe within a few paragraphs the proposed program under consideration, and its overall purpose, including:
   - degree level(s)
   - majors, concentrations, tracks, specializations, or areas of emphasis
   - total number of credit hours
   - possible career outcomes for each major (provide additional details on meeting workforce need in Section III)

Florida Polytechnic University proposes to add a Bachelor of Science in Civil Engineering to the degree inventory. This 120 credit hour program draws from complementary areas of research and education with our environmental engineering program and projects underway through the University’s FIPR Institute. In the field of transportation, the University’s Advanced Mobility Institute (AMI) provides research opportunity and collaboration in areas of autonomous vehicles and transportation technologies that support a high-tech infrastructure. With degree strengths consistent with ABET standards in areas such as environmental engineering, geotechnical engineering, and construction and project management bolstered by existing research institutes (FIPR and AMI), Civil Engineering at Florida Poly would provide a unique experience in a small campus setting within the system. Data show that demand for civil engineers in Florida outpaces all universities’ ability to produce them. The American Society of Civil Engineers identifies multiple career paths in civil engineering including public (government) agencies, education, consulting, manufacturing, technology, pharmaceuticals, and more. Florida Poly’s program will prepare students to, among other things, support Florida’s unique and growing transportation system and expanding infrastructure.

B. If the proposed program qualifies as a Program of Strategic Emphasis, as described in the Florida Board of Governors 2025 System Strategic Plan, please indicate the category.
   - Critical Workforce
     - ☐ Education
     - ☐ Health
     - ☐ Gap Analysis
   - Economic Development
     - ☐ Global Competitiveness
     - ☒ Science, Technology, Engineering, and Math (STEM)

☐ Does not qualify as a Program of Strategic Emphasis.
II. Strategic Plan Alignment, Projected Benefits, and Institutional Mission and Strength

A. Describe how the proposed program directly or indirectly supports the following:
   - System strategic planning goals (see link to the 2025 System Strategic Plan on the New Program Proposals & Resources webpage)
   - the institution's mission
   - the institution's strategic plan

Florida Poly’s proposed B.S. in Civil Engineering aligns with the State University System’s strategic plan in several ways. Clearly it supports the plan’s goal to increase STEM programs. More substantively, we emphasize the following goals:

- **Goal: Strengthen the Quality and Reputation of the Universities**
  - A civil engineering program, a staple of any engineering university, will elevate Florida Poly’s status as an emerging engineering University of excellence and more closely align Poly with its aspirational peers.
- **Goal: Strengthen the Quality and Reputation of Scholarship, Research, and Innovation**
  - Specifically, Florida Poly sees its civil engineering students participating in faculty research, enhancing the University’s overall research profile and preparing graduates who are well-rounded and experienced in their field upon graduation.
- **Goal: Increase Community and Business Workforce**
  - The foremost outcome of the proposed program is to produce more graduates who will find full-time employment in civil engineering and related areas or continue their education in the engineering fields.

Florida Poly’s mission – to serve students and industry through excellence in education, discovery, and application of engineering and applied sciences – frames the core academic programming the University designs and delivers. Civil engineering, a cornerstone of any engineering institution, will add more substance to our program offerings and help ground our aspirations toward excellence.

Our current and planned Strategic Plan (2023 – 2028, in development) both emphasize growing degree programs that meet the high-tech, high-wage demand in Florida. Civil engineering at Florida Poly strongly support that plan.

B. Describe how the proposed program specifically relates to existing institutional strengths. This can include:
   - existing related academic programs
   - existing programs of strategic emphasis
   - institutes and centers
   - other strengths of the institution

Broadly, Florida Poly’s proposed B.S. in Civil Engineering fits nicely between existing programs in Environmental Engineering and Mechanical Engineering (with which is shares much of the first two years).

All of Florida Poly’s programs fit into areas of strategic emphasis, specifically STEM. As a
100% STEM University, Florida Poly grows new programs out the existing resources – faculty, curriculum – to ensure efficiency in delivery and resources utilization as well as facilitate interdisciplinary collaboration and research.

The University’s centers – Advanced Mobility Institute (AMI), and the Florida Institute for Phosphate Research (FIPR) – contribute to the program by providing research opportunities for faculty and students as well as hands-on experience working in the areas of the programs proposed concentrations.

Florida Poly’s newest building, the Applied Research Center (ARC), houses much of the Faculty research capacity in a 90,000 sf venue. The University also plans to build an engineering building adjacent to the ARC that will house environmental engineering and FIPR (with a presence still in Bartow, FL).

C. Provide the date the pre-proposal was presented to the Council of Academic Vice Presidents Academic Program Coordination (CAVP ACG). Specify whether any concerns were raised, and, if so, provide a narrative explaining how each concern has been or will be addressed.

Florida Poly presented the proposed program to the Council of Academic Vice Presidents – Academic Coordinating Group on November 8, 2022. No concerns were expressed and all SUS institutions were supportive of the proposal.

D. In the table below, provide a detailed overview and narrative of the institutional planning and approval process leading up to the submission of this proposal to the Board office. Include a chronology of all activities, providing the names and positions of both university personnel and external individuals who participated in these activities.

- If the proposed program is a bachelor’s level, provide the date the program was entered into the APPRiSe system, and, if applicable, provide narrative responding to any comments received from APPRiSe.

<table>
<thead>
<tr>
<th>Institution Type</th>
<th>Institution Name</th>
<th>Program Name</th>
<th>Program Level</th>
<th>Code</th>
<th>Anticipated Start Term</th>
<th>Close Date</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>University</td>
<td>Florida Polytechnic University</td>
<td>Civil Engineering</td>
<td>Bachelor</td>
<td>140961</td>
<td>Fall 2023</td>
<td>04-30-22</td>
<td>OPEN</td>
</tr>
<tr>
<td>College</td>
<td>M箩합니다 College</td>
<td>Public Safety Administration</td>
<td>Bachelor</td>
<td>542999</td>
<td>Spring 2024</td>
<td>04-30-22</td>
<td>OPEN</td>
</tr>
</tbody>
</table>
Dear TOM DVORSKE,

FLORIDA POLYTECHNIC UNIVERSITY entered information for a potential bachelor’s degree program in APPRIsa.

The prospective program was titled Civil Engineering in CIP code family: 14 ENGINEERING.

Please take the opportunity to review the prospective program and provide feedback, if appropriate. The comment period for this prospective program closes on December 2, 2022.

We appreciate your continued participation in the system and the benefit your knowledge contributes to the development of bachelor’s degree programs in Florida.

Sincerely,

Mike Sfropoulos
Florida College System

Christy England
Board of Governors, State University System

- If the proposed program is a doctoral-level program, provide the date(s) of the external consultant’s review in the planning table. Include the external consultant’s report and the institution’s responses to the report as Appendix B.

Not Applicable
### Planning Process

<table>
<thead>
<tr>
<th>Date</th>
<th>Participants</th>
<th>Planning Activity Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2020</td>
<td>Academic Affairs Leadership: Provost Parker; Vice Provosts – Dvorske, Miller, Corpus; Department Chairs: Vollaro (Mechanical and environmental engineering), Taj (Data Science and Business Analytics), Rashid (Electrical and Computer Engineering), Towle (Computer Science), Hickman (Math and Physics).</td>
<td>Preliminary discussion among Academic Affairs leadership of prospective programs in line with University’s Strategic Plan.</td>
</tr>
<tr>
<td>04.2020</td>
<td>President Avent, Cabinet (Vice Presidents – Bowman, Delulio, Parker), Board of Trustees (Otto, Chair)</td>
<td>Included on the University’s Accountability plan is a note that Civil Engineering is on the docket for consideration sometime in the next 2-3 years.</td>
</tr>
<tr>
<td>06.2021</td>
<td>President, Cabinet, Board of Trustees (see above), Academic Affairs Leadership Provost Parker; Vice Provosts – Dvorske, Miller, Corpus; Department Chairs: Vollaro (Mechanical and environmental engineering), Taj (Data Science and Business Analytics and Computer Science), Brilleslyper (Applied Mathematics), and Assistant Chairs, Demirel (Computer Science), and Sanchez (Data Science)</td>
<td>Civil Engineering included on the Accountability Plan with a proposed date of submission to the University Board of Trustees for May 2022.</td>
</tr>
<tr>
<td>Fall 2021</td>
<td>Academic Affairs Leadership: see previous.</td>
<td>The decision was made to focus first on developing and delivering two master’s degrees and hold off for another year for CE.</td>
</tr>
<tr>
<td>Spring 2022</td>
<td>Vollaro, Chair, Mechanical and Environmental Engineering Department, AA Leadership (see above).</td>
<td>Preliminary planning for program content and focus, decision about timeline for development and implementation.</td>
</tr>
<tr>
<td>April, May 2022</td>
<td>Vice Provost of Academic Affairs, Tom Dvorske &amp; Vice Provost of Enrollment, Ben Mattew Corpus</td>
<td>Joint propose for FY’23 budget funds to conduct marketplace and positioning research for CE and other programs.</td>
</tr>
</tbody>
</table>
June - Aug 2022  | Vollaro, Mechanical and Environmental Engineering Department with collaboration from Taj, Dept. of Data Science and Business Analytics (DSBA) for specialized transportation concentration. | Program development continues with the intent to bring it to the University’s curriculum committee in the 2022-2023 academic year.
--- | --- | ---
July 2022  | Vice Provost of Academic Affairs, Tom Dvorske & Vice Provost of Enrollment, Ben Matte Corpus | Funds for R&D hit departments’ budgets. Contract with Eduventures initiated with multiple meetings between July and September 2022.
Fall 2022  | Vollaro, Chair, Mechanical and Environmental Department; Taj, Chair, DSBA Department | Ongoing development during faculty Welcome Back Week. Curriculum development continues through fall.
10.18.2022  | Vice Provost of Academic Affairs, Tom Dvorske | APPRISE Entry – No Comments
11.08.2022  | Vice Provost of Academic Affairs, Tom Dvorske | CAVP-ACG – No Comments
01.2023  | Vollaro, Chair, Mechanical and Environmental Department; Taj, Chair, DSBA Department | Curriculum submitted to Undergraduate Curriculum Committee (UCC) for consideration and approval
02.2023  | Provost, Terry Parker | Approves program and submits program to Board of Trustees for approval.

### E. Provide a timetable of key events necessary for the implementation of the proposed program following approval of the program by the Board office or the Board of Governors, as appropriate, and the program has been added to the State University System Academic Degree Program Inventory.

<table>
<thead>
<tr>
<th>Date</th>
<th>Implementation Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumes a April – July 2023 addition to inventory.</td>
<td></td>
</tr>
<tr>
<td>June 2023</td>
<td>Update systems to include Civil as a Degree option</td>
</tr>
<tr>
<td>June – July 2023</td>
<td>Update website and develop marketing materials for recruiting</td>
</tr>
<tr>
<td>August 2023</td>
<td>Officially launch program for incoming freshman only</td>
</tr>
</tbody>
</table>
III. Need and Demand

A. Describe the workforce need for the proposed program. The response should, at a minimum, include the following:

- current state workforce data as provided by Florida’s Department of Economic Opportunity
- current national workforce data as provided by the U.S. Department of Labor’s Bureau of Labor Statistics
- requests for the proposed program from agencies or industries in your service area
- any specific needs for research and service that the program would fulfill

Despite the impressive productivity out of Florida public higher-education system, annual demand for civil engineers outpaces productivity (even when including private institution productivity) by 45%, or nearly 700 unfilled openings. Moreover, over the next ten years, growth in related SOCs for Civil Engineering will rise faster (10%) than the national trend (5%). It is also one of the top three highest paying occupational groups in Florida. While Civil Engineering job postings fell during the Covid-19 pandemic, data signals a strong recovery in 2022, with Florida ahead of the national trend that is expected to match or surpass 2019 peak figures for postings.

From an industry standpoint, employment in heavy and civil engineering construction in Florida and related areas will grow between 8.7 to over 14% over the next ten years. Clearly, the demand for more programs is justified by the existing gap in the workforce and projected demand over the next ten years.

Florida Poly annual research expenditures continue on a positive trend from $689,000 in FY 2020 to a projected $2,030,000 in FY 2023. Among institutionally defined peer institutions, the average research expenditure for Civil Engineering is around 2.3 million.

The program in Civil Engineering would seek ABET accreditation at the earliest possible time (upon reaching one graduate). ABET accreditation is considered essential for Civil Engineers to obtain employment and licensure.

B. Provide and describe data that support student demand for the proposed program. Include questions asked, results, and other communications with prospective students.

Students are drawn to Florida Poly for several reasons – the 100% STEM focus, the smaller campus community environment, greater affinity with peers, and the opportunity to work closely with faculty, engage in co- and extra-curriculars that appeal to their interests, and many others. The University’s STEM focus enables Florida Poly to cultivate a unique student experience for highly talented, STEM-interested majors who are looking for that personal touch and strong community engagement.

Demand for Florida Poly continues to rise. Undergraduate applications have increased by 35% in 2021 and again by 45% in 2022. Not only has student demand for rigorous, quality STEM programs in small classes increased, recent empirical research has demonstrated improved
STEM academic outcomes, particularly for women, when there are small classes at small universities (Cissy, et al 2018, Bioscience). Based on data from Eduventures, the top five experiences Engineering-interested prospects are looking for are topic experiences the University offers: Internships; rigorous coursework; interactions with like-minded students, clubs, and activities; and research opportunities with faculty. This group also cares about academic strength, affordability, and career preparation. Florida Poly is low-cost to attend, and its graduates lead the system in median wages one-year after graduation.² The University is also recognized as the #1 public STEM University in the South.

Enrollment in Civil Engineering programs remained level during the pandemic, while overall engineering program enrollment dropped a few percentage points. Civil makes up for a relatively large share of the total engineering enrollment landscape and, despite no growth in the pandemic period, continued to outperform many other majors. Moreover, total programs nationally have grown by 19% since 2012, so while the pandemic saw a slowdown, that is expected to be temporary. National focus on infrastructure will continue to drive local, state and national demand for Civil Engineers. Conferrals in Florida have also continued to rise since 2012, with a one-time dip in 2014, though still underperforming relative to labor market demand.


Anecdotally, Admissions recruiting efforts routinely encounter prospects inquiring as to whether the University offers Civil Engineering. We do not formally communicate the program to students because it is not in our catalog or in the State Inventory.

C. Complete Appendix A – Table 1 (1-A for undergraduate and 1-B for graduate) with projected student headcount (HC) and full-time equivalents (FTE).

- Undergraduate FTE must be calculated based on 30 credit hours per year
- Graduate FTE must be calculated based on 24 credit hours per year

In the space below, provide an explanation for the enrollment projections. If students within the institution are expected to change academic programs to enroll in the proposed program, describe the anticipated enrollment shifts and impact on enrollment in other programs.

Enrollment projections are based on our experience with other recently implemented programs at the University. This typically begins with a “small” incoming class and gradually grows to a larger, sustainable enrollment. The University does not anticipate significant movement from other degree programs. The rate of major change at Poly is typically less than 3%. We will implement the program in fall 2023 for incoming first-year students only and transfer who have less than 30 credits. This method has worked for us for all of our previously implemented programs and provides students, the faculty, and the University to grow and make improvements along the way.

D. Describe the anticipated benefit of the proposed program to the university, local community, and the state. Benefits of the program should be described both quantitatively and qualitatively.

A program in civil engineering will be a draw to prospective students, increasing the University’s enrollment and marketplace visibility. Bringing in a different kind of
A prospective engineer will also contribute to our campus culture in diversifying student interests, clubs, co-curricular activities and programs. Having more students in the local community means more dollars flowing to the community, more housing off-campus needed, and more off-campus demand for amenities. This will benefit the local community and the campus with the expected growth and investment in surrounding infrastructure.

The University maintains close relationship with companies such as Whiting Turner, Chastain Skillman, and the City of Lakeland. These companies each play an important role in the various phases of planning, design and construction and reflect the diverse professional opportunities that are available to students studying industrial and civil engineering. Additionally, University connections with engineering firms such as Black & Veatch or Burns & McDonnell could be strengthened.

E. If other public or private institutions in Florida have similar programs that exist at the four- or six-digit CIP Code or in other CIP Codes where 60 percent of the coursework is comparable, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with appropriate personnel (e.g., department chairs, program coordinators, deans) at those institutions regarding the potential impact on their enrollment and opportunities for possible collaboration in the areas of instruction and research.

Florida is home to the following public and private institutions with Civil Engineering baccalaureate programs. Feedback from SUS deans and representatives on the CAVP-ACG indicates that there remains no concern about any potential impact to enrollments at these institutions. The private institutions produce few graduates in the field and it is not expected that students who are in the market for the private Universities are typically not the student population that Florida Poly attracts.

<table>
<thead>
<tr>
<th>Univ</th>
<th>Headcount, 5-yr Avg</th>
<th>Degrees, 5-yr Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAMU</td>
<td>32.8</td>
<td>4.4</td>
</tr>
<tr>
<td>FAU</td>
<td>196.6</td>
<td>57</td>
</tr>
<tr>
<td>FGCU</td>
<td>300</td>
<td>50.4</td>
</tr>
<tr>
<td>FIU</td>
<td>702.2</td>
<td>124.8</td>
</tr>
<tr>
<td>FSU</td>
<td>406.2</td>
<td>85.2</td>
</tr>
<tr>
<td>UCF</td>
<td>585.4</td>
<td>115.4</td>
</tr>
<tr>
<td>UF</td>
<td>534.2</td>
<td>141.6</td>
</tr>
<tr>
<td>UNF</td>
<td>228.8</td>
<td>35.6</td>
</tr>
<tr>
<td>USF</td>
<td>496.8</td>
<td>106.2</td>
</tr>
<tr>
<td>SUS</td>
<td>3483</td>
<td>720.6</td>
</tr>
</tbody>
</table>
Private Institutions | Conferred Degrees (2020-21) | Fall Enrollment (2021)
---|---|---
University of Miami | 13 | 46 | 41 | 120
Florida Institute of Technology | 28 | 0 | Unknown* | 0
Polytechnic University of Puerto Rico-Orlando | 0 | 0 | 0 | 0

* For FIT the enrollment includes all their engineering programs both with IPEDS and on their website (nothing specific to Civil).

F. Describe the process for the recruitment and retention of a diverse student body in the proposed program. If the proposed program substantially duplicates a program at FAMU or FIU, provide a letter of support from the impacted institution(s) addressing how the program will impact the institution’s ability to attract students of races different from that which is predominant on the FAMU or FIU campus. The institution’s Equal Opportunity Officer shall review this Section of the proposal, sign, and date the additional signatures page to indicate that all requirements of this section have been completed.

Goal #1 of Florida Poly’s strategic plan 2018 – 2023 is to enroll a high-quality incoming class. To impact this goal, the University has restructured its admission and financial aid operations to support stronger evidenced-based decision making, including market segmentation, reorganized its staffing model to improve coverage, tactics, and messaging, and changed its admissions process to include a holistic view of prospects through items such as essays and recommendation letters. Our enrollment continues to grow.

The programs at FIU and FAMU provided no indication of concern regarding any impact a Florida Poly civil engineering program might have on their enrollment or diversity characteristics. Moreover, the proposed program, while similar, as all civil programs must meet the same ABET criteria, differs in its unique elements and opportunities with respect to AMI and FIPR. No letters from either institution have been received.
IV. Curriculum

A. Describe all admission standards and all graduation requirements for the program. Hyperlinks to institutional websites may be used to supplement the information provided in this subsection; however, these links may not serve as a standalone response. For graduation requirements, please describe any additional requirements that do not appear in the program of study (e.g., milestones, academic engagement, publication requirements).

There are no special admissions requirements for this program. Admissions requirements are the same for all Florida Poly students and a minimum is set by the Florida Board of Governors. Florida Poly recruits and selects students the University believes can be successful in our programs. Particular attention may be paid to test scores, high school GPA, and type(s) of any accelerated credit earned.

In general, students must complete the 120 credit hour program with a 2.0 or better and satisfy all program requirements. Florida Poly also requires that students complete an internship or equivalent professional experience during their program. Complete Graduation Requirements for a Baccalaureate degree are found in the Academic Catalog and in FPU-5.0094AP.

The following are minimum requirements for awarding the baccalaureate degree:

1. Satisfactory completion of the applicable college or program degree requirements and established curriculum as identified in the University Catalog in effect at the beginning of the student’s most recent period of continuous enrollment.
2. Satisfactory completion of a minimum of one hundred twenty (120) credit hours with a cumulative GPA of 2.0 or better in coursework attempted at the University.
3. Satisfactory completion of thirty-six (36) credit hours of general education courses in communication, mathematics, social sciences, humanities, and natural sciences including six (6) credit hours of English Composition coursework and six (6) credit hours of mathematics courses at the college algebra level or higher. For the purposes of this rule, a grade of C or higher shall be considered successful completion.
4. Satisfactory completion of an additional six (6) credit hours of courses designated as “writing intensive” (W) by the University.
5. Satisfactory completion of at least forty-eight (48) credit hours of courses numbered 3000 and above.
6. Earn at least one-fourth of the credits applied towards the Baccalaureate degree, half of the major course credits, and the last thirty (30) credits in residence at Florida Poly. In cases of emergency, a maximum of six credits of the final thirty credits may be completed by correspondence or residence at another accredited institution with the approval of the program Department Chair and University Registrar.
7. Earn at least nine (9) credit hours in one or more summer semesters, unless the student entered the University with more than sixty (60) credit hours, or the University President or his/her designee waives this requirement.
8. Completion of the foreign-language admissions requirement.
9. Satisfactory completion of any pre-requisites or deficiencies as identified by the student’s Faculty Advisor
10. Submission of a completed Graduation Application to the Office of the University Registrar so that it is received by the Registrar on or before the “Graduation Application Deadline” as noted on the Academic Calendar for the semester in which the student anticipates graduating.
B. Describe the specific expected student learning outcomes associated with the proposed program and include strategies for assessing the proposed program’s learning outcomes. If the proposed program is a baccalaureate degree, include a hyperlink to the published Academic Learning Compact and the document itself as Appendix C.

The program in Civil Engineering follows criteria set forth by the Engineering Accreditation Commission of ABET. The student outcomes for Civil Engineering are as follows:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Program outcomes are supported by performance indicators – language that contextualizes these broader outcomes. Performance indicators are assessed in key courses throughout and near the end of the student’s curriculum. Data is collected on a regular basis and a portion of the learning outcomes are reviewed annually.

The Academic Learning Compact, included in Appendix C, will be published after the program has been included in the SUS Inventory and can be posted and advertised in compliance with regulation.

C. If the proposed program is an AS-to-BS capstone, provide evidence that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as outlined in State Board of Education Rule 6A-10.024. Additionally, please list the prerequisites, if any, and identify the specific AS degrees that may transfer into the proposed program.

☒ Not applicable to this program because it is not an AS-to-BS Capstone.

D. Describe the curricular framework for the proposed program, including the following information where applicable:
   - total numbers of semester credit hours for the degree
   - number of credit hours for each course
   - required courses, restricted electives, and unrestricted electives
   - a sequenced course of study for all majors, concentrations, tracks, or areas of emphasis
The proposed program in Civil Engineering requires that students earn 120 credit hours for the degree. Two views of the program are presented here.

### B.S. Civil Engineering

**Florida Poly Program Template Approved 4/7/2017 (upd. 09.07.2022)**

The following program curriculum template was approved by the UCC and the Provost in spring 2017. This template exists to ensure a certain level of consistency across new and existing programs in terms of general education, foundations, program core, and capstone requirements.

<table>
<thead>
<tr>
<th>Category</th>
<th>Section</th>
<th>Course</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Professional Foundations Core</td>
<td></td>
<td>EGN 1006 - Career Design for STEM Professionals</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IDS 4941 - Professional Experience Internship</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IDS 1380 - Foundational Lessons and Applications in Mathematics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EGN 1007C - Concepts and Methods for Engineering and Computer Science</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

II. General Education

**State Required Minimum: 36**

Rules:
1. Students must complete at least one course in each category to satisfy state of Florida regulation.

Section A Communication
- ENC 1101 - English Composition 1: Exp and Arg Writing (W) ♤ 3
- ENC 2210 - Technical Writing (W) 3

Section B Humanities (choose from)
- ARH 2000 - Art Appreciation (W) ♤ 3
- PHI 2010 - Introduction to Philosophy (W) ♤ 3
- HUM 2020 - Introduction to the Humanities (W) ♤ 3
- MUL 2010 - Music Appreciation (W) ♤ 3
- LIT 2000 - Introduction to Literature (W) ♤ 3
- IDS 2144 Legal, Ethical, and Management Issues in Technology 3

Section C Social Science (choose from)
- AMH 2010 - American History to 1877 3
- AMH 2020 - American History Since 1877 (W) ♤ Satisfies Florida State Civics Requirement 3
- AMH 2930 - History: Special Topics 3
- ECO 2013 - Principles of Macroeconomics (W) ♤ 3
- ECO 2023 - Principles of Microeconomics (W) 3
- PSY 2012 - General Psychology (W) ♤ 3

Section D Mathematics
- MAC 2311 - Analytic Geometry and Calculus 1 ♤ 4
- MAP 2302 - Differential Equations 3

Section E Natural Sciences
- PHY 2048 - Physics 1 ♤ 3
- PHY 2048L - Physics 1 Laboratory 1
- CHM 2045 - Chemistry 1 ♤ 3
- CHM 2045L - Chemistry 1 Laboratory (W) 1

Section F Advanced Math and Science -- GE
- STA 3032 - Probability and Statistics 3

II. Program Foundations / Advanced Math & Science

**15 credits**: 12 to 15

- MAC 2312 - Analytic Geometry and Calculus 2 4
- MAC 2313 - Analytic Geometry and Calculus 3 4
- PHY 2049 - Physics 2 3
- PHY 2049L - Physics 2 Laboratory 1
- COP 2271C - Introduction to Computation and Programming (required for all 3

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The following program curriculum template was approved by the UCC and the Provost in spring 2017. This template exists to ensure a certain level of consistency across new and existing programs in terms of general education, foundations, program core, and capstone requirements.

- Programs must require 12 credits of Humanities & Social Sciences. These may be broken down evenly or by 3/9; 9/3; however, students must complete at least 3 credits of state required coursework in each category.
- Students must complete at least one course in each category to satisfy state of Florida regulation.
- Students must take 9 hours of Humanities and Social Sciences, to be divided 6/3 between the areas.

Included in Program Core 15 of 99

Students must take 9 hours of Humanities and Social Sciences, to be divided 6/3 between the areas.
A second view, a program flow chart, shows the optimal path through the degree program.

<table>
<thead>
<tr>
<th>III. Program Core</th>
<th>53</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 credits represents a minimum, depending on how many credits are included in Category II, above.</td>
<td></td>
</tr>
<tr>
<td>Pre-Capstone design sequences should be included in this category--may be listed as a subset in catalog to stand out.</td>
<td></td>
</tr>
</tbody>
</table>

Add Rows as needed

<table>
<thead>
<tr>
<th>The following should be counted in this category:</th>
</tr>
</thead>
<tbody>
<tr>
<td>* IDS 1380 - FLAME: Credits: 3</td>
</tr>
<tr>
<td>* EGN 1007C - Concepts and Methods for Engineering and Computer Science: Credits: 3</td>
</tr>
</tbody>
</table>

## Design Block

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGN 1006 - Career Design for STEM Professionals</td>
<td>1</td>
</tr>
<tr>
<td>IDS 1380 - Foundational Lessons and Applications in Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>EGN 1007C - Concepts and Methods for Engineering and Computer Science</td>
<td>1</td>
</tr>
<tr>
<td>EGN 2001C - Skills &amp; Design 1</td>
<td>2</td>
</tr>
<tr>
<td>EGN 20XXC - Skills &amp; Design for Civil and Environmental Engineering</td>
<td>2</td>
</tr>
<tr>
<td>XXX - Civil Engineering Lab 1 - Surveying &amp; Infrastructure Design Practices</td>
<td>2</td>
</tr>
<tr>
<td>XXX - Civil Engineering Lab 2 - Soil, Structures, and Foundations</td>
<td>3</td>
</tr>
<tr>
<td>XXX - Civil Engineering Senior Design Capstone 1</td>
<td>see</td>
</tr>
<tr>
<td>XXX - Civil Engineering Senior Design Capstone 2</td>
<td>below</td>
</tr>
<tr>
<td>XXX - Civil Engineering Senior Design Capstone 1</td>
<td></td>
</tr>
<tr>
<td>XXX - Civil Engineering Senior Design Capstone 2</td>
<td></td>
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</tbody>
</table>

## CE Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGN 3311 - Statics</td>
<td>3</td>
</tr>
<tr>
<td>EGN 3331 - Strength of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ENV XXX - Foundations of Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>XXX - Fluid Mechanics for Civil and Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>XXX - Civil and Construction Engineering Materials</td>
<td>3</td>
</tr>
<tr>
<td>XXX - Structural Theory</td>
<td>3</td>
</tr>
<tr>
<td>CWR 4202 - Applied Hydrology and Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>XXX - Intro to Construction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>XXX - Soil Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>ENV 4514 - Waste and Wastewater Treatment</td>
<td>3</td>
</tr>
<tr>
<td>EGN 4611 - Engineering Economics</td>
<td>3</td>
</tr>
<tr>
<td>ENV 4612C - Sustainability in Engineering</td>
<td>3</td>
</tr>
<tr>
<td>XXX - Engineering Project Management</td>
<td>3</td>
</tr>
</tbody>
</table>

## V. Electives & Other Requirements

<table>
<thead>
<tr>
<th>The number of electives may be reduced to fill out the program core or meet institutional or state required general education requirements.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 2046 - Chemistry 2</td>
</tr>
<tr>
<td>CHM 2046L - Chemistry 2 Lab</td>
</tr>
<tr>
<td>Choose from Mechanical Engineering / Environmental Engineering lists</td>
</tr>
<tr>
<td>Civil Engineering Core Elective</td>
</tr>
</tbody>
</table>

## VI. Capstone

<table>
<thead>
<tr>
<th>All programs are required to have a 6 credit senior capstone sequence.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXX-4XXX Senior Capstone 1</td>
</tr>
<tr>
<td>XXX-4XXX Senior Capstone 2</td>
</tr>
</tbody>
</table>

## TOTAL HOURS

| 120 |
E. Provide a brief description for each course in the proposed curriculum.

Freshman Year – STEM Core:

- **IDS 1380 - Foundational Lessons in Applications of MathEmatics**
  - Credits: 3
  - Course Description: This foundational course provides practical mathematical application to problems in engineering, computer science, and related STEM disciplines. All STEM applications will be presented within the context math topics and reinforced through extensive examples of their use in the core STEM courses. This course is designed to put the application first and then apply the mathematics to model or simulate it with hand calculations and/or computer software. Student will focus on their ‘habits of mind’ to consciously practice problem solving techniques, exercise best practice formats, and implement software that will provide the foundation for future success in a STEM curriculum.
  - Prerequisites: None

- **CHM 2045 - Chemistry 1**
  - Credits: 3
  - Course Description: This course introduces the principles of chemistry and their applications based upon the study of physical and chemical properties of the elements. Topics covered in this class includes: stoichiometry, atomic and molecular structure, the states of matter, chemical bonding, thermochemistry, and gas laws.
  - Prerequisites: None
  - Co-requisite or Prerequisite: Passing grade in CHM 1025
  - Co-requisite: CHM 2045L - Chemistry 1 Laboratory

- **CHM 2045L - Chemistry 1 Laboratory**
  - Credits: 1
  - Course Description: Students will participate in laboratory experiments designed to reflect the topics presented in CHM 2045 - Chemistry 1. This course meets communication/writing-intensive requirements.
  - Prerequisites: None
  - Co-requisite: CHM 2045 - Chemistry 1

- **EGN 1006 - Career Design for STEM Disciplines**
  - Credits: 1
  - Course Description: This foundation course will provide students with an experience to engage in the academic process, training in skills for academic survival and professional success with implementation through participation in hands-on team project using basic skills from various STEM disciplines. Students will be introduced to teaming and leadership skills to gain introductory knowledge of design principles and exercise communication skills basic to academic and professional success.
  - Primary Term(s) Offered: Fall, Spring Rotation Year Annually

- **MAC 2311 - Analytic Geometry and Calculus 1**
  - Credits: 4
  - Course Description: This course is an introduction to analytic geometry; limits; continuity; differentiation of algebraic, trigonometric, exponential and logarithmic functions; applications of the derivative; inverse trigonometric functions; differentials; introduction to integration; and the fundamental theorem of calculus.
  - Prerequisites: Any of the following:
- a grade of C in a MAC course numbered 1147 or higher
- IB credit for a MAC course numbered 1147 or higher.
- Any course grades, AP or IB scores used to meet this prerequisite must be on file by registration.

- **ENC 1101 - English Composition 1: Expository and Argumentative Writing**
  - Credits: 3
  - Course Description: This course focuses on the principal elements of writing clearly, efficiently and effectively. Logical arguments, building research skills and developing critical thinking through reading, writing and discussion are also presented. This course meets communication/writing-intensive requirements (W).
  - Prerequisites: None

- **EGN 1007 - Concepts and Methods for Engineering and Computer Science**
  - Credits: 1
  - Course Description: Students learn foundational skills, calculation methods, and basic programming in Excel for engineering problems. This course supports students’ abilities to calculate and analyze data and provide them a foundation for applying engineering skills throughout the curriculum, in internship, and employment.
  - Prerequisites: None

- **PHY 2048 - Physics 1**
  - Credits: 3
  - Course Description: This is the first of a two-semester sequence of physics for technology and engineering. The course covers Newtonian mechanics and includes motion, vectors, Newton’s laws, work and conservation of energy, systems of particles, collisions, equilibrium, oscillations, thermodynamics and waves.
  - Prerequisites: High-school Physics and (PHY 2020 or the equivalent) and MAC 2311 - Analytic Geometry and Calculus 1
  - Co-requisite or Prerequisite: MAC 2312 - Analytic Geometry and Calculus 2
  - Co-requisite: PHY 2048L - Physics 1 Laboratory

- **PHY 2048L - Physics 1 Laboratory**
  - Credits: 1
  - Course Description: This laboratory experience for PHY 2048 Physics with MAC 2311 - Analytic Geometry and Calculus 1 provides practical applications of Newtonian mechanics.
  - Prerequisites: None
  - Co-requisite: PHY 2048 - Physics 1

- **COP 2271 - Introduction to Computation and Programming**
  - Credits: 3
  - Course Description: This course is an introduction to computational thinking and the art of computer programming using the C programming language. Students will learn fundamental programming concepts and systematic design techniques. They will use them to write programs that computationally solve and reduce problems. At the end of the course, students will be able to use a programming language without focusing on the language specifics. No prior programming background is required and a working knowledge of high school level algebra is expected.
  - Prerequisites: MAC 1147 - Pre-calculus Algebra and Trigonometry or equivalent, e.g. Aleks score

- **MAC 2312 - Analytic Geometry and Calculus 2**
  - Credits: 4
Course Description: Techniques of integration; applications of integration; differentiation and integration of inverse trigonometric, exponential, and logarithmic functions; sequences and series are presented in this class.

- **Prerequisites:** A grade of C or better in MAC 2311 - Analytic Geometry and Calculus 1

**ENC 2210 - Technical Writing**

- **Credits:** 3
- **Course Description:** This course focuses on the forms, formats, and genres of business, government, professional, and technical communication. Students are given opportunities to practice creating proposals, reports, applications, and resumes. This course meets communication/writing-intensive requirements (W).
- **Prerequisites:** ENC 1101 - English Composition 1: Expository and Argumentative Writing

**Sophomore Year:**

**EGN 2001C - Skills and Design 1**

- **Credits:** 2
- **Course Description:** This course aims to integrate engineering design activities with engineering graphical communications using Computer Aided Design (CAD) software and professional skills emphasizing teaming and leadership, and communication in a variety of mediums. Computer Aided Design (CAD) software is used as a tool to create 2D and 3D sketches, 3D parts, 3D assemblies, and engineering drawing per industry standards. Skills in parametric modeling include planning and model strategy, dimensioning and tolerances, perspectives, and use of basic features in the CAD software. The project will allow students to integrate these basic skills with additive manufacturing processes to develop solutions to real world engineering problems. This course will develop students’ knowledge of design processes as well as basic mechanical engineering skills, which will begin to prepare them for future open-ended problems in their capstone design course.
- **Prerequisites:** MAC 2311 - Analytic Geometry and Calculus 1

**CHM 2046 – Chemistry 2**

- **Credits:** 3
- **Course Description:** This course introduces the principles of chemistry and their applications based upon the study of physical and chemical properties of the elements. Topics covered in this class includes solutions, chemical thermodynamics, chemical kinetics, acid-based equilibrium, electrochemistry, inorganic chemistry, nucleic chemistry, organic chemistry, biochemistry, transition metals (biological and medical applications.
- **Co-requisite or Prerequisite:** CHM 2045 - Chemistry 1 and CHM 2045L - Chemistry 1 Laboratory
- **Co-requisite:** CHM 2046L - Chemistry 2 Laboratory
- **Course Co-Requisites:** A grade of C or higher in CHM2045 and MAC1147 or equivalent

**CHM 2046L - Chemistry 2 Laboratory**

- **Credits:** 1
- **Course Description:** Students will participate in laboratory experiments designed to reflect the topics presented in CHM 2046 - Chemistry 2. This course meets communication/writing-intensive requirements (W).
- **Prerequisites:** None
- **Co-requisite:** CHM 2046 - Chemistry 2

**EGN 3311 - Statics**

- **Credits:** 3
Course Description: This course covers the equilibrium of particles frames, machine, trusses and rigid bodies in two and three dimensions using vector algebra.

Prerequisites: PHY 2048 - Physics 1

Co-requisite or Prerequisite: MAC 2312 - Analytic Geometry and Calculus 2

**MAC 2313 - Analytic Geometry and Calculus 3**

- Credits: 4
- Course Description: This course covers solid analytic geometry, vectors, partial derivatives and multiple integrals.
- Prerequisites: Letter grade of C or higher in MAC 2312 - Analytic Geometry and Calculus 2

**PHY 2049 - Physics 2**

- Credits: 3
- Course Description: The second of a two-semester sequence of physics for scientists and engineers. Content includes Coulomb’s law, electric fields and potentials, capacitance, currents and circuits, Ampere’s law, Faraday’s law, inductance, Maxwell’s equations, electromagnetic waves, ray optics, interference and diffraction.
- Prerequisites: PHY 2048 - Physics 1 and MAC 2312 - Analytic Geometry and Calculus 2
- Co-requisite: PHY 2049L - Physics 2 Laboratory

**PHY 2049L - Physics 2 Laboratory**

- Credits: 1
- Course Description: This laboratory experience for PHY 2049 - Physics 2 with MAC 2312 - Analytic Geometry and Calculus 2 illustrates the practical applications of Coulomb’s law, electric fields and potentials, capacitance, currents and circuits, Ampere’s law, Faraday’s law, inductance, Maxwell’s equations, electromagnetic waves, ray optics, interference and diffraction.
- Prerequisites: None
- Co-requisite: PHY 2049 - Physics 2

**EGN 3331 - Strength of Materials**

- Credits: 3
- Course Description: Topics include properties of materials; Mohr’s Circle; Hooke’s Law for isotopic materials; stress and strain; stress strain diagrams; design loads; safety and working stresses; shear and moment diagrams; beams of two materials; indeterminate axially-loaded members; torsional shearing stresses and loads; displacements; and flexural and transverse shear stresses.
- Prerequisites: MAC 2312 - Analytic Geometry and Calculus 2 and EGN 3311 - Statics and PHY 2048 - Physics 1

**MAP 2302 - Differential Equations**

- Credits: 3
- Course Description: The relationship between differential equations and initial conditions to physical problems in engineering, physics, technology and other applied areas is discussed. Students will be able to formulate, solve, and analyze the results of mathematical models of elementary physical problems and apply them. Topics include: first-order ordinary differential equations, theory of linear ordinary differential equations, solution of linear ordinary differential equations with constant coefficients, the Laplace transform and its application to solving linear ordinary differential equations.
- Prerequisites: MAC 2312 - Analytic Geometry and Calculus 2 (with a minimum grade of C)
Junior Year:

- **STA 3032 - Probability and Statistics**
  - Credits: 3
  - Course Description: This course is a survey of the basic concepts in probability and statistics with applications in electrical, mechanical, and civil engineering. Topics include probability, common discrete and continuous probability distributions, estimation and hypothesis testing, and simple regression.
  - **This course is not equivalent to STA 3036 - Probability and Statistics for Business, Data Science, and Economics and will not be approved as a substitution if you change majors into DSBA.**
  - Prerequisites: MAC 2312 - Analytic Geometry and Calculus 2 with a grade of C or higher

- **IDS 4941 - Professional Experience Internship**
  - Credits: 0
  - Course Description: This course is a co-curricular requirement that provides students with the opportunity to experience working in a professional environment or community-based organization where they can apply the knowledge and skills they have gained from their program.
  - This requirement may be satisfied through a traditional internship provided by an employer; a community service experience; or some other form of professional/entrepreneurial experience; pending approval by the Provost or designee. The student is assessed resident tuition and the associated fees for one credit hour (see BOG Regulation 7.0003 and University Policy FPU 4.001). A grade of satisfactory/unsatisfactory is earned and included on the transcript for the course.
  - Prerequisites: Completion of at least 72 Credit hours, or permission of Department Chair, Provost, or designee.

- **CWR 4202 - Applied Hydrology and Hydraulics**
  - Credits: 3
  - Course Description: Physical processes governing occurrence and distribution of precipitation, infiltration, evaporation, and surface water runoff. Statistical hydrology, unit hydrograph theory, and watershed modeling. Floodplain hydrology and open channel hydraulics. Urban hydrology, hydraulics and design of storm sewers, and design of detention structures for flood control.
  - Prerequisites: MAP 2302 - Differential Equations and EGN 3343 - Engineering Thermodynamics and EML 3015 - Fluid Mechanics and ENV 2003 - Introduction to Environmental Engineering

Senior Year:

- **ENV 4514 - Water and Wastewater Treatment**
  - Credits: 3
  - Course Description: Design of water and wastewater treatment units.
  - Prerequisites: ENV 3008 Environmental Chemistry and ENV 3004C Environmental Engineering Lab I; Chemistry II - Civil Engineering majors.

- **EGN 4611 - Engineering Economics**
  - Credits: 3
  - Course Description: The objective is to help engineering students recognize and understand the importance of cost factors that are inherent in all engineering decisions. Development of ability to handle engineering problems that involve economic factors. The course includes economic environment, selections in present economy, value
analysis, critical path economy, interest and money-time relationships, depreciation and valuation, capital financing and budgeting, basic methods for undertaking economic studies, risk, uncertainty and sensitivity, selections between alternatives, fixed, increment, and sunk costs, the effects of income taxes in economic studies, replacement studies, minimum cost formulas, economic studies of public projects, economic studies in public utilities. Effects of inflation are considered at each step.

- **ENV 4612 - Sustainability in Engineering**
  - Prerequisites: Permission from Department Chair
  - Credits: 3
  - Course Description: Sustainable practices are defined and green engineering principles are directed towards engineering design. Life cycle analysis are used to assess environmental, economic, and societal impacts to evaluate material choices, construction practices, water and waste treatment practices, transportation infrastructure, policy, and planning, agricultural practices, and energy generation and consumption.
  - Prerequisites: CHM 2046 Chemistry 2 and ENV 2003 - Introduction to Environmental Engineering and ENV 3008 Environmental Chemistry or other equivalent.
NEW COURSES
Civil Engineering

EGN2002C – Skills and Design 2 (active course- not new)
Credits: 2
- Course Description: This course aims to advance the knowledge and experience of students to use engineering tools and professional skills to seek solutions to real world problems. Students will engage in engineering design activities, use Computer Aided Design (CAD) software, and continue to mature with professional skills emphasizing teaming and leadership, and communication in a variety of mediums. Intermediate Computer Aided Design (CAD) skills including parts assembly, model motion and analysis, and design tables. The project will allow students to integrate these intermediate level skills with subtractive manufacturing processes. This course will enhance students’ knowledge of design processes as well as build intermediate level mechanical engineering skills, which will continue to prepare them for future open-ended problems in their capstone design course.
- Prerequisites: EGN 2001C - Skills and Design 1
- Co-requisite or Prerequisite: EGN 3311 - Statics

Soil Mechanics
Credits: 3
- PHYSICAL PROPERTIES OF SOILS, COMPACTION, FLOW OF WATER THROUGH SOIL, DISTRIBUTION OF STRESS WITHIN SOIL AND CONSOLIDATION.

Civil Engineering Lab 1
Credits: 2
- A LAB EXPERIENCE IN DEPARTMENTAL FACILITIES INCLUDING THE SUBJECT AREAS OF STRUCTURES, MATERIALS FLUIDS, TRANSPORTATION, SOILS, ENGINEERING MECHANICS AND ENVIRONMENTAL ENGINEERING.

Fluid Mechanics for Civil and Environmental Engineering
Credits: 3
- BASIC PRINCIPLES OF CONTINUUM FLUID MECHANICS AND TRANSPORT CONCEPTS. VISCOUS FLUID THEORY; MOMENTUM AND ENERGY CONSIDERATION. INTRODUCTION TO HYDRAULICS, PIPE FLOW.

Civil and Construction Engineering Materials
Credits: 3
- A STUDY OF THE PRINCIPAL MATERIALS USED FOR ENGINEERING PURPOSES WITH SPECIAL ATTENTION TO THEIR MECHANICAL PROPERTIES AND THE IMPORTANCE OF THESE PROPERTIES TO THE ENGINEER.

Structural Theory
Credits: 3
- ADVANCED MECHANICS OF MATERIALS APPLIED TO CIVIL STRUCTURAL SYSTEMS, ELASTICITY, TORSION, INELASTIC BENDING, FAILURE THEORY FOR CONCRETE AND SOILS, COMPATIBILITY, EQUILIBRIUM, AND ENERGY METHODS.

Civil Engineering Lab 2 (repeat of Lab 1)
Credits: 3
- A LAB EXPERIENCE IN DEPARTMENTAL FACILITIES INCLUDING THE SUBJECT AREAS OF STRUCTURES, MATERIALS FLUIDS, TRANSPORTATION, SOILS, ENGINEERING MECHANICS AND ENVIRONMENTAL ENGINEERING.

Intro to Construction Engineering
Credits: 3
- AN INTRODUCTION TO THE THEORY AND PRINCIPLES OF CONSTRUCTION ENGINEERING AND ENGINEERING MANAGEMENT. EMPHASIS ON PREDESIGN, PLANNING, SCHEDULING,
CONTRACTS AND SPECIFICATIONS, CONSTRUCTION METHODS AND EQUIPMENT, AND CONSTRUCTION SAFETY.

**Engineering Project Management**

Credits: 3

- THIS COURSE PROVIDES AN OVERVIEW OF PROJECT ORGANIZATION, TEAM FORMATIONS, AND OPERATIONS INVOLVING MATRIX TEAMS (AS WELL AS OTHER FORMULATIONS) AND AN OVERVIEW OF THE PROJECT LIFE CYCLE. PROJECT PLANNING, SCHEDULING, AND CONTROL ARE ALSO DISCUSSED AS WELL AS ECONOMIC DECISIONS INVOLVING PROJECTS SUCH AS CAPITAL BUDGETING, RISK ANALYSIS, AND REPLACEMENT DECISIONS. STUDENTS MAKE ORAL AND WRITTEN PRESENTATIONS. PERMISSION OF THE INSTRUCTOR IS REQUIRED IN ORDER TO ENROLL IN THIS COURSE.

**Foundations of Environmental Engineering**

Credits: 3

- INTRODUCTION TO TOPICS IN ENVIRONMENTAL ENGINEERING, INCLUDING WATER AND AIR QUALITY, SUSTAINABLE MATERIALS MANAGEMENT, AND ECOSYSTEMS.

F. For degree programs in medicine, nursing, and/or allied health sciences, please identify the courses that contain the competencies necessary to meet the requirements identified in [Section 1004.08, Florida Statutes](#). For teacher preparation programs, identify the courses that contain the competencies necessary to meet the requirements outlined in [Section 1004.04, Florida Statutes](#).

☒ Not applicable to this program because the program is not a medicine, nursing, allied health sciences, or teacher preparation program.

G. Describe any potential impact on related academic programs or departments, such as an increased need for general education or common prerequisite courses or increased need for required or elective courses outside of the proposed academic program. If the proposed program is a collaborative effort between multiple academic departments, colleges, or schools within the institution, provide letters of support or MOUs from each department, college, or school in Appendix D.

The program in Civil Engineering is anticipated to help the University grow its overall enrollment. As such, there is not an expectation that this program will unnecessarily impact or burden any one department as the overall growth plan for the University assumes additional degree programs. Florida Poly curricula is, by its nature, interdisciplinary in many areas. It is routine for programs to offer courses that have a mix of students from different disciplines, particularly design-based courses and core engineering science courses.

The program in Civil Engineering will be taught out of the Environmental Engineering Department (which will become a Civil and environmental Engineering Department).

H. Identify any established or planned educational sites where the program will be offered or administered. If the proposed program will only be offered or administered at a site(s) other than the main campus, provide a rationale.

The program will be offered at greater than 50% face-to-face format on the University’s main campus. Florida Poly has no plans at present to develop off-site locations for educational delivery.
I. Describe the anticipated mode of delivery for the proposed program (e.g., face-to-face, distance learning, hybrid). If the mode(s) of delivery will require specialized services or additional financial support, please describe the projected costs below and discuss how they are reflected in Appendix A – Table 3A or 3B.

The program will be offered at greater than 50% face-to-face format on the University’s main campus. Therefore, no new or special resources will be necessary to support any distance-learning modality. Existing resources are sufficient to deliver the small amount that is already present in all of our curriculum (i.e. 2 credits, hybrid).

J. Provide a narrative addressing the feasibility of delivering the proposed program through collaboration with other institutions, both public and private. Cite any specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

Florida Poly collaborates with UCF and USF on research and for faculty opportunities. With UCF, we have developed a future-faculty program that brings doctoral students near the end of their program onto our campus to teach courses and get a flavor of the actual academic career.

On the research front, many of our faculty work with and in labs at both UCF and USF and with colleagues at those institutions. The program in Civil Engineering will similarly benefit from existing relationships and, undoubtedly, will encourage further collaboration between institutions.

At this point, any queries would be theoretical. As we onboard new faculty, more conversations about potential collaborations are anticipated.

K. Describe any currently available sites for internship and/or practicum experiences. Describe any plans to seek additional sites in Years 1 through 5.

☐ Not applicable to this program because the program does not require internships or practicums.

As civil engineers design, build and supervise infrastructure projects and systems, we will be able to utilize many of our current corporate and government connections for internship sites. Specific examples include:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Company</th>
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</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>Black &amp; Veatch</td>
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<tr>
<td>Engineering</td>
<td>Burns &amp; McDonnell</td>
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<td>Engineering</td>
<td>Chastain-Skillman</td>
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<tr>
<td>Engineering</td>
<td>Jacobs Engineering Services</td>
</tr>
<tr>
<td>Government</td>
<td>City of Lakeland</td>
</tr>
</tbody>
</table>

The University’s Career Services Center has developed the following “Career Growth Plan” for all new programs the University implements:
• Year 1: Announce with our local audience the availability of civil engineering at Florida Poly.
• Year 2: Utilize Curriculum Advisory Boards to strategize on outreach for civil engineering career opportunities.
• Year 3: Ensure civil engineering is represented at campus career events.
• Year 4: Review and assess additional steps necessary to connect students with professional opportunities in the civil engineering field.

V. Program Quality Indicators - Reviews and Accreditation

A. List all accreditation agencies and learned societies that would be concerned with the proposed program. If the institution intends to seek specialized accreditation for the proposed program, as described in Board of Governors Regulation 3.006, provide a timeline for seeking specialized accreditation. If specialized accreditation will not be sought, please provide an explanation.

- ABET – Engineering Accreditation Commission
- American Society of Civil Engineers (ASCE)

Civil Engineering must be ABET accredited to provide value to students; therefore, at the earliest possible date (last semester of the first program graduate), the University will submit a request for evaluation and begin the process with the Engineering Accreditation Commission of ABET. Assuming a fall 2023 implementation, the process could begin as early as spring 2027.

B. Identify all internal or external academic program reviews and/or accreditation visits for any degree programs related to the proposed program at the institution, including but not limited to programs within academic unit(s) associated with the proposed degree program. List all recommendations emanating from the reviews and summarize the institution’s progress in implementing those recommendations.

Florida Polytechnic University programs in Mechanical Engineering, Computer Engineering, Electrical Engineering, and Computer Science all hold ABET accreditation. All programs were approved for a 6-year period, with Mechanical having submitted a 3-year report, which was accepted with no additional report required.

C. For all degree programs, discuss how employer-driven or industry-driven competencies were identified and incorporated into the curriculum. Additionally, indicate whether an industry or employer advisory council exists to provide input for curriculum development, student assessment, and academic-force alignment. If an advisory council is not already in place, describe any plans to develop one or other plans to ensure academic-workforce alignment.

Learning Outcomes for the program in Civil Engineering come directly from ABET criterion 3. These outcomes are developed by collection of societies of professional engineers and academics who make up the organization called ABET; thus, the learning outcomes are industry/employer-driven.

Similarly, ABET requires that its programs include “Educational Objectives” (PEOs) that are
broad statements that speak to what graduates should accomplish within a few years of earning their degree. These objectives are periodically reviewed by the program’s Curriculum Advisory Board (CAB), made up of industry partner representatives and academics from other institutions. When starting a new program, Florida Poly draws on the PEOs of its other programs as a starting point for the CAB’s review. The PEOs for Civil Engineering are as follows:

- Graduates demonstrate growth in professional development through graduate study or professional training.
- Graduates demonstrate effective team work as members and leaders in professional environments.
- Graduates demonstrate employability in industry, government, and entrepreneurial endeavors.

Florida Polytechnic University’s mission is to “serve students and industry through excellence in education, discovery, and application of engineering and applied sciences.” The program in Civil Engineering directly supports these goals through program content in engineering designed to educate students to be successful professionals that serve a range of public, private, and government industries and enhance the research reputation and economy of the state of Florida in keeping with the University System’s strategic plan.

VI. Faculty Participation

A. Use Appendix A – Table 2 to identify existing and anticipated full-time faculty who will participate in the proposed program through Year 5, excluding visiting or adjunct faculty. Include the following information for each faculty member or position in Appendix A – Table 2:

- the faculty code associated with the source of funding for the position
- faculty member’s name
- highest degree held
- academic discipline or specialization
- anticipated participation start date in the proposed program
- contract status (e.g., tenure, tenure-earning, or multi-year annual [MYA])
- contract length in months
- percent of annual effort that will support the proposed program (e.g., instruction, advising, supervising)

This information should be summarized below in narrative form. Additionally, please provide the curriculum vitae (CV) for each identified faculty member in Appendix E.

As Appendix A illustrates, the University has six full-time, multi-year contract faculty who provide direct and supportive instruction and research associated with the program. Additionally, the University is posting advertisements for Civil Engineering faculty in spring 2023; however, we are off-cycle. In fall 2023, we will begin faculty recruitment for the program for the upcoming years. By Year 5, we anticipate at least four full-time Civil Engineering credentialed faculty to be on staff to provide primary delivery and quality assurance of the program.
B. Provide specific evidence demonstrating that the academic unit(s) associated with the proposed program have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, and other qualitative indicators of excellence (e.g., thesis, dissertation, or research supervision).

The following workload summary describes the relative proportion of each faculty members’s workload. CVs illustrate their productivity in the areas of research, in particular.

Appendix D. Faculty Workload Summary

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>PT or FT</th>
<th>Classes Taught (Course No./Credit Hrs.)</th>
<th>Teaching</th>
<th>Research or Scholarship</th>
<th>Service/Other</th>
<th>Acad/Admin</th>
<th>% Time Devoted to the Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary Vollaro</td>
<td>FT</td>
<td>IDS 1380 Fundamental Lessons in Applications of Mathematics</td>
<td>33%</td>
<td>13%</td>
<td>54%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Elizabeth Kames</td>
<td>FT</td>
<td>EGN 1006 Career Design for STEM Discipline</td>
<td>78.66%</td>
<td>14.30%</td>
<td>7.10%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EGN 2001C Skill and Design 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EGL 4500 Design &amp; Analysis of Machine Components</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Xiaofan Xu</td>
<td>FT</td>
<td>ENV 3008 Environmental Chemist</td>
<td>50%</td>
<td>37.50%</td>
<td>12.50%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ENS 3048 GIS Applications in Environmental Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malak Anshassi</td>
<td>FT</td>
<td>ENV 4341 Solid &amp; Hazardous Waste Management</td>
<td>50%</td>
<td>41.67%</td>
<td>8.33%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IDS 1380 Fundamental Lessons in Applications of Mathematics</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Derek Hinderson</td>
<td>FT</td>
<td>CWR 4402 Applied Hydrology &amp; Hydraulics</td>
<td>64.20%</td>
<td>25.00%</td>
<td>10.80%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EGN 1006 Career Design for STEM Discipline</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>ENV 3004C Environmental Engineering Lab 1</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>EVR 1001 Environmental Science Lab</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
VII. Budget

A. Use Appendix A – Table 3A or 3B to provide projected costs and associated funding sources for Year 1 and Year 5 of program operation. In narrative form, describe all projected costs and funding sources for the proposed program(s). Data for Year 1 and Year 5 should reflect snapshots in time rather than cumulative costs.

For Fiscal Year 2023, the University received an increase to its base budget of approximately $5.1 million, which goes almost entirely to supporting program growth, including new faculty. The initial cost of the Civil Engineering program is well below this threshold, even as projected in year five.

Additionally, in 2018 the University received a recurring appropriation of $4.8 million that we have applied to the development and implementation of new programs. Of this appropriation, around $1.4 million has yet to be directly allocated to a degree program. The total operating revenue for new programs and faculty sits at around $6.5 million.

B. Use Appendix A – Table 4 to show how existing Education & General (E&G) funds will be reallocated to support the proposed program in Year 1. Describe each funding source identified in Appendix A – Table 4, and provide a justification below for the reallocation of resources. Describe the impact the reallocation of financial resources will have on existing programs, including any possible financial impact of a shift in faculty effort, reallocation of instructional resources, greater use of adjunct faculty and teaching assistants, and explain what steps will be taken to mitigate such impacts.

As noted in the previous section (VII.A.), due to recurring appropriations to the University, allocations will not impact or create any shifts in the resource support for existing programs.

C. If the institution intends to operate the program through continuing education, seek approval for market tuition rate, or establish a differentiated graduate-level tuition, as described in Board of Governors Regulation 8.002, provide a rationale and a timeline for seeking Board of Governors’ approval.

☒ Not applicable to this program because the program will not operate through continuing education, seek approval for market tuition rate, or establish a differentiated graduate-level tuition.

D. Provide the expected resident and non-resident tuition rate for the proposed program for both resident and non-resident students. The tuition rates should be reported on a per credit hour basis, unless the institution has received approval for a different tuition structure. If the proposed program will operate as a continuing education program per Board of Governors Regulation 8.002, please describe how the tuition amount was calculated and how it is reflected in Appendix A – Table 3B.

Tuition for this program remains the same as it does for all Florida Poly programs. Our posted tuition and fees as of January 26, 2023 is as follows:
E. Describe external resources, both financial and in-kind support, that are available to support the proposed program, and explain how this amount is reflected in Appendix A – Table 3A or 3B.

All Florida Poly programs have the same access to Florida Poly Foundation funds. These funds provide mostly student scholarships although can be used for other purposes such as faculty development, research, or programming associated with the degree program or field.

Appendix A, Tables 3A/3B reflect this in the absence.
VIII. Non-Faculty Resources

A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5 below, including but not limited to the following:

- the total number of volumes and serials available in the discipline and related disciplines
- all major journals that are available to the university’s students

The Library Director must sign the additional signatures page to indicate that they have review Sections VIII.A. and VIII.B.

The Florida Polytechnic University Library is comprised of two distinct collections: the main library collection is a multi-disciplinary digital library, and the Florida Industrial Phosphate Research (FIPR) Institute collection is primarily a comprehensive collection of phosphate-related resources and archival materials. There was a conscious effort at the inception of the institution to establish the main library as an entirely digital library. The Florida Polytechnic University Library provides specialized, STEM-focused resources and learning opportunities for students, faculty, and staff to work successfully with, interpret, and utilize information. Students at Florida Polytechnic University have 24/7/365 access to library resources via the internet.

The Florida Polytechnic University's main library is located on the second floor of the University's Innovation, Science and Technology Building, in an open-space area called the Commons. The main, digital collection contains over 150,000 full text eBook volumes that are a mixture of owned and licensed materials. There is no physical stack area.

The University Library provides support for all the degrees offered at the institution, and currently supports Masters and Bachelors programs in Computer, Electrical and Mechanical Engineering. Resources that directly support Florida Poly’s current engineering programs will also directly support the proposed Civil Engineering program. Current library resources include: AccessEngineering, American Society of Mechanical Engineers (ASME) Digital Collection, Engineering Village (Inspec and Compendex), Elsevier's Science Direct, EBSCO Engineering Core eBook collection and associated databases, IEEE Electronic Library, and ProQuest’s SciTech Premium Collection, and SpingerLINK.

Major journals currently available through the Florida Poly Library that will directly support Civil Engineering are:


B. Discuss any additional library resources that are needed to implement and/or sustain the program through Year 5. Describe how those costs are reflected in Appendix A – Table 3A or 3B.

☐ Not applicable to this program because no additional library resources are needed to implement or sustain the proposed program.

To further support the Civil Engineering program, the library will seek to acquire institutional access to the American Society of Civil Engineering (ASCE) Library. ASCE Library is comprised of ASCE journals, eBooks, proceedings, and standards all of which would support
the research needs of the civil engineering department. The cost of institutional access based on our FTE would be $25,904 annually.

C. Describe any specialized equipment and space currently available to implement and/or sustain the proposed program through Year 5.

Civil Engineering does need some laboratory space that is appropriate for subjects such as soils laboratory, concrete materials and testing, and possibly structures. The Gary Wendt Engineering building has included in its footprint (which is generically configured to add space to accompany our student body growth with degree program growth), includes four ground floor laboratories that are appropriate to the “dirty” use for civil engineering labs, and that can be assigned to civil engineering teaching and research needs. This building is in the Design/Build phase of its construction and is expected to be fully operational in January of 2025, or sooner. Other specialized equipment to support the civil engineering program will be put in place as we grow the program with operational funds.

D. Describe any additional specialized equipment or space that will be needed to implement and/or sustain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Appendix A – Table 3A or 3B. Costs for new construction should be provided in response to Section X.E. below.

☒ Not applicable to this program because no new I&R costs are needed to implement or sustain the program through Year 5.

E. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university’s fixed capital outlay priority list. Appendix A – Table 3A or 3B includes only I&R costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs, in particular, would necessitate increased costs in non-I&R activities.

☒ Not applicable to this program because no new capital expenditures are needed to implement or sustain the program through Year 5.

F. Describe any additional special categories of resources needed to operate the proposed program through Year 5, such as access to proprietary research facilities, specialized services, or extended travel, and explain how those projected costs of special resources are reflected in Appendix A – Table 3A or 3B.

☒ Not applicable to this program because no additional special categories of resources are needed to implement or sustain the program through Year 5.

G. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5, and explain how those are reflected in Appendix A – Table 3A or 3B.

☒ Not applicable to this program because no fellowships, scholarships and/or graduate assistantships will be allocated to the proposed program through Year 5.
### IX. Required Appendices

The appendices listed in tables 1 & 2 below are required for all proposed degree programs except where specifically noted. Institutions should check the appropriate box to indicate if a particular appendix is included to ensure all program-specific requirements are met. Institutions may provide additional appendices to supplement the information provided in the proposal and list them in Table 4 below.

#### Table 1. Required Appendices by Degree Level

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Appendix Title</th>
<th>Supplemental Instructions</th>
<th>Included?</th>
<th>Required for Degree Program Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Tables 1-4</td>
<td></td>
<td>Yes</td>
<td>X</td>
</tr>
<tr>
<td>B</td>
<td>Consultant's Report and Institutional Response</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>C</td>
<td>Academic Learning Compacts</td>
<td>Include a copy of the approved or proposed Academic Learning Compacts for the program</td>
<td>Yes</td>
<td>X</td>
</tr>
<tr>
<td>D</td>
<td>Letters of Support or MOU from Other Academic Units</td>
<td>Required only for programs offered in collaboration with multiple academic units within the institution</td>
<td>No Applicable to this Proposal</td>
<td>X</td>
</tr>
<tr>
<td>E</td>
<td>Faculty Curriculum Vitae</td>
<td></td>
<td>Yes</td>
<td>X</td>
</tr>
<tr>
<td>F</td>
<td>Common Prerequisite Request Form</td>
<td>This form should also be emailed directly to the BOG Director of Articulation prior to submitting the program proposal to the Board office for review.</td>
<td>Yes</td>
<td>X</td>
</tr>
<tr>
<td>G</td>
<td>Request for Exemption to the 120 Credit Hour Requirement</td>
<td>Required only for baccalaureate degree programs seeking approval to exceed the 120 credit hour requirement</td>
<td>Not Applicable to this Proposal</td>
<td>X</td>
</tr>
<tr>
<td>H</td>
<td>Request for Limited Access Status</td>
<td>Required only for baccalaureate degree programs seeking approval for limited access status</td>
<td>Not Applicable to this Proposal</td>
<td>X</td>
</tr>
<tr>
<td>Appendix</td>
<td>Appendix Title</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
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</tr>
</tbody>
</table>
## APPENDIX A

### TABLE 1-A
PROJECTED HEADCOUNT FROM POTENTIAL SOURCES
(Civil Engineering Baccalaureate Degree Program)

<table>
<thead>
<tr>
<th>Source of Students (Non-duplicated headcount in any given year)*</th>
<th>Year 1 HC</th>
<th>Year 1 FTE</th>
<th>Year 2 HC</th>
<th>Year 2 FTE</th>
<th>Year 3 HC</th>
<th>Year 3 FTE</th>
<th>Year 4 HC</th>
<th>Year 4 FTE</th>
<th>Year 5 HC</th>
<th>Year 5 FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper-level students who are transferring from other majors within the university**</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Students who initially entered the university as FTIC students and who are progressing from the lower to the upper level***</td>
<td>13</td>
<td>11</td>
<td>32</td>
<td>31</td>
<td>66</td>
<td>63</td>
<td>78</td>
<td>75</td>
<td>102</td>
<td>95</td>
</tr>
<tr>
<td>Florida College System transfers to the upper level***</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>10</td>
<td>0</td>
<td>15</td>
<td>0</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Transfers to the upper level from other Florida colleges and universities***</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>12</td>
<td>0</td>
<td>19</td>
<td>0</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>Transfers from out of state colleges and universities***</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Other (Explain)***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td><strong>23</strong></td>
<td><strong>20</strong></td>
<td><strong>46</strong></td>
<td><strong>44</strong></td>
<td><strong>94</strong></td>
<td><strong>68</strong></td>
<td><strong>119</strong></td>
<td><strong>80</strong></td>
<td><strong>150</strong></td>
<td><strong>134</strong></td>
</tr>
</tbody>
</table>

* List projected annual headcount of students enrolled in the degree program. List projected yearly cumulative ENROLLMENTS instead of admissions.

** If numbers appear in this category, they should go DOWN in later years.

*** Do not include individuals counted in any PRIOR CATEGORY in a given COLUMN.
## APPENDIX A

### Table 2

Anticipated Faculty Participation

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Faculty Name or &quot;New Hire&quot; Highest Degree Held Academic Discipline or Specialty</th>
<th>Rank</th>
<th>Contract Status</th>
<th>Initial Date for Participation in Program</th>
<th>Mos. Contract Year 1</th>
<th>FTE Year 1</th>
<th>% Effort for Prg. Year 1</th>
<th>PY Year 1</th>
<th>Mos. Contract Year 5</th>
<th>FTE Year 5</th>
<th>% Effort for Prg. Year 5</th>
<th>PY Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Mary Vollaro, Ph.D. Mechanical Engineering</td>
<td>Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
</tr>
<tr>
<td>A</td>
<td>Xiaofan Xu, Ph.D. Environmental Science</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.44</td>
<td>0.33</td>
</tr>
<tr>
<td>A</td>
<td>Malak Anshassi, Ph.D. Env/Env. Health Eng.</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.44</td>
<td>0.33</td>
</tr>
<tr>
<td>A</td>
<td>Derek Henderson, Ph.D. Civil Engineering</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>1.00</td>
<td>1.00</td>
<td>0.75</td>
<td>9</td>
<td>1.00</td>
<td>1.00</td>
<td>0.75</td>
</tr>
<tr>
<td>A</td>
<td>Jun Kim, Ph.D. Env/Env. Health Eng.</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.44</td>
<td>0.33</td>
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<tr>
<td>A</td>
<td>Elisabeth Kames, Ph.D. Mechanical Engineering</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
</tr>
<tr>
<td>B</td>
<td>New Hire, Ph.D. Civil Engineering</td>
<td>Assoc. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
<td>9</td>
<td>0.75</td>
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<td>0.75</td>
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<tr>
<td>B</td>
<td>New Hire, Ph.D. Civil Engineering</td>
<td>Assoc. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
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<td>0.75</td>
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<tr>
<td>B</td>
<td>New Hire, Ph.D. Civil Engineering</td>
<td>Assoc. Prof.</td>
<td>MYA</td>
<td>Fall 2027</td>
<td>0</td>
<td>0.00</td>
<td>1.00</td>
<td>0.00</td>
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<tr>
<td>B</td>
<td>New Hire, Ph.D. Civil Engineering</td>
<td>Prof.</td>
<td>MYA</td>
<td>Fall 2027</td>
<td>0</td>
<td>0.00</td>
<td>1.00</td>
<td>0.00</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
</tr>
</tbody>
</table>

**Total Person-Years (PY)**

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Code Description</th>
<th>Source of Funding</th>
<th>PY Workload by Budget Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Year 1</strong></td>
</tr>
<tr>
<td>A</td>
<td>Existing faculty on a regular line</td>
<td>Current Education &amp; General Revenue</td>
<td>1.56</td>
</tr>
<tr>
<td>B</td>
<td>New faculty to be hired on a vacant line</td>
<td>Current Education &amp; General Revenue</td>
<td>1.50</td>
</tr>
<tr>
<td>C</td>
<td>New faculty to be hired on a new line</td>
<td>New Education &amp; General Revenue</td>
<td>0.00</td>
</tr>
<tr>
<td>D</td>
<td>Existing faculty hired on contracts/grants</td>
<td>Contracts/Grants</td>
<td>0.00</td>
</tr>
<tr>
<td>E</td>
<td>New faculty to be hired on contracts/grants</td>
<td>Contracts/Grants</td>
<td>0.00</td>
</tr>
<tr>
<td>F</td>
<td>Existing faculty on endowed lines</td>
<td>Philanthropy &amp; Endowments</td>
<td>0.00</td>
</tr>
<tr>
<td>G</td>
<td>New faculty on endowed lines</td>
<td>Philanthropy &amp; Endowments</td>
<td>0.00</td>
</tr>
<tr>
<td>H</td>
<td>Existing or new faculty teaching outside of</td>
<td>Enterprise Auxiliary Funds</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Overall Totals for**

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Code Description</th>
<th>Source of Funding</th>
<th>PY Workload by Budget Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Year 5</strong></td>
</tr>
<tr>
<td>A</td>
<td>Existing faculty on a regular line</td>
<td>Current Education &amp; General Revenue</td>
<td>2.07</td>
</tr>
<tr>
<td>B</td>
<td>New faculty to be hired on a vacant line</td>
<td>Current Education &amp; General Revenue</td>
<td>3.00</td>
</tr>
<tr>
<td>C</td>
<td>New faculty to be hired on a new line</td>
<td>New Education &amp; General Revenue</td>
<td>0.00</td>
</tr>
<tr>
<td>D</td>
<td>Existing faculty hired on contracts/grants</td>
<td>Contracts/Grants</td>
<td>0.00</td>
</tr>
<tr>
<td>E</td>
<td>New faculty to be hired on contracts/grants</td>
<td>Contracts/Grants</td>
<td>0.00</td>
</tr>
<tr>
<td>F</td>
<td>Existing faculty on endowed lines</td>
<td>Philanthropy &amp; Endowments</td>
<td>0.00</td>
</tr>
<tr>
<td>G</td>
<td>New faculty on endowed lines</td>
<td>Philanthropy &amp; Endowments</td>
<td>0.00</td>
</tr>
<tr>
<td>H</td>
<td>Existing or new faculty teaching outside of</td>
<td>Enterprise Auxiliary Funds</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Overall Totals for

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Code Description</th>
<th>Source of Funding</th>
<th>PY Workload by Budget Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Overall</strong></td>
</tr>
<tr>
<td>A</td>
<td>Existing faculty on a regular line</td>
<td>Current Education &amp; General Revenue</td>
<td>3.08</td>
</tr>
<tr>
<td>B</td>
<td>New faculty to be hired on a vacant line</td>
<td>Current Education &amp; General Revenue</td>
<td>5.07</td>
</tr>
</tbody>
</table>

Florida Poly

B.S. Civil Engineering
## APPENDIX A

### TABLE 3A

**EROLLMENT AND GROWTH**

**PROJECTED COSTS AND FUNDING SOURCES**

Institutions should not edit the categories or budget lines in the table below. This table is specific to state-funded (E&G) programs, and institutions are expected to explain all costs and funding sources in Section VIII.A. of the proposal. Detailed definitions for each funding category are located at the bottom of the table.

<table>
<thead>
<tr>
<th>Budget Line Item</th>
<th>Reallocated Base (E&amp;G) Year 1</th>
<th>New Recurring (E&amp;G) Year 1</th>
<th>New Non-Recurring (E&amp;G) Year 1</th>
<th>Contracts &amp; Grants (E&amp;G) Year 1</th>
<th>Philanthropy/Endowments Year 1</th>
<th>Subtotal Year 1</th>
<th>Continuing Base (E&amp;G) Year 2</th>
<th>New Recurring Growth (E&amp;G) Year 2</th>
<th>New Non-Recurring (E&amp;G) Year 2</th>
<th>Contracts &amp; Grants (E&amp;G) Year 2</th>
<th>Philanthropy/Endowments Year 2</th>
<th>Other (E&amp;G) Year 5</th>
<th>Subtotal Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and Benefits (Faculty)</td>
<td>0</td>
<td>0</td>
<td>350,831</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>671,225</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>671,225</td>
</tr>
<tr>
<td>Salaries and Benefits (A&amp;P and USPS)</td>
<td>0</td>
<td>0</td>
<td>114,096</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>120,942</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>120,942</td>
</tr>
<tr>
<td>O &amp; R (including scholarships &amp; fellowships)</td>
<td>0</td>
<td>0</td>
<td>10,250</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13,500</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13,500</td>
</tr>
<tr>
<td>Programmatic Expenses***</td>
<td>0</td>
<td>0</td>
<td>375,071</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>544,213</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>544,213</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>$922,598</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>$1,149,954</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>0</strong></td>
<td><strong>$1,149,954</strong></td>
</tr>
</tbody>
</table>

*Identify reallocation sources in Table 4.

**Includes recurring E&G funded costs (“reallocated base,” “enrollment growth,” and “new recurring”) from Years 1-4 that continue into Year 5.

***Identify if non-recurring.

****Include library costs, expenses, OCO, special categories, etc.

### Faculty and Staff Summary

<table>
<thead>
<tr>
<th>Total Positions</th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty (person-years)</td>
<td>3.06</td>
<td>5.68</td>
</tr>
<tr>
<td>FTE (A&amp;P and USPS)</td>
<td>2.86</td>
<td>3.1</td>
</tr>
</tbody>
</table>

### Calculated Cost per Student FTE

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total E&amp;G Funding</td>
<td>$692,996</td>
<td>$1,349,954</td>
</tr>
<tr>
<td>Annual Student FTE</td>
<td>20</td>
<td>134</td>
</tr>
<tr>
<td>E&amp;G Cost per FTE</td>
<td>$44,649.50</td>
<td>$10,074.51</td>
</tr>
</tbody>
</table>
### Table 3 Column Explanations

<table>
<thead>
<tr>
<th>Column</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Restricted Base* (E&amp;G)</td>
</tr>
<tr>
<td>2</td>
<td>New Enrolment Growth (E&amp;G)</td>
</tr>
<tr>
<td>3</td>
<td>New Recurring (E&amp;G)</td>
</tr>
<tr>
<td>4</td>
<td>New Non-Recurring (E&amp;G)</td>
</tr>
<tr>
<td>5</td>
<td>Contracts &amp; Grants (E&amp;G)</td>
</tr>
<tr>
<td>6</td>
<td>Philanthropy Endowments</td>
</tr>
<tr>
<td>7</td>
<td>Continuing Base*** (E&amp;G)</td>
</tr>
<tr>
<td>8</td>
<td>New Enrolment Growth (E&amp;G)</td>
</tr>
<tr>
<td>9</td>
<td>Other**** (E&amp;G)</td>
</tr>
<tr>
<td>10</td>
<td>Contracts &amp; Grants (C&amp;G)</td>
</tr>
<tr>
<td>11</td>
<td>Philanthropy Endowments</td>
</tr>
<tr>
<td>12</td>
<td>Other Funding</td>
</tr>
</tbody>
</table>

## APPENDIX A
### TABLE 4
**ANTICIPATED REALLOCATION OF EDUCATION GENERAL FUNDS***

<table>
<thead>
<tr>
<th>Program and/or E&amp;G account from which current funds will be reallocated during Year 1</th>
<th>Base before reallocation</th>
<th>Amount to be reallocated</th>
<th>Base after reallocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: 555-555 World exploration fund (example)</td>
<td>0</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>Totals</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
</tbody>
</table>

* If not reallocating E&G funds, please submit a zeroed Table 4

Program funds come from unallocated E&G.
Appendix B. Academic Learning Compact for Civil Engineering

Florida Polytechnic University’s Academic Learning Compact describes what students, who follow the major’s study plan, will know and be able to do. These are listed as core student learning outcomes.

<table>
<thead>
<tr>
<th>Program:</th>
<th>Civil Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose of the Program:</td>
<td>The Civil Engineering Bachelor of Science degree program at Florida Polytechnic University is designed to provide students core competencies in a range of civil engineering applications and facilitate student success through a comprehensive, liberal education foundation that complements students’ in-depth study of technical fields and principles and application of design. Civil Engineers from Florida Poly will graduate with the knowledge and skill to enter industry successfully or continue their education at the graduate level.</td>
</tr>
</tbody>
</table>

Graduates of the program will demonstrate the following:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Core Learning Outcomes:

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>The Outcomes Involve These Skills:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon completion of the Civil Engineering Degree, students will possess:</td>
<td>Content/Critical Thinking</td>
</tr>
<tr>
<td>1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics</td>
<td></td>
</tr>
<tr>
<td>2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors</td>
<td>X</td>
</tr>
<tr>
<td>3. an ability to communicate effectively with a range of audiences</td>
<td></td>
</tr>
<tr>
<td>4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts</td>
<td></td>
</tr>
<tr>
<td>5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives</td>
<td>X</td>
</tr>
<tr>
<td>6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions</td>
<td></td>
</tr>
<tr>
<td>7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.</td>
<td>X</td>
</tr>
</tbody>
</table>
Appendix C. Faculty Curriculum Vitae

Faculty Vitae will be added before submission to the Board of Governors office.
Malak Anshassi- Curriculum Vitae

manshassi95@gmail.com
8203 Collier Pl, Tampa, FL 33637
Cell: 813.385.6392

EDUCATION

University of Florida, College of Engineering, Gainesville, FL
Doctor of Philosophy in Environmental Engineering Sciences, 3.95/4.00
Graduation Date: December 2020
Dissertation: Evaluating the Use of Sustainable Materials Management in Rethinking Solid Waste Management and Policies

Study 1: Reviewing the Underlying Assumptions in Waste LCA Models to Identify Impacts on Waste Management Decision Making
Study 2: Approaches to Integrate Sustainable Materials Management into Waste Management Planning and Policy
Study 3: The Greenhouse Gas and Economic Costs of Eliminating Residential Recycling
Study 4: Investment in Low Income Countries to Reduce Ocean Plastic and Greenhouse Gases

Master of Engineering in Environmental Engineering Sciences, 3.95/4.00
May 2018
Thesis: Incorporating Life Cycle Thinking into Solid Waste Public Policy Planning

Study 1: Replacing Recycling Rates with Life Cycle Metrics as Government Materials Management Targets
Study 2: An Evaluation of the Methodology Used to Generate Life Cycle Based Alternative Recycling Metrics

Bachelor of Science in Environmental Engineering Sciences with minor in Sustainability Studies, 3.78/4.00
May 2017

Selected Coursework: Municipal Refuse Disposal • Solid Waste Containment Design • Groundwater and Surface Hydrology • Hydraulic Systems Design • Life Cycle Assessment • Water and Wastewater Treatment Design • Air Pollution Control Design Water Chemistry • Environmental Analysis • Ecological Engineering • Ecological Systems Design • Construction and Demotion Debris • Developing Country Solid Waste • Facets of Sustainability • Environmental Education • Green Engineering Design

Specialized Skills: WARM LCA Model • MSW-DST LCA Model • SWOLF LCA Model • EASETECH LCA Model • WRATE LCA Model • OpenLCA • Microsoft Suites • Arabic (fluent)

CERTIFICATIONS AND LICENSES

Engineering Intern (Florida, US): License #1100023360

RESEARCH/ WORK EXPERIENCE

Florida Polytechnic University
Assistant Professor of Environmental Engineering, Lakeland, FL
August 2021–Current

University of Florida Sustainable Materials Management Laboratory
Postdoctoral Research Associate, Gainesville, FL
January 2021–August 2021
Graduate Research Assistant, Gainesville, FL
May 2017–December 2020
Undergraduate Research Assistant, Gainesville, FL
August 2016–May 2017

• Took a lead role in project proposal and scope funding/grant writing and secured over 20 projects from local Florida government, Florida state agencies, and private waste industry. For a list of the projects see below.
• Managed and mentored over 20 undergraduate students and 10 graduate students in their projects with local governments in Florida and other private/public organizations looking to implement sustainable materials management.
• Mentored four Master of Engineering graduate students in their thesis research study development, experimentation, analysis, and writing execution.
• Facilitated numerous project’s success related to construction and demolition debris recycling, solid waste recycling, alternatives impact studies, waste life cycle assessment, waste composition studies, and tools for local government sustainable materials management integration.
• Regularly engaged with local government decision makers, state policy makers, LCA practitioners, regulators, and private waste industry experts.
• Participated in transforming research projects into publishable peer-reviewed manuscripts and tools for sustainable materials management-based decision making. For a list see below.
RESEARCH PROJECT HISTORY
All project below conducted at University of Florida with Dr. Timothy Townsend as the Principal Investigator and I, as the Lead Researcher and Project Manager, where I directed a group of undergraduate and graduate students in completing the projects.

**Estimating the Environmental Benefits of Recycling Concrete Washout**, Diligent Services, Inc.  
February 2021- June 2021  
- Conducting on-site visits at the facilities to estimate the mass of concrete washout produced and recycled, collecting literature/reports on concrete LCAs, and provide an evaluation of the best management practice for concrete washout.

**State of Practice Review to Assess the Cost and Market Potential for Yard Trash Waste Management Practices in Miami Dade County**, Miami Dade Department of Solid Waste Management  
2020-2021  
- Assisted Miami Dade County by conducting research on the current mass and flows of yard trash disposed of in the county, performing a market analysis for potential yard trash end uses, and estimating the costs of instituting a yard trash composting or mulching facility.

**An Integrated Tool for Local Government to Track Materials Management and Progress toward Sustainability Goals**, Hinkley Center for Solid and Hazardous Waste Management  
October 2019- May 2021  
- Developed a comprehensive tool that includes: 1) the WasteCalc functions and refined functions; 2) metrics to measure environmental, social, and economic impacts developed; and 3) a method to measure Florida source reduction activities.

**Examination of SMM in Alachua County to Measure Mass and Environmental Footprints of the Entire Materials Stream**, Alachua County Department of Solid Waste Management  
2020-2021  
- Provided Alachua County an examination of the mass and environmental footprint of their entire materials stream, evaluated alternative material source reduction strategies, and conducted a two-season waste composition study.

**Determining the Mass of Food Waste Donated and Potentially Recoverable and Developing a Tool to Track Donated Food**, Florida Department of Environmental Protection  
January 2020- May 2020  
- Compiled information from available Florida sources that track the current masses of food waste donated, estimated the potentially recoverable masses of donated food, and developed a tool for better tracking, and conducted a LCA to measure the environmental footprints associated with the current and potential recoverable masses.

**Examining Contamination Rates at Florida Materials Recovery Facilities**, Florida Recycling Partnership Foundation  
October 2019- April 2020  
- Gathered information from MRFs on the types and masses of waste incoming into and output from the facility and measured the historic and current recovery and contamination rates.

**Conducting Waste Composition Studies and Updating the Waste Composition (WasteCalc) Model**, Florida Department of Environmental Protection  
2019-2020  
- Updated the WasteCalc to include current waste state and national statistics and SMM components (i.e., equations to estimate environmental footprints) and conducted waste composition studies throughout Florida (for the model).

2019-2020  
- Assessed the functionality of LCA models (i.e., WARM and MSW-DST) to quantify greenhouse gas emissions associated with landfills/landfill-gas-to-energy facilities and waste-to-energy facilities.

**Construction and Demolition Debris (C&D) Recycling Roadmap**, Construction and Demolition Recycling Association  
August 2019- December 2019  
- Identified, through a series of discussions with a stakeholder working group, missing C&D recycling opportunities, developed tangible steps for local government and industry to integrate C&D recycling, and compiled findings into a comprehensive whitepaper that served as a roadmap for recycling C&D.

**Updating the Waste Composition (WasteCalc) Model**, Florida Department of Environmental Protection  
2018-2019  
- Updated the WasteCalc model (a tool regularly used by Florida Counties to estimate their waste stream collected compositions which is then used in annual solid waste state reporting) to include current waste composition state and national statistics and developed more accurate equations for the model.
Looking Beyond Florida’s 75% Recycling Goal: Development of a Methodology and Tool for Assessing Sustainable Materials Management Recycling Rates in Florida, Hinkley Center for Solid and Hazardous Waste Management  
October 2018- March 2020
- Created a tool for Florida decision-makers that incorporates data from various waste LCA models to measure their waste management-based environmental and social footprints.

SMM State Waste Management Assessment for California, Minnesota, and Maryland, American Institute for Packaging and the Environment Protection  
2017-2018
- Analyzed SMM approaches implementation in three US states, to do so, data was collected on waste disposition via discussion with state representatives, and state-specific SMM approaches were formulated and applied hypothetically.

Application of Sustainable Materials Management in Polk County, Polk County Department of Solid Waste Management  
2017-2018
- Examined the 2016 solid waste management practices and alternative solid waste management approaches in Polk County, Florida. The examination consisted of mapping the waste flows in the county, using LCA models to quantify the environmental impacts, and developing a method to estimate the economic costs for the 2016 waste management and alternative approaches.

Economic and Life Cycle Evaluation of Municipal Solid Waste Management in Alachua County and Assessment of Alternative Solid Waste Approaches to Increase Recycling Rates, Alachua County Department of Solid Waste Management  
May 2017- March 2018
- Similar methodology and research scope to Polk County project but for data and context of Alachua County.

Economic and Life Cycle Evaluation of Municipal Solid Waste Management in Escambia County and Assessment of Alternative Solid Waste Approaches to Increase Recycling Rates, Escambia County  
May 2017- December 2017
- Similar methodology and research scope to Polk County project but for data and context of Escambia County.

Economic and Life Cycle Evaluation of Municipal Solid Waste Management in Sarasota County and Assessment of Alternative Solid Waste Approaches to Increase Recycling Rates, Sarasota County Department of Solid Waste Management  
May 2017- December 2017
- Similar methodology and research scope to Polk County project but for data and context of Sarasota County.

Economic and Life Cycle Evaluation of Municipal Solid Waste Management in Palm Beach County and Assessment of Alternative Solid Waste Approaches to Increase Recycling Rates, Solid Waste Authority of Palm Beach County  
May 2017- December 2017
- Similar methodology and research scope to Polk County project but for data and context of Palm Beach County.

The Economic and Environmental Benefits of Recycling Asphalt Shingles in California, Zanker Materials Recovery and Landfill: Zanker Recycling  
January 2017- May 2017
- Estimated the environmental/ economic benefits of asphalt shingle recycling in California in 2017, in terms of landfill diversion, greenhouse gas emission reduction, energy reduction, job creation, and economic output. The recycling benefits were based on estimated asphalt shingle waste generation, conducted through a study-developed method.

The Benefits of Construction and Demolition Materials Recycling in the United States, Construction and Demolition Recycling Association  
2016-2017
- Provided a whitepaper that included an assessment of the benefits of the C&D recycling industry in the US in 2014. The data from C&D industry and literature were used to quantify the total C&D materials stream generated and disposed of mass footprints, then using an LCA model the environmental footprints were estimated, and the landfill space savings, jobs produced, and recycling revenue generated were estimated using a developed method.

Florida Solid Waste Management: State of the State, Hinkley Center for Solid and Hazardous Waste Management  
October 2016- September 2018
- Investigated and reported on the mass flows of solid waste in Florida in 67 counties. Conducted a comprehensive analysis on the economic feasibility of available strategies and technologies for solid waste management in Florida, along with an LCA evaluation of the environmental footprints of these approaches, and the potential to meet Florida 75% recycling rate target.

CONFERENCE PRESENTATIONS
In addition to presenting research at the below conferences/workshops, I presented at local Florida County Commissioner Meetings, conducted presentations for each of the projects above to each funding organization, and am well-versed in poster presentations.

**Air and Waste Management Association Annual Conference 2021**, Online Portal
- *How Does it Work? Recycling: Environmental Assessment of Recycling*

**Recycle Florida Today: 2021 Virtual Conference and Annual Business Meeting**, Online Portal
- *Moving Sustainability Forward – Efforts by the Public Sector and Tools Available to Help the Cause*

**SWANA Hinkley Center Research Symposium**, Online Portal
- *An Integrated Tool for Local Government to Track Materials Management and Progress toward Sustainability Goals*

**2020 Virtual Conference and Exhibition**, Online Portal
- *Florida Recycling Workgroup... Moving recycling forward beyond 2020 – SMM Committee*
- *Tools to Measure SMM: Waste LCA Models and Their Place in Waste Decision Making*

**2020 SWM-LCA Workshop**, Washington D.C.
- *Looking beyond Florida’s 75% Recycling Goal: Development of a Methodology and Tool for Assessing Sustainable Materials Management Recycling Rates in Florida*

**Resource Recycling Conference and Trade Show**, New Orleans, Louisiana
- *Evaluating Life Cycle Thinking In Solid Waste Management Decision Making*

**International Solid Waste Association 2018 World Congress**, Kuala Lumpur, Malaysia
- *Incorporating Life Cycle Thinking in Solid Waste Management Policy*

**2nd Conference on Life Cycle Assessment of Waste**, Copenhagen, Denmark
- *Replacing Recycling Rates with Life Cycle Metrics as Government Materials Management Targets*

**2018 SWANA FL Annual Conference**, Palm Beach, Florida
- *Project Update: Incorporating Life Cycle Thinking into the Solid Waste Management Industry and Policies*

**REFEREED PUBLICATIONS (CHRONOLOGICAL)**

The following below are published or under-review manuscripts. I am currently working on five other manuscripts in-addition to be submitted this year.


TEACHING & LEADERSHIP EXPERIENCE

Sustainable Material Management Committee Lead Chair, Florida Recycling Partnership, FL Present
- Co-chair leader that facilitates discussion with stakeholder members on methods to incorporate sustainable materials management into Florida recycling policy.

Invited Guest Lecturer, Solid and Hazardous Waste Management, University of Florida Spring 2018, 2019, 2020
- Lectured to a group of undergraduate and graduate students on the fundamentals of a waste LCA, provided a tutorial of the WARM waste LCA model, assigned and created a homework assignment, and created corresponding exam problem.

Invited Guest Lecturer, Life Cycle Assessment, University of Florida Fall 2019
- Lectured to graduate students on the fundamentals of conducting an LCA as directed in the ISO 14040 guidelines.

Membership and Education Committee Chair, Recycle Florida Today, Tampa, FL Spring 2017-Fall 2018
- Co-chair of Recycle Florida Today, established new members and organized webinars relating to solid waste.

Teaching Assistant, Air Pollution Control Devices, Gainesville, FL Fall 2018
- Provided teaching assistance to 50 undergraduates and graduates on the fundamentals of the control mechanisms and the design procedures of the various control technologies following ABET requirements. During the semester I created and graded homework problems and exams, and I occasionally lectured for the professor.

Teaching Assistant, Water and Wastewater Treatment Design, Gainesville, FL Fall 2016
- Provided teaching assistance to 110 undergraduates and graduates on the design and concepts of water and wastewater treatment following ABET requirements. During the semester I graded the water and wastewater design portfolios for each student team, created and graded exams, and provided lecture presentation assistance to the professor.

RELEVANT ACADEMIC PROJECTS

Developing Country Solid Waste Capstone, Department of Environmental Engineering, University of Florida Spring 2017
- Collaborated with a team of 5 peers to design an integrated waste management system consisting of an economic, environmental, and social analysis of waste management scenarios. Corresponded with local government in Puebla, ME, and traveled there to implement the scenarios through governmental regulatory agencies, engineering, and construction firms.

CDRA C&D Debris Recycling Benefit, Department of Environmental Engineering, University of Florida Spring 2017
- Estimated C&D Debris waste generation in the US for 2014 and quantified the environmental and economic benefits associated with recycling C&D Debris.

Asphalt Shingles Recycling Benefit, Department of Environmental Engineering, University of Florida Spring 2017
- Estimated asphalt shingles waste generation in CA for 2017, and calculated the environmental and economic benefits associated with recycling asphalt shingles to be used to support asphalt shingles reuse in CA.

Environmental International Challenge, Air and Waste Management Association, University of Florida Fall 2016
- Successfully oversaw a technical design team on a statewide student competition to reduce ozone levels between the US and ME, in which we won first place. Lead the technical side of modeling and monitoring equipment planning to reduce ozone levels.

HONORS AND AWARDS

Nominee for Social Media Spotlight UN’s International Day of Women and Girls in Science, University of Florida Spring 2020

Florida Section A&WMA Scholarship Award, Air and Waste Management Association Fall 2020

CDM Smith Fellowship Award, CDM Smith Spring 2017

Ramage Spangler Scholarship, University of Florida Spring 2017

PROFESSIONAL ASSOCIATIONS

Air and Waste Management Association Fall 2016-Present
Recycle Florida Today Spring 2017-Present
Florida Recycling Partnership Fall 2017-Present
Solid Waste Association of North America Spring 2018-Present
Derek A. Henderson, Ph.D.

Professional Preparation

University of Virginia  Charlottesville, VA  Civil Engineering  Ph.D.  2015
Oklahoma State University  Stillwater, OK  Environmental Engineering  MS  2007
Oklahoma State University  Stillwater, OK  Civil Engineering  BS  2006
Oklahoma State University-IT Okmulgee, Ok  Construction Management  AS  2000

Appointments

2021 – Present  Assistant Professor, Environmental Engineering Dept., Florida Polytechnic University
2019 – 2021  Environmental Lab Manager, Dept. of Engineering Systems and Environment, Univ. of Virginia
Spring 2018  Instructor, Dept. of Civil & Environmental Engineering, Univ. of Virginia
2016 – 2018  Research Associate, Dept. of Civil & Environmental Engineering, Univ. of Virginia
2011 – 2015  Research Assistant, Dept. of Civil & Environmental Engineering, Univ. of Virginia
2008 – 2009  Environmental Engineer, Conestoga-Rovers and Assoc., Chicago, IL
2006 – 2007  Research and Teaching Assistant, Dept. of Civil & Environmental Engineering, Oklahoma State Univ.

Research Interests

Low impact development design, performance, and life cycle, particularly with respect to transportation infrastructure

Vegetative extraction of water and soil contaminants

Operation management and design enhancement impacts to low impact development practices

Water and soil quality analysis using various methods including atomic absorption and chromatography
Publications


Pending Publications


Presentations

* denotes presenter

Conference Presentations


**Invited Presentations**


Teaching Experience

Instructor, CEE 5040: Groundwater Hydrology and Contaminant Transport, University of Virginia, Spring 2018.

Teaching Assistant, APMA 1110: Calculus II, University of Virginia, Spring 2013

Guest Lecturer, ENGR 1620: Introduction to Engineering, University of Virginia, October 17, 2013

Teaching Assistant, APMA 2130: Differential Equations, University of Virginia, Fall 2011

Teaching Assistant, CIVE 4833: Unit Operations in Civil Engineering, Oklahoma State University, Spring 2007

Teaching Assistant, Introduction to Environmental Engineering, Oklahoma State University, Fall 2006

Awards and Special Recognition

Honorable Mention, University of Virginia Graduate Research Symposium, Spring 2015.

Sergeant-at-Arms, Chi Epsilon Civil Engineering National Honor Society, 2006

Professional Activities

Building Zone Committee Chair: Assist in development, review, approval, and implementation for all COVID safety plans for Olsson Hall, Thornton Hall B & D-Wing and all research activities – 2020 to present

Reviewer for Environmental Science: Water Research and Technology (1), Journal of Environmental Engineering (1), Environmental Pollution (1).
Judge, University of Virginia Engineering Research Symposium, Charlottesville, Virginia, April 7, 2020

Judge, University of Virginia Engineering Research Symposium, Charlottesville, Virginia, March 28, 2019

ASCE Associate Member 2020

Certified LabVIEW Associate Developer 2017

40-hour hazardous waste operator certification 2008

Contributor, Oklahoma Transportation Center – Federal Transportation Administration Risk Assessment Tool, 2007

Engineering Intern certification 2007
ELISABETH KAMES, Ph.D.

Professional Contact
4700 Research Way
Department of Mechanical Engineering
Lakeland, FL. 33805

Personal Contact
1720 Hamilton Ave. SW
Palm Bay, FL. 32908
Cell: (630) 476 -1265

EDUCATION

**Ph.D., Mechanical Engineering**
Florida Institute of Technology
*May 2020*

*Dissertation: Examining the Impact of Student Motivation on Performance in Mechanical Engineering Design Courses*
Advisor: Beshoy W. Morkos, Ph.D.

**M.S., Mechanical Engineering**
Florida Institute of Technology
*December 2016*

Concentration in Dynamic Systems, Robotics and Controls

**B.S., Mechanical Engineering (cum laude)**
Florida Institute of Technology
*May 2015*

ACADEMIC APPOINTMENTS

**Florida Polytechnic University**
Assistant Professor
*Lakeland, FL. March 2021 – Present*

**Florida Polytechnic University**
Visiting Assistant Professor
*Lakeland, FL. August 2020 – March 2021*

**Florida Institute of Technology**
Visiting Instructor
*Melbourne, FL. August 2019 – May 2020*

ACADEMIC EXPERIENCE

**Florida Polytechnic University**
Assistant Professor
*Lakeland, FL. March 2021 – present*

- Serve as an assistant professor in the Department of Mechanical Engineering
- Conducting research on persistence and retention in mechanical engineering

**Florida Polytechnic University**
Visiting Assistant Professor
*Lakeland, FL. August 2020 – March 2021*

- Served as a visiting assistant professor in the Department of Mechanical Engineering for the 2020-2021 academic year
- Taught three courses during the fall semester and three courses in the spring semester
- Conducting research on persistence and retention in mechanical engineering

**Florida Institute of Technology**
Visiting Instructor
*Melbourne, FL. August 2019 –May 2020*

- Served as a visiting instructor in the Department of Mechanical and Civil Engineering for the 2019-2020 academic year
- Taught, as the instructor on record, seven different courses throughout the year to over 300 students
- Secured $60K in industry funding for student capstone projects

**Florida Institute of Technology**
Graduate Research Assistant
*Melbourne, FL. May 2015 – May 2020*

- Worked with Dr. Beshoy Morkos on industry (~$300K) and federally (~$1M) funded projects. Work included...
learning how to write grants, executing the research, and leading multiple research teams.

- Developed research tools, methods, and techniques as part of research findings.
- Presented work at multiple American Society for Engineering Education (ASEE) Annual Conferences (where some of my papers were selected as the best within division), American Society of Mechanical Engineers International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (ASME IDETC/CIE)
- Published work in relevant journals such as the International Journal of Engineering Education

PROFESSIONAL EXPERIENCE

Engineer in Training No. 1100022752, Florida

Structural Composites/Compsys, Inc.

Composite Engineering Intern 2016 – 2019

- Designed and developed machinery to facilitate and automate composite manufacturing projects
- Developed and manufactured tooling for projects for the U.S. Navy, Lockheed Martin, and Wabash National Corporation

TEACHING EXPERIENCE

Instructor on record: 11 unique courses
Graduate Assistant: 8 unique courses

Florida Polytechnic University – Mechanical Engineering  Lakeland, FL.

Professor – EGN 2002C – Skills and Design 2  Spring 2021

- Taught two sections of Skills and Design 2
- Lectured to freshman/sophomore level students on the fundamentals of design and manufacturing
- Overviewed the importance of Geometric Dimensioning and Tolerancing on part creation
- Organized and executed a small design project (miniature catapults) to showcase dynamics principles

Professor – EML 3811 – Mechatronics  Spring 2021

- Taught EML 3811 to upper-level undergraduate students in a FLEX modality
- Topics included sensors and signal conditioning, digital signals and logic, actuation, first-order and second-order engineering system models, and transfer functions
- Delivered class syllabus, material, homework problems, quizzes, exams, and semester project

Professor – EGN 2001C – Skills and Design 1  Fall 2020/Fall 2021

- Taught two sections of Skills and Design 1 in two different modalities (online and FLEX section)
- Lectured to freshman/sophomore level students on the fundamentals of design
- Facilitated the use of Solidworks for 3D modeling and design
- Organized and executed a small manufacturing project (manila folder bridge) to showcase statics principles

Professor – EML 4500 – Design and Analysis of Machine Components  Fall 2020/Fall 2021

- Taught EML 4500 during the fall semester to 18 undergraduate students in a FLEX modality
- Educated students on the fundamentals of the design of basic machine elements, emphasizing failure prevention for static and variable loading scenarios
- Topics included permanent and nonpermanent joints, springs, bearings, gears, clutches, flywheels, and geometric dimensioning and tolerancing
- Prepared class syllabus, material, homework problems, quizzes, exams, and semester project

Florida Institute of Technology – Mechanical Engineering  Melbourne, FL.

Instructor – MEE 4193/4194 – ME Design 1 & 2 (Capstone Design)  Fall 2019/Spring 2020

- Secured $60K in competitive funding (not donations) to support industry funded student projects
- Organized student project teams based on student skillsets and interests
- Procured funding from 4 industry sponsors for student projects
- Oversaw 109 students on 11 different senior capstone design teams
- Lectured on engineering design and proper design procedures

**Instructor – MEE 4190 – Design Methodologies (Junior Design)**  
Spring 2020

- Taught MEE 4190 during the spring semester to 84 undergraduate students
- Assigned student project teams based on student skillsets and interests
- Prepared class syllabus, material, homework problems, and three miniature, group projects to prepare students for capstone design

**Instructor – MEE 3090 – Design of Machine Elements**  
Fall 2019

- Taught MEE 3090 during the fall semester to 56 undergraduate students
- Lectured and educated students on the fundamentals of engineering mechanics and the design of basic machine elements, emphasizing failure prevention
- Prepared class syllabus, material, homework problems, quizzes, exams, and semester project

**Instructor – MEE 1025 – ME Practicum 1**  
Fall 2019

- Lectured to freshman level students on the fundamentals of the design process and design principles
- Advised students on their project work, interfacing with senior level students to assist with capstone design

**Instructor – MEE 2025 – ME Practicum 2**  
Fall 2019

- Lectured to sophomore level students on the fundamentals of the design process and design principles
- Advised students on their project work, interfacing with senior level students to assist with capstone design

**Instructor – MEE 3025 – ME Practicum 3**  
Fall 2019

- Lectured to junior level students on the fundamentals of the design process and design principles
- Advised students on their project work, interfacing with senior level students to assist with capstone design projects

**Graduate Teaching Assistant**  
Fall 2015 – Spring 2019

- Served as a teaching assistant to multiple engineering courses at all curriculum levels
- Classes included: Statics, Dynamics, Computer Aided Engineering, Design Methodologies, Mechanical Vibrations, Control Systems, Mechanical Engineering Design 1, and Mechanical Engineering Design 2

**Graduate Advisor – MEE 4193/MEE 4194 – Senior Capstone Design**  
Fall 2015 – Spring 2019

- Advised multiple student teams as a Graduate Student Advisor for Mechanical Engineering Design 1 and 2
- Interfaced with over 50 student teams (~400 students)
- Interfaced with both industry and federal industry sponsored project liaisons
- Completed ordering, oversaw student project progress, and advised students to successful project completion

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**PUBLICATIONS**

**Journal Publications (2 published, 2 accepted pending revision, 6 in preparation)**


Conference Proceedings (12 published, 1 in preparation)
4. Kames, E., Shah, D., Clark, M., Morkos, B. (2019), A Mixed Methods Analysis of Motivation Factors in Senior Capstone Design Courses. Paper presented at 2019 ASEE Annual Conference & Exposition, Tampa, Florida. (selected as one of the top 5 papers in Division out of >120 submission)

Poster Sessions (1 posters)

Award Papers (3 papers)
FUNDING SECURED

Total: $60,000 (Kames as PI: $60,000)

- Kames, E., (PI), 2019, “Design of Beam Data Scanning System – Phase II”, Sun Nuclear Corporation, $15,000
- Kames, E., (PI), 2019, “Design and Analysis of Complex System” (Title Removed for Restrictions), Lockheed Martin, $15,000
- Kames, E., (PI), 2019, “Design and Analysis of Complex System” (Title Removed for Restrictions), US Navy, $15,000
- Kames, E., (PI), 2019, “System Optimization Through Use of Additive Manufacturing”, Leonardo DRS, $15,000

HONORS, ACTIVITIES, AND SERVICE

Awards

- Best of Design Engineering Education Division (from >120 submission) for “A Mixed Methods Analysis of Motivation Factors in Senior Capstone Design Courses” at 2019 ASEE Annual Conference & Exposition
- Recipient of 2019 ASEE DEED Graduate Design Essay Competition for “Addressing the Possibilities: The Benefits of Implementing Artificial Intelligence in Engineering Design Education,” Tampa, FL
- Recipient of 2018 ASME IDETC/CIE CAPP Graduate Research Poster Award for “Examining the Effect of Student Motivation on Academic Performance in Design Courses,” Quebec City, Quebec, Canada
- NSF Graduate Research Fellowship Program Honorable Mention, 2016
- Recipient of 2015 ASME Graduate Student of the Year Award recipient at Florida Institute of Technology
- Pi Tau Sigma Mechanical Engineering Honor Society inductee at Florida Institute of Technology
- Tau Beta Pi Engineering Honor Society inductee at Florida Institute of Technology

Publications Reviewed

Conference Proceedings

- International Design Engineering Technical Conference
- International Conference on Engineering Design
- American Society for Engineering Education

Journal Submissions

- ASME Journal of Mechanical Design
- ASME Journal of Medical Devices

Memberships

- Member, American Society of Mechanical Engineers, ASME 2011 – Present
- Member, Society for Women Engineers, SWE 2011 – Present
- Member, Order of the Engineer 2013 – Present
- Member, American Society for Engineering Education, ASEE 2016 – Present
- Member, Astrobiology Research and Education Society, ARES 2016 – Present
- Member, Society of Automotive Engineers, SAE 2019 – Present

Community Activities

- Volunteer/Mentor, FIRST Robotics 2010 – Present

FELLOWSHIPS AND AWARDS

- ASEE Travel Award $500 July 2019
- ASME CIE Travel Award $750 August 2018
- NSF/ASME Travel Award $1,250 August 2017

Elisabeth Kames ekames@floridapoly.edu
Florida Poly B.S. Civil Engineering
### NSF/ASME Travel Award

- **$1,250**
- August 2016

## SKILLS AND QUALIFICATIONS

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<th>Computer</th>
<th>Engineering</th>
<th>Mechanical</th>
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<td>Solidworks</td>
<td>Technical drawing</td>
<td>Machine shop</td>
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<td>AutoDesk</td>
<td>Geometric dimensioning &amp; tolerancing (GD&amp;T)</td>
<td>CNC machines</td>
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<td>Inventor</td>
<td>Analysis</td>
<td>Composite work</td>
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<td>Creo/ProE</td>
<td>Composite design</td>
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<td>ANSYS APDL</td>
<td>Graphical synthesis</td>
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<td>ANSYS Workbench</td>
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Jun Kim, Ph.D.

335 Haskins Ct SE, Ada, MI 49301  jun@alumni.rice.edu  www.linkedin.com/in/jkwater

Education

2015-2020  Rice University, Houston, TX  Ph.D. in Environmental Science & Engineering (GPA: 3.86/4)

2005-2007  Gwangju Institute of Science and Technology (GIST), Gwangju, S. Korea  M.S. in School of Environmental Science and Engineering, Summa Cum Laude (4.00/4)

2000-2005  Handong Global University (HGU), Pohang, S. Korea  B. Eng. in Environmental Eng. & Civil Eng, Minor in Computer Science

Professional Experience

2020-present  Committee Member, Education and Training Council, MI-AWWA, Grand Rapids, MI  Research & Treatment Practices:  focuses on current research and leading treatment practices for emerging contaminants.  Reviews the CEC course materials and provides feedbacks.

2020-present  Water Sciences Committee Member, Water Quality Association (WQA), Lisle, IL  Manages the technical and scientific tasks of WQA.  Provides advice to the Water Quality Research Foundation (WQRF) research projects.  Provides semi-annual reports to the Board of Directors.

2021-present  HQ Representative for Ext Stakeholders, Access Business Group, Ada, MI
2020-present  Lead, Simulation Center of Excellence (CoE)

2015-2019  PhD Researcher, National Science Foundation (NSF) Engineering Research Center (ERC) for Nanotechnology-Enabled Water Treatment (NEWT), Houston, TX  Developed transformative and off-grid water treatment systems: Capacitive deionization (CDI), photo-thermal disinfection reactor (PTDR), microbial fuel-cell (MFC), ion-selective membrane, graphene/CNT electrodes.  1 Patent, 7 peer-reviewed publications, 6 conference presentations, 8 awards.
2011-2015  **Research Engineer III, Doosan Hydro Technology**, Tampa, FL
Developed patented high-rate produced water/seawater treatment units (flotation unit, evaporator, membrane system, pre-/post- treatment units). Completed vibrating anaerobic membrane bioreactor for Canadian heavy oil site. 1 Patent, 2 peer-reviewed publications, 4 conference presentations, 1 award.

2010-2011  **Research Engineer, LG Advanced Research Institute**, Seoul, South Korea
Characterized PVDF hollow fiber UF polymers and nano-materials (SEM/EDS, TEM, XRD, XPS, FTIR, Electrophoresis, Dynamic Light Scattering, Zeta-potential Analyzer, UV-Vis Spectroscopy, contact angle goniometry, BET Analyzer) Developed ultrapure water monitoring system for semiconductor manufacturing (GC-ECD/MSD, LC-MS, HPLC, ICP-OES/MS, IC, TOC) 1 Patent, 1 conference presentation, 1 performance award, 1 QC award.

2008-2010  **Research Engineer/Project Manager, “S” grade, Woongjin R&D Center**, Seoul, Korea  
2007-2008  **Associate Research Engineer**
Performed material/water quality analysis at the Water Quality Association (WQA) Recognized Testing Laboratory (RTL). Developed filter testing protocols (particulate, turbidity, heavy metals, VOCs, cyst, and P-231). Identified ion transport through membrane polymer surfaces. 4 Patents, 1 publication, 1 research award, 3 performance awards, 1 QC award.

2005-2007  **MS Research Assistant, GIST**, Gwangju, Korea
National Research Laboratory (NRL) for Applications of Environmental Nanoparticles Developed an advanced oxidation process (AOP) using reactive iron-oxide nanoparticles. 1 Patent, 2 peer-reviewed publications, 4 awards.

Summer 2004  **Summer Research Intern, Pohang University of Science and Technology (POSTECH)**  
Marine Environment Chemistry Lab, Pohang, S. Korea  
Participated in optimizing thermodynamic constants in the natural seawater system.

2000-2004  **Undergrad Research Assistant, Aquasen**, HGU, Pohang, Korea
Developed a particle size analyzer sensor  
Participated in numerical seawater wave simulation projects for harbor construction sites.

**Teaching Experience**

2022 Spring  **(Appointed) Adjunct Professor, Cornerstone University**, Grand Rapids Main, MI  
EGR 437 - Environmental Engineering (4 credit)

2021 Fall  **Adjunct Professor, Northwood University**, Midland Main Campus, MI  
NSC 2100 - Environmental Science (3 credit)  
NSC 4060 - Science & Technology (3 credit)

2016-2018  **Teaching Assistant, Rice University**, Houston, TX
CEVE 535 - Physical Chemical Processes for Water Quality (3 credit)

2016-2018 Grader, Rice University, Houston, TX
CEVE 534 - Fate and Transport of Contaminants in the Environment (3 credit)

Fall 2004 Teaching Assistant, HGU, South Korea
Academic Writing

Fall 2003 Teaching Assistant, HGU, South Korea
English Public Speaking

Spring 2002 Teaching Assistant, HGU, South Korea
Internet application techniques

Invited Presentations

October 13, 2021 Industry-Academia-Research Nexus
– CUE 20070 Seminar, HGU

October 20, 2020 Life as a Water Scientist
– CEE 880/881 Seminar in Environmental and Water Resource Engineering (EWRE) Program at University of Michigan, Ann Arbor

February 21, 2020 Transitioning from Academia to Industry: Tips for NEWT Students/Postdocs
– Career Mentoring: Rice University/NEWT Research Center

Honors & Awards

2021 Next Gen Award – WQA Leadership Awards Winner
https://www.wqa.org/about-us/leadership-awards/next-gen-award
WQA 2021 Award Recipients
https://www.wqa.org/awards
https://wqa.org/annual?utm_source=home&utm_medium=banner&utm_campaign=annual

2021 Faces of the Industry: Young Professionals Award – Water Quality Products (WQP)
https://mydigitalpublication.com/publication/?i=695052
WQP 2021 Young Professionals

2020 Closing Comment – Rice University May Graduation Commencement
https://www.youtube.com/watch?v=GYTOIoRVFyQ

2019 Best Paper Awards – COMSOL 2019 Boston

2019 Constancio Miranda Fellowship – Doris Duke Charitable Foundation
https://www.ddcf.org

2018 Certificate of Merit – American Chemical Society (ACS)
https://acsenvr.com/website/awards-recognition/certificate-of-merit/

2018 Best Paper Scholarship – Texas American Water Works Association (AWWA)
2018  Korean Honor Scholarship – Embassy of the Republic of Korea
Embassy of the Republic of Korea
Announcement - KHOUKEC.org
Article - Overseas Korean Journalists Association

2018  KSEA-KUSCO Scholarship – Korean-American Scientists & Engineers Association
https://scholarship.ksea.org/Recipients.aspx?ssYear=2018

2017  International Travel Grant – Rice Engineering Alumni (REA)
https://alumni.rice.edu/rea/scholarships

2015-2016  Robert and Eleanor Shubinski Award – Rice University
2015-2019  Research Assistantship – Rice University
2013  Water Award – Doosan Headquarter
2012  Best Performer – LG
2011  6 Sigma Best Practice Award – LG
2010  The Honor of Top Research Member (R&D Incentive) – Woongjin
2009  Best Performer (Promotion) – Woongjin
2008  6 Sigma Best Practice Award – Woongjin
2007  New Idea Competition Award (1 month International Business Travel) – Woongjin
2006  Best Presentation Award – Korean Society of Environmental Engineering
2006  Scholarship for Science and Engineering – Korea Public Broadcasting Station (KBS)
2005-2007  National Full Scholarship – Ministry of Science and Technology
2005-2007  Brain Korea 21 Scholarship – Ministry of Education and Human Resources

Service and Leadership

2021  Joint Committee Proxy (for voting-member), NSF DWTU
NSF JC DWTU Meeting - May 12, 2021

2020-present  Committee Member, Education & Training Council, MI-AWWA
Material Reviewer - Continuing Education Credit (CED) courses.
Fellowship Committee – AWWA Fellowship for Water Quality & Treatment Research
Moderator - Monthly CED Webinars.

2020-2021  Task Force Team member, WQA Technical Convention Education
Reviewed technical tracks and presentation proposals for WQA Convention 2021.

June-July, 2020  Simulation Adviser, SolMem LLC
Multi-effect nanophotonic solar membrane distillation module simulation

April, 2020  HWTS Newsletter contributor
The Water Institute at UNC in collaboration with WHO & UNICEF

2020-present  Career Mentor, NSF ERC NEWT students/postdocs
NEWT career development workshop (February 21, 2020)
2019-present  **Task Group Member, NSF International - DWTU Joint Committee (JC)**
- NSF/ANSI 53 – High Lead
- NSF/ANSI 53 – PFAS
- NSF/ANSI/CAN 61 – Nanomaterial
- NSF/ANSI 53 – 1,2,3-TCP
- NSF P-244

2019-present  **Task Force Team, Water Quality Research Foundation (WQRF)**
- 2020 Project: Safe Drinking Water Act (SDWA) Compliance

2018-2019  **Vice President, Student Leadership Council (SLC), NEWT Research Center**

2018-2019  **Treasurer, American Water Works (AWWA) Rice Chapter**

2018-2019  **Vice President, Korean Graduate Student Association, Rice University**

2018-2019  **RICE STEM Outreach: Nano-In-Schools**
- Taught science classes at local High Schools in Alief ISD in TX

2017-2018  **Harvey effect monitoring team, water/soil sampling & monitoring, Rice University**
- Volunteered in analyzing pH, alkalinity, turbidity, and heavy metals
- [USA Today](http://news.rice.edu/2017/09/11/rice-teams-collect-floodwater-for-study/)
- [YouTube](https://www.youtube.com/watch?v=LfdphNg-n5w)
- [Engineering](https://engineering.rice.edu/news/nsf-backs-rapid-study-harvey-s-environmental-wake)

2017-2018  **Professional development leader, Student Leadership Council (SLC), NEWT Center**

2016-2016  **Public health-related drinking water quality analysis – a collaboration with KHOU 11**
- KHOU11 news station reported on live breaking news. (November 10, 2016)
- [Website](http://www.khou.com/article/mobile/news/high-lead-levels-found-in-water-inside-city-buildings/350946843)
- [Website](https://www.khou.com/article/news/high-lead-levels-found-in-water-inside-city-buildings/350946843)

2015-2019  **NSF Research Experience for High School Teachers/Students (REHST/REHSS) and for Community College Undergraduates (REU), Rice University**
- Provide guidelines for a short-term water treatment project as a research mentor
- Mentee: Ji Won Kim (Rice University), 2018 Fall
- Mentee: Elisabeth Villarreal (Lee College), 2018 Summer
- Mentee: Daniel S. Caña (Lone Star College), 2017 Summer
- Mentee: Yunong Wang (Toyota Technological Institute), 2016 Fall,
- Mentee: Jerry Cortez (Houston Academy of International Studies), 2016

**Programming/software Skills**

**Selected Patents**
- US 62/715116, Electrodes for selective removal of multivalent ions through capacitive deionization
US 9422168, EP 14165628, KR 102014004909, Dissolved Air Flotation Device for Liquid Clarification
KR 1020090096353, Water purifier and its controlling method (Korean Patent)
KR 1020080112899, Water purifying filter element using iron oxide nanoparticles and method thereof (KP)
KR 100784167, Alumina-supported iron oxide nanoparticles for the advanced oxidation process (KP)

Selected Publications & Proceedings


5. Zuo, Kuichang; Huang, Xiaochuan; Liu, Xingchen; Gil, Eva; Kim, Jun; Jain, Amit; Chen, Long; Liang, Peng; Zepeda, Alejandro; Verduzco, Rafael; Lou, Jun; Li, Qilin, A Hybrid Metal-Organic Framework-Reduced Graphene Oxide Nanomaterial for Selective Removal of Chromate from Water in an Electrochemical Process, Environmental Science & Technology, 54 (20), 13322-13332 (2020). https://doi.org/10.1021/acs.est.0c04703


10. Stephanie Loeb, Jun Kim, Chenxi Jiang, Lawrence Early, Haoran Wei, Qilin Li, Jae-Hong Kim, Nanoparticle Enhanced Interfacial Solar Photothermal Water Disinfection Demonstrated in 3-D Printed


13. Jun Kim, Amit Jain, Kuichang Zuo, Rafael Verduzco, Qilin Li, abstracts of papers of the American Chemical Society, 2018. – Certificate of Merit

14. J Kim, A Jain, K Zuo, R Verduzco, Q Li, Texas Water 2018 WEAT/AWWA annual meeting, San Antonio, TX, 2018. – Best Paper Scholarship


18. A Jain, J Kim, K Zuo, Q Li, R Verduzco, Ion-selective and high capacity electrodes for membrane capacitive deionization, abstracts of papers of the American Chemical Society 255, 2018.


31. Haeryong Jung, Hosik Park, Jun Kim, Ji-Hoon Lee, Hor-Gil Hur, Nosang V Myung, Heechul Choi, Preparation of biotic and abiotic iron oxide nanoparticles (IONPs) and their properties and applications in heterogeneous catalytic oxidation, Environmental science & technology, 41, 13, 4741–4747 (2007), [https://doi.org/10.1021/es0702768](https://doi.org/10.1021/es0702768)
MARY B. VOLLARO, Ph.D.

mvollaro@flpoly.org 863.874.8604

EDUCATION

Ph.D. in Materials Science, Field of Metallurgy, May 1996
UNIVERSITY OF CONNECTICUT, Storrs, CT
Dissertation: Phase Formation, Microstructures, and Electrical Properties of Ni-Cr Films
Advisor: Dr. Donald I. Potter

M.S. in Metallurgy, 1986
RENSSELAER POLYTECHNIC INSTITUTE
The Hartford Graduate Center, Hartford, CT

B.S. in Mechanical Engineering, 1983
WESTERN NEW ENGLAND COLLEGE, Springfield, MA

PROFESSIONAL EXPERIENCE

Associate Professor, Mechanical & Industrial Engineering  Aug ’16 - present
FLORIDA POLYTECHNIC UNIVERSITY, Lakeland, FL

Associate Professor, Mechanical Engineering  Aug ‘04- May ‘16
Assistant Professor, Mechanical Engineering  Sept ‘98 – Aug ‘04
Assistant Professor of Engineering (Visiting)  Sept ‘97 – Aug ‘98
WESTERN NEW ENGLAND UNIVERSITY, Springfield, MA

Assistant Professor (adjunct)  Summer ‘97
FAIRFIELD UNIVERSITY, BEI School of Engineering, Fairfield, CT

Research Scientist  Feb ’96 – Aug ’97
ADVANCED TECHNOLOGY MATERIALS, INC., Danbury, CT

Graduate Research Assistant / Teaching Assistant  June ’89 – Apr ‘96
UNIVERSITY OF CONNECTICUT, Storrs, CT

Manufacturing Engineer / Process Planner  July ’86 – Aug ‘88
PRATT AND WHITNEY AIRCRAFT, North Haven, CT

Materials Engineer I  June ’83– July ‘86
AVCO LYCOMING, Stratford, CT


Vollaro, Mary B., and Brennan, Michael, “Leveraging student’s interests in a senior design project through integration of materials selection methodology”, Proceedings of the 2014 ASEE National Conference

Dr. Owe G. Petersen (Milwaukee School of Engineering), Dr. R. David Kent (Milwaukee School of Engineering), Dr. Christina Howe (University of Evansville), and Dr. Mary B. Vollaro (Western New England University), “General Education: Key for Success for an Entrepreneurial Engineering Career”, Proceedings of the 2012 ASEE National Conference


Schreiner, S., Keyser, T., Musiak, R., Mindek, R., **Vollaro, M.**, “Strategic use of Manhattan: An Internet communication tool used with a freshmen engineering design course”, Proceedings of 2002 ASEE Annual Conference


PRESENTATIONS


Vollaro, M.B., “A model for senior design projects = Student’s personal interests + Materials Selection Methodology”, at the 6th North American Materials Education Symposium, March 25-27, 2015, at The Ohio State University, Columbus, OH

Vollaro, Mary B., and Brennan, Michael, “Leveraging student’s interests in a senior design project through integration of materials selection methodology”, 2014 ASEE National Conference, Indianapolis, IN, June 16, 2014

Vollaro, M.B., and Klein, R.R., “Training in teaming and leadership from ‘start to finish’ in school and beyond…,” Poster presentation, at KEEN 2013 Winter Meeting, January 3-4, 2013 in Tempe, AZ and at poster session of KEEN & ENT Division, June 25, 2013 at the ASEE 2013 Annual Conference in Atlanta, GA


Mary B. Vollaro and Craig Johnson (Central Washington University) Materials Education 2004 Topical Trends and Outreach Effort, 2004 ASEE Annual Conference, Salt Lake City, UT

Vollaro, M.B., “The Classroom is our Lattice”: A Series of “Quick” Visualization Exercises for the Introductory Materials Science Course " 18th Annual National Educators Workshop, Experiments in Engineering, Materials, Science and Technology, Hampton, VA, October 2004


Schreiner,S., Keyser, T., Musiak,R., Mindek, R., Vollaro,M., “Strategic use of Manhattan: An Internet communication tool used with a freshmen engineering design course”, 2002 ASEE Annual Conference, June 16-20, 2002 in Montreal, Canada.

Bronson, C., and Vollaro, M.B., “Assessment though our Roots: Transforming a Course Assignment in to a Course Embedded Assessment Tool”, 2002 American Association for Higher Education (AAHE) Assessment Conference, Boston, MA

Vollaro, M.B., “Poster Sessions: A Learner-Centered Activity and Assessment Tool for Engineering Students”, 2002 American Society for Engineering Education Zone 1 Conference, April 5-6, 2002, United States Military Academy, West Point, NY

Presented workshop with ENGR103 team members, “Workshop: Introduction of the Design Process to Freshman Engineering Students” at the 2002 American Society for Engineering Education Zone 1 Conference, April 5 – 6, 2002 at the United States Military Academy, West Point, NY


PROFESSIONAL DEVELOPMENT

Attended workshop, Engineering Leadership Lab Demonstration, at 2015 ASEE Annual Conference in Seattle, WA on June 14, 2015

Attended workshop, Web-Enabled Tools and Resources for More Effective Teaching and Learning, at ASEE Annual Conference in Indianapolis, IN, on June 15, 2014

Attended workshop, Fast Formative Feedback to Enhance Learning and Motivation, at 2013 ASEE Annual Conference in Atlanta, GA on June 23, 2013

Activities in support Kern Entrepreneurship Education Network (KEEN):
    SEE Faculty Workshop, “Shaping Entrepreneurial Engineers Faculty Workshop” sponsored by KEEN network on best practices, January 5, 2013 in Tempe, AZ

    Winter Meeting in Tempe, AZ on January 3-5, 2013

    SCAN Meeting for KEEN group, Villanova University in November 16, 2012

    KEEN Fall meeting in Milwaukee, WI on September 28-29, 2012

    Pre-meeting workshop on KEEN Student Outcomes (KSO) rubrics for outcomes 1, 2 and 4, Milwaukee, WI on September 27, 2012

    Meeting of SCAN Group at Union College in Schenectady, NY on June 1, 2012
KEEN Assessment Workshop and Meeting in Milwaukee, WI on April 18-20, 2012

SEE Workshop and Winter Meeting in Orlando, FL on January 3-6, 2012

KEEN Workshop and meeting in Milwaukee, WI on September 28-30, 2011


Attended symposium, *Information Technology in Support of Materials Education*, at Stevens Institute of Technology, March 20, 2010

Participation with students, 2009 *WERC International Environmental Design Contest on the task of “Wind-2-H2O: Converting Wind Energy to Mechanical Energy for Water Treatment”* at New Mexico State University in Las Cruces, MN


Attended short course, *New Approaches in Materials Education; CES Edupack 2006* presented by Prof. Mike Ashby from Cambridge University, held in Chicago, IL, June 2006

Attended one-week course (NFS Grant funded), *Nanoscale Mechanical Characterization: The Theory and Practice of Contact Probe Techniques*, held Northwestern University, Evanston, IL, on Aug. 11-15, 2003

Attended short course, *New Approaches in Materials and Manufacturing Education; CES 4.0 Material Selector*, presented by Prof. Mike Ashby from Cambridge University, held in Nashville, TN, June 22, 2003

Attended 3-day teaching workshop, *Teaching Engineering Faculty to Teach in an Active Learning Environment*, Roger Williams University, August 13-15, 2001

Attended workshop, *Instruction on the use of Lego-Dacta kits and ROBOLAB software for age appropriate engineering experiences for grades K-12*, Tufts University, May 23, 2001
GRANTS AWARDED

September 2011, Kern Entrepreneurship Education Network (KEEN), Phase 1, Kern Family Foundation, $75,000

Summer 2011, Scholarship for the Olin I2E2 faculty workshop, Meeting the Needs of the 21st Century: Designing for Student Engagement, at Franklin W. Olin College of Engineering in Needham, MA (Awarded $2000 scholarship to participate in this week-long event attended by engineering faculty from around the world, e.g., mainland China, Peru, Singapore, England, Saudi Arabia, and more.)

Summer 2010, WNEC School of Engineering Summer Development Grant- Write proposal for WNEC’s participation in the Grand Challenges Scholars Program sponsored by NAE (National Academy of Engineers), $1000

2009-10, Clean Energy Workforce Training Capacity Building Grant Program, Development in Life Cycle Analysis Course, $3500

Summer 2008, WNEC Curriculum Development Grant for ENGR105 course redesign, $500

2008-09, Center for the Advancement of Scholarship on Engineering Education, National Academy of Engineering to improve recruitment and retention of female students in mechanical engineering. $2400

Summer 2005, Curriculum grant for development of new ENGR105- freshman engineering course for applications and computer programming design using MATLAB, $1000

Summer 2003, National Science Foundation (NSF) Fellowship, Summer Institute on Nano Mechanics and Materials, at Northwestern University, Evanston, IL, on August 11-15, 2003


2001 SME Library Award, Society of Manufacturing Engineers (SME) Education Foundation, Materials to upgrade manufacturing library, $2252

March 2001, Western New England College Faculty Professional Development Grant, “Additional course development for ENGR103 Introduction to Engineering”, $2000

SPECIAL ASSIGNMENTS (at Western New England University)

2012-2016, Program Coordinator College of Engineering Honors Program, and Chair of College of Engineering Honors Program Committee. Developed hybrid model with cohort and honors-by-contract courses to meet the needs of the College of Engineering Honors students.

2011-2013, KEEN PI and WNE Coordinator, PI and Coordinator for KEEN grant.

2011-2013, Program Designer and Coordinator, WNE College of Engineering Grand Challenges Scholars Program sponsored by NAE (National Academy of Engineers).

2012-2013, Coordinator, WNE College of Engineering Study Abroad initiatives with HEI in Universite Catholique De Lille in Lille, France.

COURSES TAUGHT (at Western New England University)

ME309 Materials Science, 3 credits, Undergraduate
EE312 Electrical Materials and Devices, 3 credits, Undergraduate
BME340 Introduction to Biomaterials, 3 credits, Undergraduate
ME208 Mechanics of Materials, 3 credits, Undergraduate
ME322 (previously IE314) Manufacturing Processes, 3 credits, Undergraduate
ENGR103 Introduction to Engineering; 4 credits, Freshmen
ENGR102 First Year Engineering Seminar, 1 credit, Required, Freshmen
HONE 102 Honors First Year Engineering Seminar, 1 credit, Freshmen
ENGR 100 Engineering Seminar & College Success Skills, 2 credits, Freshmen
ENGR 105 (ENGR110) Computer Applications in Engineering, 2(3) credits, Freshmen
ME313 ME Laboratory I, Undergraduate (Jr.) –Strain gauges & cantilever beam
ME314 ME Laboratory II, Undergraduate (Jr.) - Cold work & recrystallization of cartridge brass
IE318 IE Design Lab I, Undergraduate (Jr.) , IE428 IE Design Lab III, Undergraduate (Sr.)
ME 412 Green Engineering: Materials Selection in the Life Cycle Design Process, 3 credits, Upper level undergraduate
ME 480 Internship for Mechanical Engineering, 3 credits
EMGT 590 and EMGT690 – Special Topics in Engineering Management: Topics in Advanced Manufacturing Processes, Upper level undergraduate/ Graduate
ME640 Materials Selection and Manufacturing Process, 3 credits, Graduate
COURSE HIGHLIGHTS (from Western New England University)

Use of virtual classroom Kodiak (Desire2Learn software) – All courses presented on this platform and contain course materials. Report from WNE Information Technology indicated ENGR 102 First Year Seminar course utilized the most Kodiak features (7) of any course on campus.

The Annual Materials Science Poster Session – Students chose a topic, research the literature for information on ‘properties, processing, and microstructure’, create a poster, and present it in a symposium format.

Information Literacy for Materials Science – Workshop conducted in collaboration with our librarian in support of the ME309 project, i.e., poster and paper.

‘Muddiest Points’ student centered inquiry to facilitate student learning in Materials Science.

Interactive classroom in Manufacturing Processes, including hands-on activities, videos with guided reflection, ‘video’ exams, and student presentations.

Assignments utilizing the CES Edupack Materials Selection software (Granta Design) in Materials Science and Manufacturing Processes.

Exemplar assignments in ENGR 102 First Year Seminar for assessment of university-wide competencies in information literacy and professional development for the WNE First Year Program.

Course management in ENGR 102 First Year Engineering Seminar with 160-180 freshman students and 18 FSA’s (Freshman Seminar Assistant), who conduct lessons and activities in ‘breakout rooms’ for their group of 20-25 students prior to meeting as a large group.

Leadership and teamwork skills in ENGR 102 First Year Engineering Seminar utilizing assessment instruments, MBTI (Myers-Briggs Type Indicator) and new KGI (Klein Group Instrument), and students are ‘trained’ in workshops and with guided reflection.

Industry tours in Manufacturing Processes- The required industrial tours coincided with the manufacturing processes being studied in class and a guided reflection activity was required. 

Tours included: • Yankee Casting Co., Inc. / Yankee Magcast Co. in Enfield, CT
• Techni-Products, Inc. in East Longmeadow, MA • Smith & Wesson, Inc. in Springfield, MA
• O-A, Inc. in Agawam, MA, • American Saw & Manufacturing, Co. in East Longmeadow, MA
• A.G. Miller, Inc. in Springfield, MA • Hamilton Sundstrand in Windsor Locks, CT
• Columbia Manufacturing, Inc., in Westfield, MA
ADVISING (at Western New England University)

**Academic advisor** to 20-30 students per year; 1997-2011 for freshman engineering students, and 2012 – present for Mechanical Engineering students in sophomore, junior, and senior years.

FACULTY SUPPORT ACTIVITIES (at Western New England University)

Coordinate the **Alumni Mentoring Program** (AMP) with College of Engineering and Alumni Office.

Sponsored many **Learning Beyond the Classroom (LBC) experiences** and reviewed papers for more than 20 students per year.

Support recruitment and retention efforts by conducting **tours and interviews** for prospective students, making **recruiting calls** (50+ calls per year to prospective ME and ENGR students)

Wrote numerous **Letters of Recommendation** for student’s at all academic levels, ongoing

Participate in **department efforts** to hire new faculty, ABET, student recognition events, and program improvements, ongoing

Participate **Convocation** (Marshall), Academic Awards events (presenter), **Commencement** (platform party and assisting with diplomas)

**Faculty representative**, Western New England University Open House for prospective students, 1997 - present

**Instructor and Faculty Advisor**, SOAR (Summer Orientation and Registration) program: First Class in Engineering, Faculty Expectations Panel, Advising and Registration, 1997 - present

PROFESSIONAL SERVICE

**Leadership positions**, Materials Division, American Society For Engineering Education (ASEE) Materials Division, Immediate-Past Division Chair (2008-09), National **Division Chair** (2006-07), **Program Chair** (2004-05)

**Peer Reviewer**, Materials Division, ASEE Annual Conference, 2003- present

**Session Chair**, Materials Division, ASEE Annual Conference numerous times, 2003-present

**Peer Reviewer**, Leadership (LEAD) Division, ASEE Annual Conference, 2015-16

**Member**, Organizing Committee, National Educators Workshop for Materials Education (NEW), 2005- 09, **Session chair, peer reviewer** NEW at numerous times, 2002-2009

UNIVERSITY-WIDE GOVERANCE (at Western New England University)

**Member**, University Senate Athletics and Recreation Committee, 2015- present

**Member**, Academic Standards Committee of the Faculty Council, 2011-present

**Chair** of Western New England University Faculty Senate, 2012-13

**Chair** of Nominations and Rules Committee, University Faculty Senate, 2012-13

**Member** of General University Requirements (GUR) Committee 2012-15; **Chair** 2013-15

**Senator**, Western New England University Faculty Senate, 2012-14

**Member** of University-wide Ad Hoc Committee on General Education Requirements, 2011-14

**Member** of General College Requirements Committee 2007-11; **Chair** 2008-09

**Chair** of Western New England College Faculty Senate, 2006-07

**Vice-Chair** of Western New England College Faculty Senate, 2005-06

**Senator**, Western New England College Faculty Senate, 2 terms (2005-07 and 2007-2009)

**Member** of college wide committee for 2011 NEASC Accreditation Committee, **Chair** of NEASC Standard #11, Integrity

**Member** of Academic Standards Committee 2007-11; **Chair** 2007-08, 2008-09

**Member** of college-wide Strategic Planning Committee 2008 thru Fall 2009, **Chair** of Sub-committee for Sustainability

**Member** of college-wide 2001 NEASC Accreditation Committee; **Member** of NEASC Integrity Committee

**Member** of Lecture Day Committee, 1998-1999

**Member** of Academic Standards Committee, 1997-98

**Member of Search Committee** for Provost/Vice President of Academic Affairs (Selected by President Caprio) 1997
COLLEGE OF ENGINEERING GOVERANCE (at Western New England)

Chair of Honors Committee, 2011- present
Member of Hall of Fame Committee, 2014-present
Chair of Peer Review Committee (PRC) for Promotion and Tenure, 2014-15
Member of Peer Review Committee (PRC) for Promotion and Tenure, 2013-14
Member of New Initiatives Committee, 2008-09
Member of Strategic Planning Committee, 1997-98
Member of Admissions/Retention Committee, 1997-98
Member of Curriculum Committee, 1997
Member of Retention and Outreach Committee, 1997

OUTREACH FOR STUDENTS AND THE COMMUNITY


Faculty representative, Leadership School Science Fair Activity, Western New England College, May 29, 2003

Instructor, “Exploring Engineering”, Workshop for after school enrichment program, March Madness”, at Somers Elementary School, Somers, CT, March 2001 and 2002

Instructor, “Introduce a Girl to Engineering Day”, Outreach program and activities at Western New England College, Springfield, MA on February 22 and April 26, 2001

Faculty advisor, WNEC student chapter of the Society of Women Engineers (SWE),1997-2007
Highlights: Team Building and Networking through the Ropes Course Activities at Springfield College, Springfield, MA, October 19, 2002; SWE Alumni Dinner and Panel Discussion 2000-2003, Western New England College, Springfield, MA


Session moderator, The Annual Engineering Symposium on May 22, 2002 at Western New England College, Springfield, MA.
**FACULTY ADVISOR FOR SENIOR DESIGN PROJECTS / INTERNSHIPS**

**Work done in the WNE College of Engineering laboratories unless otherwise noted.**


**Fall 2015,** “Design and Analysis of a Hockey Stick: A Material Selection Project”, Anthony Vincequere


**Spring 2015** “Surface Characterization of Indium Tin Oxide Bioelectrodes”, Stephen Faivre

**Spring 2015** “Design and Analysis of the Quick-Release Mechanism for Facemasks of a Football Helmet; A Material Selection Project”, Andrew Gatzogiannis

**Spring 2015** “Material Science and Manufacturing: Design Process for Welding”, Ryan Gazlay


**Spring 2015** Design of an Exhibit to Demonstrate Engineering Principles in Rowing, Ryan Scott


**Spring 2014,** “Feasibility and Material Selection for an Electronic Turf Field”, Ryan Flanigan

**Spring 2014,** “The Design and Feasibility Study of An Artificial Turf Field”, Terry Crocker

**Spring 2014,** “Material Study and Performance Comparison of Baseball Bats”, Ryan Skelly

**Spring 2014,** “Analysis of Materials in the Design Optimization of Fishing Rods”, Kevin Wilkes

**Spring 2013,** “Unweldable or just difficult? A Comparison of TIG Welding Parameters on Precipitation Hardened Stainless Steel”, Shane Haluch


**Spring 2013** “Determination of Bend Point and Associated Attributes for Lenox Tools”, Nicholas Wiltey, *Industrial sponsor:* Lenox Tools, East Longmeadow, MA
Spring 2013 “Analysis of Core Materials for the Design and Fabrication of an All Mountain Ski”, Michael Brennan

Spring 2013 “A Comparison of TIG Welding Joint Design with Aluminum”, Dillon Young
*Poster award winner*

Spring 2012 “Why do I keep fixing the same old thing? A comparison of Two Welding Processes”, Andrew Scanlon

Industrial sponsor: Precision X-Ray, North Branford, CT

Spring 2012, “Effect of Coolant on Chips Produced by Milling”, Paul Dougan


Spring 2011, “Re-design of the WNEC Freshman Design Project”, Adam Petrillo

Spring 2011, “Material Selection and Product Development”, Andrew Labrie

Spring 2009, “Wind-2-H2O: Design and Fabrication of a Water Treatment Device’, Brian Carrigan and Michael Massa WERC International Environmental Design Contest at University of New Mexico, Las Cruces, NM


Spring 2007, “Design of an Exhibit on Welding Processes”, Christopher Orlando


1998-99 “The Design and Fabrication of a Device that will Investigate the Effects of Bruxism on Teeth”, Co-advisor, Lino S. Italia

Xiaofan Xu, Ph.D.
xxu@floridapoly.edu

Environmental Engineering Department 5125 Palm Springs Blvd.
Florida Polytechnic University Unit 10308
4700 Research Way Tampa, FL 33647
Lakeland, FL 33805 (813)570-3639

EMPLOYMENT

Florida Polytechnic University Lakeland, FL
Assistant Professor, Environmental Engineering Dept. Mar 2021 – Present
Visiting Assistant Professor Aug 2020 – Feb 2021
Instructional Intern Jan 2020 – May 2020

- Duties and responsibilities include teaching, service, and conducting scholarly research in environmental engineering
- Teaching & Service
  - Responsible for teaching environmental engineering courses, including ENV 2003 Introduction to Environmental Engineering, ENV 3008 Environmental Chemistry, EES 4201 Water Chemistry, ENV 4514 Water and Wastewater Treatment
  - Serving the university to teach some general STEM courses for university freshmen students, such as IDS 1380 Intro to STEM
  - Providing guidance and insights in the field of sustainability evaluation and water/wastewater treatment to the students in other disciplines
- Research
  - Conducting scholarly research in life cycle environmental assessment and cost analysis, process modeling, system-level optimization in terms of nutrient removal and recovery, stormwater management and wastewater treatment.
  - Research requires software skills in SimaPro, MATLAB, ArcGIS, Python programming, and lab experiment skills in water quality evaluation

EDUCATION

University of South Florida Tampa, FL
Ph.D., Environmental Engineering Aug 2020

- Dissertation: Sustainable Nutrient Management Through Technology Evaluation and Spatial Optimization

University of Missouri-Kansas City Kansas City, MO
M.S., Environmental and Urban Geosciences May 2014

East China Normal University
Shanghai, China
B.S., Environmental Science, Minor in Finance
Jul 2011

RESEARCH EXPERIENCE

Florida Polytechnic University
Assistant Professor
Lakeland, FL
Aug 2020 – Present
- Conducting a literature review of green infrastructure in terms of its performance and sustainability assessment
- Integrating a new hydrological module into the developed green infrastructure system optimization tool
- Planning a research proposal related to phosphorus control in phosphogypsum wastewater treatment

University of South Florida
Research Assistant; Advisor: Dr. Qiong Zhang
Jan 2015 – Aug 2020
• Center for Transportation, Environment, and Community Health (CTECH), US DOT
  - Developed a spatial optimization tool for green infrastructure implementation in terms of sustainable nutrient management with minimal environmental impacts and costs
  - Conducted a scenario analysis to explore the influence of implementing potential green infrastructure in terms of runoff control, nutrient management, and related environmental and economic impacts
  - Helped develop a SWMM-based hydrological model with fine resolution data in Tampa, FL
  - Developed a GIS-based method and built an ArcGIS geoprocessing tool to locate potential green infrastructure, measure their drainage areas, and identify their types
  - Created the GIS-based inventory of green infrastructure in Tampa, FL
  - Developed a GIS-based method to detect the implemented green infrastructure
• Center for Reinventing Aging Infrastructure for Nutrient Management (RAINmg), US EPA
  - Developed the process model of bioretention systems with engineered ground plants and internal water storage zones
  - Quantified the environmental and economic impacts of bioretention systems associated with different configurations; Observed the trade-off between bioretention’s nutrient removal performance, some environmental impacts and cost
  - Compared the environmental and economic impacts associated with both full-scale anaerobic and aerobic membrane bioreactors (MBRs) for municipal wastewater treatment under different scenarios of discharge and reuse; Expanded the potential of anaerobic MBR application on effluent irrigation for different crops
  - Explored the role of location in the environmental and economic performances of onsite wastewater treatment systems (OWTSs) relative to their nutrient management capabilities

University of Missouri-Kansas City
Kansas City, MO
**Research Assistant; Advisor: Dr. Wei Ji**  
Jun 2012 – Mar 2014
- Created a knowledge base, i.e., a set of decision rules for urban wetland detection
- Mapped the urban wetlands in the Kansas City metropolitan area by integrating the pixel-based classification with the knowledge-based approach, using SPOT satellite images
- Improved the mapping accuracy of urban wetlands utilizing knowledge-based image classification approach
- Assisted with the sub-pixel image classification using LIDAR data
- Composed master’s thesis, *A knowledge-based approach of satellite image classification for urban wetland detection*

**East China Normal University**  
Shanghai, China

**Undergraduate Research Assistant; Advisor: Dr. Bing Xie**  
Oct 2009 – May 2011
- Analyzed the effluent quality of the landfill leachate treated by an aged refuse bioreactor
- Quantified the amount of anammox in the bioreactor using the Real-time PCR technique
- Established the gene library of anammox in the bioreactor by sequencing the gene fragments screened
- Composed undergraduate thesis, *Anammox community in the aged refuse bioreactor using 16s rRNA gene library technique*

**Student Project Leader; Advisor: Dr. Yuanyuan Li**  
Mar 2009 – June 2010
- Sampled nine populations of *Solidago Canadensis*, an invasive species in Shanghai
- Investigated the population genetic structures of *Solidago Canadensis* using the random amplified polymorphic DNA (RAPD) technique

**TEACHING AND MENTORING**

**Florida Polytechnic University**  
Lakeland, FL

- **Instructor, ENV2003 Introduction to Environmental Engineering**  
  2020, 2021
- **Instructor, ENV4042 Environmental Sensing**  
  Fall 2021
- **Instructor, ENV4514 Water & Wastewater Treatment**  
  Spring 2021
- **Instructor, IDS1380 Introduction to STEM**  
  Fall 2020, Spring 2021
- **Instructor, EES4201 Water Chemistry**  
  Fall 2020
- **Instructor, ENV3008 Environmental Chemistry**  
  Fall 2020, Fall 2021
- **Lab Design Tutor, Lab Design Project for Environmental Engineering**  
  Fall 2020

**University of South Florida**  
Tampa, FL

- **Teaching Assistant, ENV4001 Environmental Systems Engineering**  
  Spring, Fall 2019
- **Teaching Assistant, ENV4417 Water Quality & Treatment**  
  Fall 2018
- **Teaching Assistant, EGN3311 Statics**  
  Spring 2018
- **Teaching Assistant, EGN4453 Numerical & Computer Tools I**  
  Spring, Fall 2015

**University of Missouri-Kansas City**  
Kansas City, MO

- **Instructor, ENVS110 Understanding the Earth (Lab)**  
  Fall 2013
Lab Instructor, GEOG5558 Satellite Climatology                        Fall 2012, 2013
Lab Instructor, GEOG203 Introduction to GIS                               Spring 2013
Lab Instructor, GEOG5507 Advanced GIS                                    Summer, Fall 2012

PEER-REVIEWED PUBLICATIONS


RESEARCH REPORTS


CONFERENCE PROCEEDINGS


SELECTED PRESENTATIONS AND INVITED TALKS

• “A GIS-based framework creating green stormwater infrastructure (GSI) inventory relevant to surface transportation planning.” Center for Transportation, Environment and Community Health (CTECH), Davis, CA, Nov 9, 2018. Poster presentation.
• “Sustainability assessment of green stormwater infrastructure,” Jilin University, Changchun, China, July 12, 2018. Invited talk.
• “Comparison of anaerobic and aerobic membrane bioreactors for different end uses through life cycle assessment,” Association of Environmental Engineering and Science Professors (AEESP), Ann Arbor, MI, June 22, 2017. Oral presentation.
• “A knowledge-based approach of satellite image classification for urban wetland detection,” Association of American Geographers (AAG), Los Angeles, CA, April 9, 2013. Oral presentation.

SELECTED AWARDS AND HONORS

• First Prize, Students and Young Professionals Poster Competition, FWEA 2019
• Honor Society Member, Tau Beta Pi 2017
• Honor Society Member, Phi Kappa Phi 2013
• Travel Grant, University of Missouri-Kansas City 2013
• Winner’s Prize, 18th “Daxia Cup” Research Competition, Shanghai 2010
• Excellent Student Scholarship, East China Normal University, three times 2008, 2009, 2010

RELATED PROFESSIONAL EXPERIENCE

Henkel Asia-Pacific and China Headquarters
Engineering Intern, Adhesives Technologies Shanghai, China Apr 2011 – Jul 2011

Shanghai Environmental Monitoring Center
Data Analyst Associate, Dept. of Atmospheric Monitoring Shanghai, China Sep 2010 – Oct 2010

SERVICE AND AFFILIATIONS

• Member, American Society of Civil Engineers (ASCE)
• Member, Water Environment Federation (WEF)
• Member, Association of Environmental Engineering and Science Professors (AEESP)
• Member, Association of American Geographers (AAG)
• Member, Florida Water Environment Association (FWEA)
• President, Chinese Student Christian Fellowship, Tampa, FL Aug 2015 – Jun 2021
  Vice President Aug 2015 – Sep 2019
• Vice President, Emmanuel Chinese Campus Mission, Kansas City, MO Aug 2012 – Mar 2014
• Award Judge, 61st Greater Kansas City Science and Engineering Fair Mar 2012
• Service Volunteer, EXPO 2010 Shanghai, China  May 2010
• Director, Liaison Office, ECNU Student Government  Sep 2008 – Jun 2009

SKILLS

Computer
• Life cycle assessment: SimaPro
• GIS and remote sensing: ArcGIS, ERDAS Imagine
• Programming: MATLAB, Python
• Process modeling and optimization
• Graphic design: AutoCAD, Adobe Illustrator, Photoshop
• Statistics: SPSS
• Microsoft Office

Lab experiment
• Water quality test
• Molecular ecology: DNA gel analysis quantification and extraction, RNA extraction, PCR amplification, DNA/RNA sequencing

Language
• Chinese (mother tongue); English (proficient)
Appendix D. Common Pre-requisite Form

Note: technical change only. February 2023 ACC Agenda.

Hi Tom,

I met today on this, and it was agreed that these are technical changes. These have been added to the agenda for the February ACC meeting.

Thank you!

Lynn

From: Tom Dvorske <tdvorske@fls.tampol.edu>
Sent: Tuesday, January 31, 2023 2:28 PM
To: Nelson, Lynn <lynn.Nelson@flbog.edu>
Subject: for ACC

Hi Lynn—

I just got off the ACC Oversight Committee and it got me to thinking about our own requests to ACC. Back in October, I sent a request to Lynda to add Civil Engineering to the agenda for Poly. Lynda indicated — and confirmed — she sent it to Michael Stowell to include on the agenda.

So, two things:
1. I meant to, but did not, include Industrial Engineering as well; form attached.
2. I am similarly submitting Industrial Engineering (simply an oversight—I thought I send it in October as well).

Both are TECHNICAL CHANGES only. Please let me know if there are issues. I would like them to be included on the February 22 Agenda.

Best to you,
Tom

Tom Dvorske, Ph.D. (Engineering)
Vice Provost of Academic Affairs
SACS/COE Liaison
Florida Polytechnic University
4700 Research Way
Lakeland, FL 33805-8531
Ph. 863.874.8844 | C. 857.263.6118
https://floridapoly.edu/
Common Prerequisite Request

<table>
<thead>
<tr>
<th>Institution:</th>
<th>Florida Polytechnic University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution Liaison:</td>
<td>Tom Dvorske, Vice Provost of Academic Affairs</td>
</tr>
<tr>
<td>Date of Submission:</td>
<td>10.18.2022</td>
</tr>
<tr>
<td>Program/Degree Type:</td>
<td>Bachelor of Science in Civil Engineering</td>
</tr>
<tr>
<td>Program CIP Code:</td>
<td>14.0801</td>
</tr>
<tr>
<td>Program Credit Hours:</td>
<td>120</td>
</tr>
</tbody>
</table>

If applicable, please complete the following if you are notifying us of a change to:

<table>
<thead>
<tr>
<th>Program Credit Hours:</th>
<th>Current Credit Hours: Click or tap here to enter text.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New Credit Hours: Click or tap here to enter text.</td>
</tr>
<tr>
<td></td>
<td>Effective Date: Click or tap here to enter text.</td>
</tr>
<tr>
<td>Limited Access Program Status:</td>
<td>□ Change from open access to limited access</td>
</tr>
<tr>
<td></td>
<td>□ Change from limited access to open access</td>
</tr>
<tr>
<td></td>
<td>Effective Date: Click or tap here to enter text.</td>
</tr>
<tr>
<td>Program CIP Code:</td>
<td>Current CIP code: Click or tap here to enter text.</td>
</tr>
<tr>
<td></td>
<td>New CIP Code: Click or tap here to enter text.</td>
</tr>
<tr>
<td></td>
<td>Effective Date: Click or tap here to enter text.</td>
</tr>
<tr>
<td>Baccalaureate Program Status:</td>
<td>□ Notification of a Program Termination -</td>
</tr>
<tr>
<td></td>
<td>Term/Year Program Should be Removed from the CPM:</td>
</tr>
<tr>
<td></td>
<td>Click or tap here to enter text.</td>
</tr>
<tr>
<td></td>
<td>☒ Notification of New Program -</td>
</tr>
<tr>
<td></td>
<td>Anticipated Program Implementation Date:</td>
</tr>
<tr>
<td></td>
<td>Fall 2023</td>
</tr>
</tbody>
</table>
Proposed Revisions(s) to the CPM (check all that apply)

<table>
<thead>
<tr>
<th>The CIP Code Is Currently in the CPM:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ 1. Make curriculum changes to an existing track at proposing institution</td>
</tr>
<tr>
<td>☒ 2. Add program to a current track without curriculum changes</td>
</tr>
<tr>
<td>☐ 3. Add program to a current track with curriculum changes</td>
</tr>
<tr>
<td>☐ 4. Establish a new track without prerequisites</td>
</tr>
<tr>
<td>☐ 5. Establish a new track with prerequisites</td>
</tr>
<tr>
<td>6. For numbers 1-5, please provide track information below:</td>
</tr>
<tr>
<td>a. ☐ Track 1 ☐ Track 2 ☐ Track 3 ☐ Track 4 ☐ Track 5 ☐ Track 6</td>
</tr>
<tr>
<td>b. Track Name: Click or tap here to enter text.</td>
</tr>
<tr>
<td>c. If this is a request to establish a new track, please provide justification as to why a new track is needed: Click or tap here to enter text.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The CIP Code Is Not Currently in the CPM:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ 7. Add program to the CPM without prerequisites</td>
</tr>
<tr>
<td>☐ 8. Add program to the CPM with prerequisites</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proposed Curriculum Changes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Add course(s) and/or course alternative(s)</td>
</tr>
<tr>
<td>☐ Eliminate course(s) and/or course alternative(s) (delete course from the CPM)</td>
</tr>
<tr>
<td>☐ Exempt course(s) and/or course alternative(s) (request exception from course)</td>
</tr>
<tr>
<td>☐ Carry over prerequisites from previous CIP without changes</td>
</tr>
<tr>
<td>☐ Carry over prerequisites from previous CIP with changes</td>
</tr>
<tr>
<td>☒ Other – please specify No changes; only adding a program</td>
</tr>
</tbody>
</table>

Please include the following supporting documentation with this proposal.

- The program page from the [Common Prerequisite Manual](#), if applicable.

See next page 3.

- The program requirements for the baccalaureate degree program at your institution.

See page 4. The table illustrates the structure of all Florida Poly baccalaureate programs and explains each category.
### LOWER LEVEL COURSES

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Cr. Hrs.</th>
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<tbody>
<tr>
<td>MACX311</td>
<td>4</td>
</tr>
<tr>
<td>MACX281</td>
<td>4</td>
</tr>
<tr>
<td>MACX312</td>
<td>4</td>
</tr>
<tr>
<td>MACX282</td>
<td>4</td>
</tr>
<tr>
<td>MACX313</td>
<td>4</td>
</tr>
<tr>
<td>MACX283</td>
<td>4</td>
</tr>
<tr>
<td>MAPX302</td>
<td>3</td>
</tr>
<tr>
<td>MAPX305</td>
<td>3</td>
</tr>
<tr>
<td>CHMX045/X045L</td>
<td>4</td>
</tr>
<tr>
<td>CHMX045C</td>
<td>4</td>
</tr>
<tr>
<td>CHSX440/X440L</td>
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</tr>
<tr>
<td>PHYX048/X048L</td>
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<tr>
<td>PHYX048C</td>
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<tr>
<td>PHYX041</td>
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<tr>
<td>PHYX048L</td>
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<tr>
<td>PHYX049/X049L (1)</td>
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<tr>
<td>PHYX049C</td>
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<tr>
<td>PHYX044</td>
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<tr>
<td>PHYX049L</td>
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<tr>
<td>PHYX042</td>
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</tr>
<tr>
<td>PHYX049L</td>
<td>1</td>
</tr>
</tbody>
</table>

**FOR ALL MAJORS:** Students are strongly encouraged to select required lower division electives that will enhance their general education coursework and that will support their intended baccalaureate degree program. Students should consult with an academic advisor in their major degree area.

---

(1) PHYX049L does not count toward the degree at FIU.
# University Undergraduate Program Curriculum Template -- Category View

<table>
<thead>
<tr>
<th>Category</th>
<th>Course</th>
<th>Credits</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Learning Foundations</td>
<td></td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Professional Foundations and Critical Communication</td>
<td>ENC 1101 - English Composition 1: Exp and Arg Writing (W)</td>
<td>3</td>
<td>GESR</td>
</tr>
<tr>
<td></td>
<td>ENC 2210 - Technical Writing (W)</td>
<td>3</td>
<td>GESR</td>
</tr>
<tr>
<td></td>
<td>EGN 1006 - Career Design for STEM Professionals</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EGN 1007C - Concepts and Methods for Engineering and Computer Science</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IDS 4941 - Professional Experience Internship</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>STEM Core</td>
<td></td>
<td>22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IDS 1380 - Foundational Lessons and Applications in Mathematics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>COP 2271 - Introduction to Computation and Programming</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MAC 2311 - Analytic Geometry and Calculus 1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MAC 2312 - Analytic Geometry and Calculus 2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHM 2045 - Chemistry 1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHM 2045L - Chemistry 1 Laboratory</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHY 2048 - Physics 1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHY 2048L - Physics 1 Laboratory</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cultural and Social Awareness</td>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ARH 2000 - Art Appreciation</td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td></td>
<td>PHI 2010 - Introduction to Philosophy</td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td></td>
<td>HUM 2020 - Introduction to the Humanities</td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td></td>
<td>MUL 2010 - Music Appreciation</td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td></td>
<td>LIT 2000 - Introduction to Literature</td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td></td>
<td>HUM 2022 Explorations in the Humanities (Various Topics)</td>
<td>3</td>
<td>GEO</td>
</tr>
<tr>
<td></td>
<td>IDS 2144 Legal, Ethical, and Management Issues in Technology</td>
<td>3</td>
<td>GEO</td>
</tr>
<tr>
<td></td>
<td>AMH 2010 - American History to 1877</td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td></td>
<td>AMH 2020 - American History Since 1877</td>
<td>3</td>
<td>GESR</td>
</tr>
<tr>
<td></td>
<td>AMH 2930 - History: Special Topics</td>
<td>3</td>
<td>GEO</td>
</tr>
<tr>
<td></td>
<td>ECO 2013 - Principles of Macroeconomics</td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td></td>
<td>ECO 2023 - Principles of Microeconomics</td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td></td>
<td>PSY 2012 - General Psychology</td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td>II. Advanced Math and Science (some may be included in program core)</td>
<td></td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>
I. Learning Foundations -- Description

The courses in this category comprise the general education program. The State of Florida and institutional accreditors required 36 hours in GE, across broad disciplinary areas including communication, math, science, humanities, social sciences. Florida Poly include an additional two credits associated with professional foundations as part of the core learning foundations for all students. These lists are largely prescriptive.

Florida Poly's Learning Foundations core includes three sub-categories that address both broad educational essentials and institutional values such as critical thinking, team work in professional contexts, effective communication, and fundamental knowledge, skills, and behaviors in mathematics and science essential to STEM students' learning.
Professional Foundations and Critical Communication course support students’ educational and career objectives and provide foundation for thoughtful and effective communication essential to career success and civic engagement.

STEM Core is the critical pathway to success for Florida Poly students. All courses must be passed with C or better and any grade lower than C results in required retake of that course in the subsequent semester. In some cases, a program may not require MAC 2312 to be taken.

Cultural and Social Awareness courses advance the objectives of a broad, liberal education for all students and provide foundation for students to make informed judgments that consider the impact of science, technology, and engineering solutions in global, economic, environmental, and social contexts.

II. Advanced Math and Science -- Description

A Florida Poly students’ foundational education continues to build with additional study in advanced mathematics and sciences to ensure that engineering and applied solutions are grounded in strong mathematical and scientific principles and methods.

Each program draws approximately 15 credits from this list. Some courses here may be included elsewhere, such as in program core, depending on the program’s discipline and focus.

This list is not prescriptive, but descriptive of the different ways programs fulfill the advanced math/science category.

III. Program Core -- Description

Program core vary by discipline and degree program. All program core include multiple channels that round out disciplinary theory, application, and professional experience. For example, a typical construct includes a “core” of engineering sciences that parallel a design sequence. Another example is a program core that includes a programming channel, which may parallel a database/data analysis channel.

All programs culminate in a two-semester capstone design sequence where students collaborate on interdisciplinary teams in an effort to provide a solution to an industry-sponsored problem.

<table>
<thead>
<tr>
<th>CODE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GESR</td>
<td>General Education, State Required Course</td>
</tr>
<tr>
<td>GESRO</td>
<td>General Education, State Required Option - any GESRO course may be used to fulfill State of Florida gen ed options for this category.</td>
</tr>
<tr>
<td>GEO</td>
<td>General Education Option - so long as one GESR and one GESRO is met in each box, then any GEO may be taken to round out the Cultural and Social Awareness Category.</td>
</tr>
</tbody>
</table>
IV. Concentration(s) -- Description

Many programs include "concentrations." A 12-credit grouping of courses that augment the essential core curriculum of the degree program. Concentrations provide students with exposure to a subfield within the discipline and are intended to enhance the breadth of knowledge obtained within the degree. Concentrations are typically junior and senior year classes.

V. Electives -- Descriptions

Providing room is available in the curriculum, a program may include a slot or two for 3 - 6 credits (occasionally more) of elective credit. Elective courses should do for the program in a single course, what a concentration does over 4 courses: provides an exposure to a subfield/application/theory or other that adds depth and or breadth to the student's educational experience.

Total Credits.

All Florida Poly baccalaureate degree programs consist of 120 credit hours only. This is consistent with the standards for baccalaureate degrees and supports the State of Florida’s emphasis on completion in four-years and reduced overall cost to students.
If this request is for any of the following, do not complete anything further:

- Add program to a current track without curriculum changes
- Establish a new track without prerequisites
- Add program to the CPM without prerequisites

If this request is for any of the following, please complete 1-7, where applicable:

- Make curriculum changes to an existing track at proposing institution
- Carry over prerequisites from previous CIP with no changes
- Carry over prerequisites from previous CIP with changes
- Add program to a current track with curriculum changes
- Establish a new track with prerequisites
- Add program to the CPM with prerequisites

1. For required prerequisite course(s) and/or course alternative(s), please list the following information for each course (add rows if necessary).

<table>
<thead>
<tr>
<th>Course Prefix and Number</th>
<th>Course Title</th>
<th>Course Alternative</th>
<th>Justification for Course(s)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
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<tr>
<td>Click or tap here to enter text.</td>
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<tr>
<td>Click or tap here to enter text.</td>
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</tr>
<tr>
<td>Click or tap here to enter text.</td>
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<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td></td>
</tr>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits
2. If the course(s) above includes a course(s) that is offered currently at three or fewer FCS or SUS institutions, please provide justification as to why the course is critical for a student’s success in the baccalaureate degree program. Please visit the Statewide Course Numbering System to determine the number of institutions that offer the course(s) (add rows if necessary). Click here for instructions on how to navigate the SCNS.

<table>
<thead>
<tr>
<th>Course(s) limited to 3 or less FCS/SUS institutions</th>
<th>Number of FCS Institutions Currently Offering Course (out of 28)</th>
<th>Number of SUS Institutions Currently Offering Course (out of 12)</th>
<th>Justification for Course(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
</tr>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
</tr>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
</tr>
</tbody>
</table>

3. If the request includes courses that are offered only at your institution, explain what options are available to students at other institutions for completing the required courses (add rows if necessary).

<table>
<thead>
<tr>
<th>Course(s) Only at Proposing Institution</th>
<th>Option(s) at Other Institutions</th>
<th>Explanation of Option(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
</tr>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
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<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
</tr>
</tbody>
</table>
4. If the request includes exemption from or elimination of a prerequisite course(s) and/or course alternative(s), please list the following information for each course that you would like to be exempt from or eliminate (add rows if necessary).

<table>
<thead>
<tr>
<th>Course Prefix and Number</th>
<th>Course Title</th>
<th>Justification for Course Elimination/Exemption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>☐ Exempt from Course ☐ Elimination of Course</td>
</tr>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>☐ Exempt from Course ☐ Elimination of Course</td>
</tr>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>☐ Exempt from Course ☐ Elimination of Course</td>
</tr>
</tbody>
</table>

5. Please provide the college level prerequisite(s) for the common prerequisite course(s) if applicable (add rows if necessary).

<table>
<thead>
<tr>
<th>Course Prefix</th>
<th>College Level Prerequisites</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click or tap here</td>
<td>Click or tap here to enter text.</td>
<td></td>
</tr>
<tr>
<td>Click or tap here</td>
<td>Click or tap here to enter text.</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits

6. Please provide the information requested below for the review of common prerequisite completion within 60 credit hours.

Number of credit hours for AA | 60
Subtract number of credit hours required for common prerequisites | -
Subtract number of college level course prerequisites for common prerequisite courses (if known) | -
Add the number of credit hours for common prerequisites that are also general education core requirements | +
Total number of credit hours left to complete the rest of the student’s general education requirements =

7. If a student does not have enough room in the “total” above to complete the rest of the general education requirements, please provide justification for requiring more common prerequisite course credit hours than can be accommodated by the student in 60 credit hours.

Click or tap here to enter text.
Subject: Approval of the Proposed Degree Program: B.S. Industrial Engineering

Proposed Committee Action

Recommend approval of the proposed degree program, Bachelor of Science in Industrial Engineering, to the Board of Trustees.

Background Information

The formal degree proposal is included with this agenda item sheet.

Supporting Documentation: Bachelor of Science in Industrial Engineering

Prepared by: Dr. Tom Dvorske, Vice Provost Academic Affairs; Dr. Terry Parker, EVP & Provost
Florida Polytechnic University

Institution Submitting Proposal

Name of College(s) or School(s)

Industrial Engineering

Academic Specialty or Field

14.3501

Proposed CIP Code (2020 CIP)

Fall 2023

Proposed Implementation Term

Mechanical Engineering

Name of Department(s)/Division(s)

Bachelor of Science in Industrial Engineering

Complete Name of Degree

The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.

Date Approved by the University Board of Trustees

President's Signature 2/7/23

Board of Trustees Chair’s Signature

Provost’s Signature 02/03/2023

PROJECTED ENROLLMENTS AND PROGRAM COSTS

Provide headcount (HC) and full-time equivalent (FTE) student estimates for Years 1 through 5. HC and FTE estimates should be identical to those in Appendix A – Table 1. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Appendix A – Table 3A or 3B. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 by dividing total E&G by FTE.

<table>
<thead>
<tr>
<th>Implementation Timeframe</th>
<th>HC</th>
<th>FTE</th>
<th>E&amp;G Cost per FTE</th>
<th>E&amp;G Funds</th>
<th>Contract &amp; Grants Funds</th>
<th>Auxiliary/Philanthropy Funds</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>20</td>
<td>18</td>
<td>$44,500.67</td>
<td>$801,012</td>
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<td>0</td>
<td>$801,012</td>
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<tr>
<td>Year 2</td>
<td>26</td>
<td>23</td>
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<td>Year 3</td>
<td>49</td>
<td>44</td>
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<td></td>
</tr>
<tr>
<td>Year 4</td>
<td>56</td>
<td>52</td>
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</tr>
<tr>
<td>Year 5</td>
<td>75</td>
<td>71</td>
<td>$19,372.69</td>
<td>$1,375,461</td>
<td>0</td>
<td>0</td>
<td>$1,375,461</td>
</tr>
</tbody>
</table>
Additional Required Signatures

I confirm that I have reviewed and approved Need and Demand Section III.F. of this proposal.

Gloria Nelson  January 23, 2023
Signature of Equal Opportunity Officer  Date

I confirm that I have reviewed and approved Non-Faculty Resources Section VIII.A. and VIII.B. of this proposal.

Kathryn M. Miller  1-23-2023
Signature of Library Dean/Director  Date
Introduction

I. Program Description and Relationship to System-Level Goals

A. Describe within a few paragraphs the proposed program under consideration, and its overall purpose, including:
   - degree level(s)
   - majors, concentrations, tracks, specializations, or areas of emphasis
   - total number of credit hours
   - possible career outcomes for each major (provide additional details on meeting workforce need in Section III)

Florida Polytechnic University proposes to add a Bachelor of Science – Industrial Engineering to the degree inventory. This 120 credit hour program draws from complementary areas of research and expertise among several programs already at the University. Our proposed program in Industrial Engineering covers manufacturing processes, operations research, production planning, all with a strong foundation in science, engineering, and mathematics. The program’s uniqueness stems, in part, from a careful blending of these elements with key concepts in finance, management, and data science to prepare graduates to meet trends and opportunities in the marketplace. These elements help distinguish our proposed program from those to the east (UCF) and west (USF) in that their programs focus on management and production, respectively. Industrial engineers have been in high demand locally by companies such as Saddle Creek Logistics and Lakeland Regional Hospital. Florida Poly’s Data Science program was identified by Analytics insight magazine as one of the top 10 data science institutes internationally.

B. If the proposed program qualifies as a Program of Strategic Emphasis, as described in the Florida Board of Governors 2025 System Strategic Plan, please indicate the category.

   - Critical Workforce
     - ☐ Education
     - ☐ Health
     - ☐ Gap Analysis
   - Economic Development
     - ☐ Global Competitiveness
     - ☒ Science, Technology, Engineering, and Math (STEM)

☐ Does not qualify as a Program of Strategic Emphasis.
II. Strategic Plan Alignment, Projected Benefits, and Institutional Mission and Strength

A. Describe how the proposed program directly or indirectly supports the following:

- System strategic planning goals (see link to the 2025 System Strategic Plan on the New Program Proposals & Resources webpage)
- the institution’s mission
- the institution’s strategic plan

The proposed program in Industrial Engineering supports the 2025 System Strategic Plan in several ways. Most notably for Florida Poly at this time, the University’s program will support the following system goals:

- Teaching and Learning –
  - Efficient Degree Completion – industrial engineering is the culmination of several different existing pathways within the University. By including this program in the inventory, students who change majors will not have to go elsewhere and will still graduate on time.
  - Degrees in STEM – Industrial Engineering fits within the University’s STEM mission and adds to Florida Poly’s portfolio of engineering programs.

- Scholarship, Research, and Innovation –
  - Increasing undergraduate participation in research – as a primarily undergraduate serving institution at this time, focus on undergraduate research in collaboration with faculty is a critical component of our educational programming and preparation of students for professional work and advanced study.

- Community and Business Engagement
  - Increase faculty and student involvement in community and business engagement activities. Florida Poly’s curriculum for all of its programs includes many of the same kinds of experiences. Industrial Engineering students will participate in a year-long senior capstone project sponsored by one of our many industry partners. These projects often lead directly to employment for these students, and because these projects require faculty oversight, faculty-industry relationship opportunities will grow.

Florida Polytechnic University is by legislation, statute, and mission defined as Florida’s only STEM-focused, public University. Since its first semester in 2014, the University has carefully and progressively worked to fulfill that mission by building a full complement of core STEM programs, particularly in Engineering. The University holds ABET accreditation for programs in Mechanical Engineering, Computer Engineering, and Electrical Engineering, and the University’s Computer Science program is also accredited by ABET-CAC. In the coming cycle, the University will seek ABET accreditation for Environmental Engineering, Engineering Physics, and Data Science. Florida Poly’s mission – to serve students and industry through excellence in education, discovery, and application of engineering and applied sciences – frames the core academic programming the University designs and delivers. Industrial Engineering is a natural outgrowth of our existing programs and fits a key industry gap in the state. Industrial Engineers work in fields as diverse as logistics, manufacturing, and healthcare. The program will offer more options for our students and fit a critical need for Florida.

The University’s current strategic plan (2018-2023) includes growing its academic program mix as one of the top priorities. The University will continue to advance this priority as it presently
works to develop a new strategic plan for the next five-year cycle. Growing the University involves several components, of which adding degree programs is one, and second only to adding students. This program will attract and retain Florida Poly students.

B. Describe how the proposed program specifically relates to existing institutional strengths. This can include:
   - existing related academic programs
   - existing programs of strategic emphasis
   - institutes and centers
   - other strengths of the institution

Florida Poly’s proposed Bachelor of Science in Industrial Engineering is a natural outgrowth from a selection of courses currently offered in DSBA, and included in the mechanical engineering program as a concentration in Operations Research. The program will draw from faculty from both Mechanical Engineering and Data Science and Business Analytics Departments, where faculty in these departments support elements of the proposed program such as foundations in engineering, manufacturing processes, finance, data science, and project management.

All of Florida Poly’s programs fit into areas of strategic emphasis, specifically STEM. As a 100% STEM University, Florida Poly grows new programs out the existing resources – faculty, curriculum – to ensure efficiency in delivery and resources utilization as well as facilitate interdisciplinary collaboration and research.

Florida Poly’s newest building, the Applied Research Center (ARC), houses much of the Faculty research capacity in a 90,000 sf venue. The proposed Industrial Engineering program complements the other degrees at Florida Poly with shared resources, notably equipment and laboratories, to support teaching and research.

C. Provide the date the pre-proposal was presented to the Council of Academic Vice Presidents Academic Program Coordination (CAVP ACG). Specify whether any concerns were raised, and, if so, provide a narrative explaining how each concern has been or will be addressed.

Florida Poly presented the proposed program to the Council of Academic Vice Presidents – Academic Coordinating Group on November 8, 2022. No concerns were expressed and all SUS institutions were supportive of the proposal.

D. In the table below, provide a detailed overview and narrative of the institutional planning and approval process leading up to the submission of this proposal to the Board office. Include a chronology of all activities, providing the names and positions of both university personnel and external individuals who participated in these activities.
   - If the proposed program is a bachelor’s level, provide the date the program was entered into the APPriSe system, and, if applicable, provide narrative responding to any comments received from APPriSe.
<table>
<thead>
<tr>
<th>Date</th>
<th>Participants</th>
<th>Planning Activity Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2020</td>
<td>Academic Affairs Leadership: Provost Parker; Vice Provosts – Dvorske, Miller, Corpus; Department Chairs: Vollaro (Mechanical and environmental engineering), Taj (Data Science and Business Analytics), Rashid (Electrical and Computer Engineering), Towle (Computer Science), Hickman (Math and Physics).</td>
<td>Preliminary discussion among Academic Affairs leadership of prospective programs in line with University’s Strategic Plan.</td>
</tr>
<tr>
<td>04.2020</td>
<td>President Avent, Cabinet (Vice Presidents – Bowman, Delulio, Parker), Board of Trustees (Otto, Chair)</td>
<td>Included on the University’s Accountability plan is a note that Industrial Engineering (IE) is on the docket for consideration sometime in the next 2-3 years.</td>
</tr>
<tr>
<td>06.2021</td>
<td>President, Cabinet, Board of Trustees (see above), Academic Affairs Leadership Provost Parker; Vice Provosts – Dvorske, Miller, Corpus; Department Chairs: Vollaro (Mechanical and environmental engineering), Taj (Data Science and Business Analytics and Computer Science), Brilleslyper (Applied Mathematics), and Assistant Chairs, Demirel (Computer Science), and Sanchez (Data Science)</td>
<td>Industrial Engineering included on the Accountability Plan with a proposed date of submission to the University Board of Trustees for May 2022.</td>
</tr>
<tr>
<td>Fall 2021</td>
<td>Academic Affairs Leadership: see previous.</td>
<td>The decision was made to focus first on developing and delivering two master’s degrees and hold off for another year for IE.</td>
</tr>
<tr>
<td>Spring 2022</td>
<td>Vollaro, Chair, Mechanical and Environmental Engineering Department, AA Leadership (see above).</td>
<td>Preliminary planning for program content and focus, decision about timeline for development and implementation.</td>
</tr>
<tr>
<td>April, May 2022</td>
<td>Vice Provost of Academic Affairs, Tom Dvorske &amp; Vice Provost of Enrollment, Ben Mattew Corpus</td>
<td>Joint propose for FY’23 budget funds to conduct marketplace and positioning research for IE and other programs.</td>
</tr>
<tr>
<td>Date</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>June - Aug 2022</td>
<td>Vollaro, Mechanical and Environmental Engineering Department with collaboration from Taj, Dept. of Data Science and Business Analytics (DSBA) for specialized transportation concentration. Program development continues with the intent to bring it to the University’s curriculum committee in the 2022-2023 academic year.</td>
<td></td>
</tr>
<tr>
<td>July 2022</td>
<td>Vice Provost of Academic Affairs, Tom Dvorske &amp; Vice Provost of Enrollment, Ben Mattew Corpus Funds for R&amp;D hit departments’ budgets. Contract with Eduventures initiated with multiple meetings between July and September 2022.</td>
<td></td>
</tr>
<tr>
<td>Fall 2022</td>
<td>Vollaro, Chair, Mechanical and Environmental Department; Taj, Chair, DSBA Department Ongoing development during faculty Welcome Back Week. Curriculum development continues through fall.</td>
<td></td>
</tr>
<tr>
<td>10.18.2022</td>
<td>Vice Provost of Academic Affairs, Tom Dvorske APPRISE Entry – No Comments</td>
<td></td>
</tr>
<tr>
<td>11.08.2022</td>
<td>Vice Provost of Academic Affairs, Tom Dvorske CAVP-ACG – No Comments</td>
<td></td>
</tr>
<tr>
<td>01.2023</td>
<td>Vollaro, Chair, Mechanical and Environmental Department; Taj, Chair, DSBA Department Curriculum submitted to Undergraduate Curriculum Committee (UCC) for consideration and approval</td>
<td></td>
</tr>
<tr>
<td>02.2023</td>
<td>Provost, Terry Parker Approves program and submits program to Board of Trustees for approval.</td>
<td></td>
</tr>
</tbody>
</table>

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**Academic Program Pre-proposal Recognition System**

Dear TOM DVORSE,

FLORIDA POLYTECHNIC UNIVERSITY entered information for a potential bachelor’s degree program in APPRISe. The prospective program was titled Industrial Engineering in CIP code family: 14 ENGINEERING.

Please take the opportunity to review the prospective program and provide feedback, if appropriate. The comment period for this prospective program closes in 30 days on DECEMBER 9, 2022. We appreciate your continued participation in the system and the benefit your knowledge contributes to the development of bachelor’s degree programs in Florida.

Sincerely,

Mike Sfiriopoulos
Florida College System

Christy England
Board of Governors, State University System

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- If the proposed program is a doctoral-level program, provide the date(s) of the external consultant’s review in the planning table. Include the external consultant’s report and the institution’s responses to the report as Appendix B.

Not Applicable
E. Provide a timetable of key events necessary for the implementation of the proposed program following approval of the program by the Board office or the Board of Governors, as appropriate, and the program has been added to the State University System Academic Degree Program Inventory.

Events Leading to Implementation –

<table>
<thead>
<tr>
<th>Date</th>
<th>Implementation Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assumes a April – July 2023 addition to inventory.</td>
<td></td>
</tr>
<tr>
<td>June 2023</td>
<td>Update systems to include Industrial Engineering as a Degree option</td>
</tr>
<tr>
<td>June – July 2023</td>
<td>Update website and develop marketing materials for recruiting</td>
</tr>
<tr>
<td>July – August 2023</td>
<td>Develop a course availability matrix to assist transfer students and changes in major</td>
</tr>
<tr>
<td>August 2023</td>
<td>Officially launch program</td>
</tr>
</tbody>
</table>
Institutional and State Level Accountability

III. Need and Demand

A. Describe the workforce need for the proposed program. The response should, at a minimum, include the following:

- current state workforce data as provided by Florida’s Department of Economic Opportunity
- current national workforce data as provided by the U.S. Department of Labor’s Bureau of Labor Statistics
- requests for the proposed program from agencies or industries in your service area
- any specific needs for research and service that the program would fulfill

Related SOCs (11-3051 and 17-2112) show significant openings both nationally and in Florida on an annual basis. Nationally, there are nearly 40,000 openings for industrial engineers, while in Florida that number is approximately 1,500. Conferrals in the State lag considerably even when public and private institutions are included.

Among all engineering occupations in Florida over the next decade, Industrial engineering is projects to see the most growth. While covid-19 impacted job growth locally and nationally, Industrial engineering shows signed of continued recovery and is on a growth path in Florida.

Additionally, several top companies in Florida regularly post positions for industrial engineers.

Florida Poly annual research expenditures continue on a positive trend from $689,000 in FY 2020 to a projected $2,030,000 in FY 2023. Among institutionally defined peer institutions, the average research expenditure for Industrial Engineering is around $200,000.

The program in Industrial Engineering would seek ABET accreditation at the earliest possible time (upon reaching one graduate).

B. Provide and describe data that support student demand for the proposed program. Include questions asked, results, and other communications with prospective students.

Students are drawn to Florida Poly for several reasons – the 100% STEM focus, the smaller campus community environment, greater affinity with peers, and the opportunity to work closely with faculty, engage in co- and extra-curriculars that appeal to their interests, and many others. The University’s STEM focus enables Florida Poly to cultivate a unique student experience for highly talented, STEM-interested majors who are looking for that personal touch and strong community engagement.

Demand for Florida Poly continues to rise. Undergraduate applications have increased by 35% in 2021 and again by 45% in 2022. Not only has student demand for rigorous, quality STEM
programs in small classes increased, recent empirical research has demonstrated improved STEM academic outcomes, particularly for women, when there are small classes at small universities (Cissy, et al 2018, Bioscience). Based on data from Eduventures, the top five experiences Engineering-interested prospects are looking for are topic experiences the University offers: Internships; rigorous coursework; interactions with like-minded students, clubs, and activities; and research opportunities with faculty. This group also cares about academic strength, affordability, and career preparation. Florida Poly is low-cost to attend, and its graduates lead the system in median wages one-year after graduation.² The University is also recognized as the #1 public STEM University in the South.

Industrial Engineering degrees grew by 71% between 2012 and 2020, outpacing the overall bachelor’s market (13%) and the overall engineering market (58%). In Florida, bachelor’s conferrals in IE grew by 105% over that same time. Despite this demand, Florida produces only about 1/3 of the industrial engineers needed to fill the annual labor market gap.


C. Complete Appendix A – Table 1 (1-A for undergraduate and 1-B for graduate) with projected student headcount (HC) and full-time equivalents (FTE).
- Undergraduate FTE must be calculated based on 30 credit hours per year
- Graduate FTE must be calculated based on 24 credit hours per year

In the space below, provide an explanation for the enrollment projections. If students within the institution are expected to change academic programs to enroll in the proposed program, describe the anticipated enrollment shifts and impact on enrollment in other programs.

Enrollment projections are based on our experience with other recently implemented programs at the University. This typically begins with a “small” incoming class and gradually grows to a larger, sustainable enrollment. The University does not anticipate significant movement from other degree programs. The rate of major change at Poly is typically less than 3%. We will implement the program in fall 2023 for incoming first-year students only and transfer students who have less than 30 credits. This method has worked for us for all of our previously implemented programs and provides students, the faculty, and the University implementation time to deliver courses consistent with the academic progression of students in the major and to make improvements along the way.

D. Describe the anticipated benefit of the proposed program to the university, local community, and the state. Benefits of the program should be described both quantitatively and qualitatively.

A program in Industrial Engineering will be a draw to prospective students, increasing the University’s enrollment and marketplace visibility. Bringing in a different kind of prospective engineer will also contribute to our campus culture by having further diversified student interests, clubs, co-curricular activities and programs. Growth of the university, through both addition of degree programs and student body growth, means more dollars to spend, more housing more dollars spent on and off-campus. This in turn provides demand to further develop
off-campus amenities as a benefit to the campus and the local community.

The University maintains close relationship with companies such as Saddle Creek Logistics and Lakeland Regional Hospital. These companies each play an important role in the fabric of the local economy and reflect a diverse range of professional opportunities that are available to students studying industrial engineering.

Finally, Central Florida is becoming a major center for warehousing, distribution, and logistics, an area we believe will further increase the demand Industrial Engineering students.

E. If other public or private institutions in Florida have similar programs that exist at the four- or six-digit CIP Code or in other CIP Codes where 60 percent of the coursework is comparable, identify the institution(s) and geographic location(s). Summarize the outcome(s) of communication with appropriate personnel (e.g., department chairs, program coordinators, deans) at those institutions regarding the potential impact on their enrollment and opportunities for possible collaboration in the areas of instruction and research.

The following tables illustrates comparable programs in the SUS. Feedback from SUS deans and representatives on the CAVP-ACG indicates that there remains no concern about any potential impact to enrollments at these institutions. The only private institution offering Industrial Engineering is University of Miami, which a fall 2021 enrollment of 120 students and 46 degree conferrals. In our experience, students who are in the market for private Universities are typically not the student population that Florida Poly attracts.

<table>
<thead>
<tr>
<th>Univ</th>
<th>Headcount, 5-yr Avg</th>
<th>Degrees, 5-yr Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAMU</td>
<td>28.4</td>
<td>3.4</td>
</tr>
<tr>
<td>FSU</td>
<td>685</td>
<td>37</td>
</tr>
<tr>
<td>UCF</td>
<td>479.8</td>
<td>127.4</td>
</tr>
<tr>
<td>USF</td>
<td>251.4</td>
<td>69.4</td>
</tr>
<tr>
<td>UF*</td>
<td>460.8</td>
<td>124.4</td>
</tr>
<tr>
<td>SUS**</td>
<td>609.2</td>
<td>180.8</td>
</tr>
</tbody>
</table>

UF* - CIP 14.2701
SUS** - includes both 14.2701 and 14.3501

F. Describe the process for the recruitment and retention of a diverse student body in the proposed program. If the proposed program substantially duplicates a program at FAMU or FIU, provide a letter of support from the impacted institution(s) addressing how the program will impact the institution’s ability to attract students of races different from that which is predominant on the FAMU or FIU campus. The institution’s Equal Opportunity Officer shall review this Section of the proposal, sign, and date the additional signatures page to indicate that all requirements of this section have been completed.

Goal #1 of Florida Poly’s strategic plan 2018 – 2023 is to enroll a high-quality incoming class.
To impact this goal, the University has restructured its admission and financial aid operations to support stronger evidenced-based decision making, including market segmentation, reorganized its staffing model to improve coverage, tactics, and messaging, and changed its admissions process to include a holistic view of prospects through items such as essays and recommendation letters. Our enrollment continues to grow.

The programs at FIU and FAMU provided no indication of concern regarding any impact a Florida Poly industrial engineering program might have on their enrollment or diversity characteristics. Moreover, the proposed program, while similar, as all industrial programs must meet the same ABET criteria, differs in its unique elements and opportunities with respect to its applications in data science and business analytics. No letters from either institution have been received.
IV. Curriculum

A. Describe all admission standards and all graduation requirements for the program. Hyperlinks to institutional websites may be used to supplement the information provided in this subsection; however, these links may not serve as a standalone response. For graduation requirements, please describe any additional requirements that do not appear in the program of study (e.g., milestones, academic engagement, publication requirements).

There are no special admissions requirements for this program. Admissions requirements are the same for all Florida Poly students and a minimum is set by the Florida Board of Governors. Florida Poly recruits and selects students the University believes can be successful in our programs. Particular attention may be paid to test scores, high school GPA, and type(s) of any accelerated credit earned.

In general, students must complete the 120 credit hour program with a 2.0 or better and satisfy all program requirements. Florida Poly also requires that students complete an internship or equivalent professional experience during their program. Complete Graduation Requirements for a Baccalaureate degree are found in the Academic Catalog and in FPU-5.0094AP.

The following are minimum requirements for awarding the baccalaureate degree:

1. Satisfactory completion of the applicable college or program degree requirements and established curriculum as identified in the University Catalog in effect at the beginning of the student’s most recent period of continuous enrollment.
2. Satisfactory completion of a minimum of one hundred twenty (120) credit hours with a cumulative GPA of 2.0 or better in coursework attempted at the University.
3. Satisfactory completion of thirty-six (36) credit hours of general education courses in communication, mathematics, social sciences, humanities, and natural sciences including six (6) credit hours of English Composition coursework and six (6) credit hours of mathematics courses at the college algebra level or higher. For the purposes of this rule, a grade of C or higher shall be considered successful completion.
4. Satisfactory completion of an additional six (6) credit hours of courses designated as “writing intensive” (W) by the University.
5. Satisfactory completion of at least forty-eight (48) credit hours of courses numbered 3000 and above.
6. Earn at least one-fourth of the credits applied towards the Baccalaureate degree, half of the major course credits, and the last thirty (30) credits in residence at Florida Poly. In cases of emergency, a maximum of six credits of the final thirty credits may be completed by correspondence or residence at another accredited institution with the approval of the program Department Chair and University Registrar.
7. Earn at least nine (9) credit hours in one or more summer semesters, unless the student entered the University with more than sixty (60) credit hours, or the University President or his/her designee waives this requirement.
8. Completion of the foreign-language admissions requirement.
9. Satisfactory completion of any pre-requisites or deficiencies as identified by the student’s Faculty Advisor
10. Submission of a completed Graduation Application to the Office of the University Registrar so that it is received by the Registrar on or before the “Graduation Application Deadline” as noted on the Academic Calendar for the semester in which the student anticipates graduating.
B. Describe the specific expected student learning outcomes associated with the proposed program and include strategies for assessing the proposed program's learning outcomes. If the proposed program is a baccalaureate degree, include a hyperlink to the published Academic Learning Compact and the document itself as Appendix C.

The program in Industrial Engineering follows criteria set forth by the Engineering Accreditation Commission of ABET. The student outcomes for Industrial Engineering are as follows:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Program outcomes are supported by performance indicators – language that contextualizes these broader outcomes. Performance indicators are assessed in key courses throughout and near the end of the student’s curriculum. Data is collected on a regular basis and a portion of the learning outcomes are reviewed annually.

The Academic Learning Compact, included in Appendix C, will be published after the program has been included in the SUS Inventory and can be posted and advertised in compliance with regulation.

C. If the proposed program is an AS-to-BS capstone, provide evidence that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as outlined in State Board of Education Rule 6A-10.024. Additionally, please list the prerequisites, if any, and identify the specific AS degrees that may transfer into the proposed program.

☒ Not applicable to this program because it is not an AS-to-BS Capstone.

D. Describe the curricular framework for the proposed program, including the following information where applicable:

- total numbers of semester credit hours for the degree
- number of credit hours for each course
- required courses, restricted electives, and unrestricted electives
- a sequenced course of study for all majors, concentrations, tracks, or areas of emphasis
The proposed program in Industrial Engineering requires that students earn 120 credit hours for the degree. Two views of the program are presented here.

### B.S. Industrial Engineering

<table>
<thead>
<tr>
<th>Category</th>
<th>Section</th>
<th>Course</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Professional Foundations Core</strong></td>
<td></td>
<td>EGN 1006 - Career Design for STEM Professionals</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>IDS 4941 - Professional Experience Internship</td>
<td>0</td>
<td>Included in Program Core</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IDS 1380 - Foundational Lessons and Applications in Mathematics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EGN 1007C - Concepts and Methods for Engineering and Computer Science</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>II. General Education</strong></td>
<td></td>
<td><strong>State Required Minimum</strong></td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Rules</td>
<td></td>
<td>1. Students must complete at least one ♦ course in each category to satisfy state of Florida regulation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Section A</strong></td>
<td>Communication</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ENC 1101 - English Composition 1: Exp and Arg Writing (W)</td>
<td>♦ 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ENC 2210 - Technical Writing (W)</td>
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<tr>
<td><strong>Section B</strong></td>
<td>Humanities (choose from)</td>
<td></td>
<td>3 to 6</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>ARH 2000 - Art Appreciation (W) ♦</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>PHI 2010 - Introduction to Philosophy (W) ♦</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>HUM 2020 - Introduction to the Humanities (W) ♦</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>MUL 2010 - Music Appreciation (W) ♦</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>UIT 2000 - Introduction to Literature (W) ♦</td>
<td>3</td>
<td></td>
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<tr>
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<td>HUM 2022 Explorations in the Humanities (Various Topics) (W)</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>IDS 2144 Legal, Ethical, and Management Issues in Technology</td>
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<tr>
<td><strong>Section C</strong></td>
<td>Social Science (choose from)</td>
<td></td>
<td>3 to 6</td>
<td></td>
</tr>
<tr>
<td></td>
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<td>AMH 2010 - American History to 1877</td>
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<td>ECO 2013 - Principles of Macroeconomics (W) ♦</td>
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<td>ECO 2023 - Principles of Microeconomics (W) ♦</td>
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<td>PSY 2012 - General Psychology (W) ♦</td>
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<td><strong>Section D</strong></td>
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<td>MAP 2302 - Differential Equations</td>
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<td><strong>Section E</strong></td>
<td>Natural Sciences</td>
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<td>PHY 2048 - Physics 1 ♦</td>
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<td>CHM 2045 - Chemistry 1 ♦</td>
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<td>CHM 2045L - Chemistry 1 Laboratory (W)</td>
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<td><strong>Section F</strong></td>
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<td></td>
<td>STA 3032 - Probability and Statistics</td>
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<td><strong>II. Program Foundations / Advanced Math &amp; Science</strong></td>
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<td>PHY 2049 - Physics 2</td>
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<td>PHY 2049L - Physics 2 Laboratory</td>
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<td>COP 2271C - Introduction to Computation and Programming (required for all)</td>
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<td>MAS 3114 - Computational Linear Algebra</td>
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</table>
### III. Program Core

40 credits represents a minimum, depending on how many credits are included in Category II, above.

Pre-Capstone design sequences should be included in this category--may be listed as a subset in catalog to stand out.

**The following should be counted in this category:**

* IDS 1380 - FLAME: Credits: 3
* EGN 1007C - Concepts and Methods for Engineering and Computer Science: Credits: 3

**Design Block**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EGN 1006</td>
<td>Career Design for STEM Professionals</td>
<td>1</td>
</tr>
<tr>
<td>IDS 1380</td>
<td>Foundational Lessons and Applications in Mathematics</td>
<td>3</td>
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<tr>
<td>EGN 1007C</td>
<td>Concepts and Methods for Engineering and Computer Science</td>
<td>1</td>
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<tr>
<td>EGN 2001C</td>
<td>Skills &amp; Design 1</td>
<td>2</td>
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<tr>
<td>EGN 2002C</td>
<td>Skills &amp; Design 2</td>
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<tr>
<td>EIN 30x1C</td>
<td>IE Lab 1 Human System Interaction</td>
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<tr>
<td>EIN 30x2C</td>
<td>IE Lab 2 Data Science &amp; Analytics</td>
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<tr>
<td>EIN 49XX</td>
<td>IE Design Capstone 1</td>
<td>see</td>
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<tr>
<td>EIN 49XX</td>
<td>IE Design Capstone 2</td>
<td>below</td>
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**IE Core**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EGN 3311</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>EGN 3331</td>
<td>Strength of Materials</td>
<td>3</td>
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<tr>
<td>EGN 3448</td>
<td>Operations Research</td>
<td>3</td>
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<tr>
<td>EGN 3365</td>
<td>Structure and Properties of Materials</td>
<td>3</td>
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<tr>
<td>EIN 3XXX</td>
<td>Intro to Stochastic Models in OR/Manufacturing and Service Systems</td>
<td>3</td>
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<tr>
<td>EGN 4611</td>
<td>Engineering Economics</td>
<td>3</td>
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<tr>
<td>EEL 3110</td>
<td>Principles of Electrical Engineering</td>
<td>3</td>
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<tr>
<td>EIN 3390</td>
<td>Manufacturing Processes</td>
<td>3</td>
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<tr>
<td>EGN 3466</td>
<td>Discrete Event Simulation</td>
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<tr>
<td>FIN - 4XXX</td>
<td>Financial and Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>EIN - 4XXX</td>
<td>Productivity Analysis Production, Planning, and Control</td>
<td>3</td>
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<tr>
<td>ESI 4244</td>
<td>Design of Experiments</td>
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<td>XXX</td>
<td>Engineering Project Management</td>
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**V. Electives & Other Requirements**

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<tr>
<td>The number of electives may be reduced to fill out the program core or meet institutional or state required general education requirements.</td>
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<td>Data Science/CS Elective</td>
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<td>Data Science/CS Elective</td>
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<tr>
<td>General Engineering Elective</td>
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**VI. Capstone**

All programs are required to have a 6 credit senior capstone sequence.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EIN 49XX</td>
<td>IE Design Capstone 1</td>
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</tr>
<tr>
<td>EIN 49XX</td>
<td>IE Design Capstone 2</td>
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</table>

**TOTAL HOURS**

120
Florida Polytechnic University
B.S. Industrial Engineering

BS in Industrial Engineering
20XX-20XX Catalog

STEM CORE

Freshman Year

Semester 1 | Semester 2
--- | ---
HS Physics or Equivalent | CHM 1025 (passing grade)
PHY 2020 or Equivalent | CHM 2045 Chemistry 1 (3)

Sophomore Year

Semester 1 | Semester 2
--- | ---
MAC 2311 Analytic Geometry and Calculus 1 (4) | PHY 2049 Physics 2 (3)
MAC 2312 Analytic Geometry and Calculus 2 (4) | PHY 2049L Physics 2 Lab (1)
STA 3023 Probability and Statistics (3) | EGG 2001C Skills and Design 1 (2)
ENC 2210 Technical Writing (3,W) | ENC 3311 Statics (3)

Junior Year

Semester 1 | Semester 2
--- | ---
MAP 2302 Differential Equations (3) | EGG 2002C Skills and Design 2 (2)
STA 3032 Probability and Statistics (3) | EGG 3331 Strength of Materials (3)

Senior Year

Semester 1 | Semester 2
--- | ---
IDS 1360 Foundational Lessons in Mathematics (3) | MAC 2311 Analytic Geometry and Calculus 1 (4)
IDS 4941 Professional Exp. Internship (0) | ENC 1101 English Composition 1 (3,W)

Legend:
- Course Number
- Course Name
- General Education or Technical Elective
- Industrial Engineering Core Pathway
- Prerequisite
- Co-requisite
- Pre-Requisite OR Co-Requisite

Last Modified 03/2022
E. Provide a brief description for each course in the proposed curriculum.

Freshman Year – STEM Core:

- **IDS 1380 - Foundational Lessons in Applications of MathEmatics**
  - Credits: 3
  - Course Description: This foundational course provides practical mathematical application to problems in engineering, computer science, and related STEM disciplines. All STEM applications will be presented within the context math topics and reinforced through extensive examples of their use in the core STEM courses. This course is designed to put the application first and then apply the mathematics to model or simulate it with hand calculations and/or computer software. Student will focus on their ‘habits of mind’ to consciously practice problem solving techniques, exercise best practice formats, and implement software that will provide the foundation for future success in a STEM curriculum.
  - Prerequisites: None

- **CHM 2045 - Chemistry 1**
  - Credits: 3
  - Course Description: This course introduces the principles of chemistry and their applications based upon the study of physical and chemical properties of the elements. Topics covered in this class includes: stoichiometry, atomic and molecular structure, the states of matter, chemical bonding, thermochemistry, and gas laws.
  - Prerequisites: None
  - Co-requisite or Prerequisite: Passing grade in CHM 1025
  - Co-requisite: CHM 2045L - Chemistry 1 Laboratory

- **CHM 2045L - Chemistry 1 Laboratory**
  - Credits: 1
  - Course Description: Students will participate in laboratory experiments designed to reflect the topics presented in CHM 2045 - Chemistry 1. This course meets communication/writing-intensive requirements.
  - Prerequisites: None
  - Co-requisite: CHM 2045 - Chemistry 1

- **EGN 1006 - Career Design for STEM Disciplines**
  - Credits: 1
  - Course Description: This foundation course will provide students with an experience to engage in the academic process, training in skills for academic survival and professional success with implementation through participation in hands-on team project using basic skills from various STEM disciplines. Students will be introduced to teaming and leadership skills to gain introductory knowledge of design principles and exercise communication skills basic to academic and professional success.
  - Primary Term(s) Offered: Fall, Spring Rotation Year Annually

- **MAC 2311 - Analytic Geometry and Calculus 1**
  - Credits: 4
  - Course Description: This course is an introduction to analytic geometry; limits; continuity; differentiation of algebraic, trigonometric, exponential and logarithmic functions; applications of the derivative; inverse trigonometric functions; differentials; introduction to integration; and the fundamental theorem of calculus.
  - Prerequisites: Any of the following:
    - a grade of C in a MAC course numbered 1147 or higher
    - IB credit for a MAC course numbered 1147 or higher.
    - Any course grades, AP or IB scores used to meet this prerequisite must be on file by registration.

- **ENC 1101 - English Composition 1: Expository and Argumentative Writing**
  - Credits: 3
  - Course Description: This course focuses on the principal elements of writing clearly, efficiently and effectively. Logical arguments, building research skills and developing
critical thinking through reading, writing and discussion are also presented. This course
meets communication/writing-intensive requirements (W).

- EGN 1007 - Concepts and Methods for Engineering and Computer Science
  - Credits: 1
  - Course Description: Students learn foundational skills, calculation methods, and basic
    programming in Excel for engineering problems. This course supports students’ abilities
to calculate and analyze data and provide them a foundation for applying engineering
skills throughout the curriculum, in internship, and employment.

- PHY 2048 - Physics 1
  - Credits: 3
  - Course Description: This is the first of a two-semester sequence of physics for
technology and engineering. The course covers Newtonian mechanics and includes
motion, vectors, Newton’s laws, work and conservation of energy, systems of particles,
collisions, equilibrium, oscillations, thermodynamics and waves.
  - Prerequisites: High-school Physics and (PHY 2020 or the equivalent) and MAC 2311 -
    Analytic Geometry and Calculus 1
  - Co-requisite or Prerequisite: MAC 2312 - Analytic Geometry and Calculus 2
  - Co-requisite: PHY 2048L - Physics 1 Laboratory

- PHY 2048L - Physics 1 Laboratory
  - Credits: 1
  - Course Description: This laboratory experience for PHY 2048 Physics with MAC 2311 -
    Analytic Geometry and Calculus 1 provides practical applications of Newtonian
mechanics.
  - Prerequisites: None
  - Co-requisite: PHY 2048 - Physics 1

- COP 2271 - Introduction to Computation and Programming
  - Credits: 3
  - Course Description: This course is an introduction to computational thinking and the art of
    computer programming using the C programming language. Students will learn
    fundamental programming concepts and systematic design techniques. They will use
    them to write programs that computationally solve and reduce problems. At the end of the
    course, students will be able to use a programming language without focusing on the
    language specifics. No prior programming background is required and a working
    knowledge of high school level algebra is expected.
  - Prerequisites: MAC 1147 - Pre-calculus Algebra and Trigonometry or equivalent, e.g.
    Aleks score

- MAC 2312 - Analytic Geometry and Calculus 2
  - Credits: 4
  - Course Description: Techniques of integration; applications of integration; differentiation
    and integration of inverse trigonometric, exponential, and logarithmic functions;
    sequences and series are presented in this class.
  - Prerequisites: A grade of C or better in MAC 2311 - Analytic Geometry and Calculus 1

- ENC 2210 - Technical Writing
  - Credits: 3
  - Course Description: This course focuses on the forms, formats, and genres of business,
government, professional, and technical communication. Students are given opportunities
to practice creating proposals, reports, applications, and resumes. This course meets
communication/writing-intensive requirements (W).
  - Prerequisites: ENC 1101 - English Composition 1: Expository and Argumentative Writing

**Sophomore Year:**

- EGN 2001C - Skills and Design 1
  - Credits: 2
Course Description: This course aims to integrate engineering design activities with engineering graphical communications using Computer Aided Design (CAD) software and professional skills emphasizing teaming and leadership, and communication in a variety of mediums. Computer Aided Design (CAD) software is used as a tool to create 2D and 3D sketches, 3D parts, 3D assemblies, and engineering drawing per industry standards. Skills in parametric modeling include planning and model strategy, dimensioning and tolerances, perspectives, and use of basic features in the CAD software. The project will allow students to integrate these basic skills with additive manufacturing processes to develop solutions to real world engineering problems. This course will develop students’ knowledge of design processes as well as basic mechanical engineering skills, which will begin to prepare them for future open-ended problems in their capstone design course.

Prerequisites: MAC 2311 - Analytic Geometry and Calculus 1

EGN 3311 - Statics
- Credits: 3
- Course Description: This course covers the equilibrium of particles frames, machine, trusses and rigid bodies in two and three dimensions using vector algebra.
- Prerequisites: PHY 2048 - Physics 1
- Co-requisite or Prerequisite: MAC 2312 - Analytic Geometry and Calculus 2
- Prerequisites: Letter grade of C or higher in MAC 2312 - Analytic Geometry and Calculus 2

PHY 2049 - Physics 2
- Credits: 3
- Course Description: The second of a two-semester sequence of physics for scientists and engineers. Content includes Coulomb’s law, electric fields and potentials, capacitance, currents and circuits, Ampere’s law, Faraday’s law, inductance, Maxwell’s equations, electromagnetic waves, ray optics, interference and diffraction.
- Prerequisites: PHY 2048 - Physics 1 and MAC 2312 - Analytic Geometry and Calculus 2
- Co-requisite: PHY 2049L - Physics 2 Laboratory

PHY 2049L - Physics 2 Laboratory
- Credits: 1
- Course Description: This laboratory experience for PHY 2049 - Physics 2 with MAC 2312 - Analytic Geometry and Calculus 2 illustrates the practical applications of Coulomb’s law, electric fields and potentials, capacitance, currents and circuits, Ampere’s law, Faraday’s law, inductance, Maxwell’s equations, electromagnetic waves, ray optics, interference and diffraction.
- Prerequisites: None
- Co-requisite: PHY 2049 - Physics 2

STA 3032 - Probability and Statistics
- Credits: 3
- Course Description: This course is a survey of the basic concepts in probability and statistics with applications in electrical, mechanical, and civil engineering. Topics include probability, common discrete and continuous probability distributions, estimation and hypothesis testing, and simple regression.
- **This course is not equivalent to STA 3036 - Probability and Statistics for Business, Data Science, and Economics and will not be approved as a substitution if you change majors into DSBA.
- Prerequisites: MAC 2312 with a grade of C or higher

EGN 2002C - Skills and Design 2
- Credits: 2
- Course Description: This course aims to advance the knowledge and experience of students to use engineering tools and professional skills to seek solutions to real world problems. Students will engage in engineering design activities, use Computer Aided Design (CAD) software, and continue to mature with professional skills emphasizing teaming and leadership, and communication in a variety of mediums. Intermediate Computer Aided Design (CAD) skills including parts assembly, model motion and
analysis, and design tables. The project will allow students to integrate these intermediate level skills with subtractive manufacturing processes. This course will enhance students' knowledge of design processes as well as build intermediate level mechanical engineering skills, which will continue to prepare them future open-ended problems in their capstone design course.

- **EGN 3331 - Strength of Materials**
  - Credits: 3
  - Course Description: Topics include properties of materials; Mohr’s Circle; Hooke’s Law for isotropic materials; stress and strain; stress strain diagrams; design loads; safety and working stresses; shear and moment diagrams; beams of two materials; indeterminate axially-loaded members; torsional shearing stresses and loads; displacements; and flexural and transverse shear stresses.
  - Prerequisites: MAC 2312 - Analytic Geometry and Calculus 2 and EGN 3311 - Statics and PHY 2048 - Physics 1

- **EGN 3448 - Operations Research**
  - Credits: 3
  - Course Description: Basic approaches for modeling and solving operation efficiency challenges, and predicting and demonstrating cost-savings or other value-added gains.
  - Prerequisites: MAC 2311 - Analytic Geometry and Calculus 1 and (STA 2023 - Statistics 1 or STA 3032 Probability and Statistics)

- **MAP 2302 - Differential Equations**
  - Credits: 3
  - Course Description: The relationship between differential equations and initial conditions to physical problems in engineering, physics, technology and other applied areas is discussed. Students will be able to formulate, solve, and analyze the results of mathematical models of elementary physical problems and apply them. Topics include: first-order ordinary differential equations, theory of linear ordinary differential equations, solution of linear ordinary differential equations with constant coefficients, the Laplace transform and its application to solving linear ordinary differential equations.
  - Prerequisites: MAC 2312 - Analytic Geometry and Calculus 2 (with a minimum grade of C)

- **MAS 3114 - Computational Linear Algebra**
  - Credits: 3
  - Course Description: Linear equations, matrices, and determinants; vector spaces and linear transformations; inner products and eigenvalues. This course emphasizes computational aspects of Linear Algebra.
  - Prerequisites: MAC 2312 - Analytic Geometry and Calculus 2 with a grade of C or higher

**Junior Year:**

- **EGN 3365 - Structure and Properties of Materials**
  - Credits: 3
  - Course Description: The course introduces the fundamental concepts of materials science and engineering focusing the interrelationship between the microstructure of a material, its properties and its processing. The topics highlighted in this course are; material selection, crystallographic structure, diffusion, solidification, phase diagrams, phase transformation, microstructure and mechanical properties of different classifications of materials, which include metals, polymers, ceramics, and composites. The analysis of mechanical properties, the manufacturing process, the material specifications for a selected application or component, and the advantages and limitations of selected material are presented.
  - Prerequisites: CHM 2045 - Chemistry 1 and PHY 2048 - Physics 1
  - Co-requisite or Prerequisite: MAC 2312 - Analytic Geometry and Calculus 2

- **EGN 4611 - Engineering Economics**
  - Credits: 3
Course Description: The objective is to help engineering students recognize and understand the importance of cost factors that are inherent in all engineering decisions. Development of ability to handle engineering problems that involve economic factors. The course includes economic environment, selections in present economy, value analysis, critical path economy, interest and money-time relationships, depreciation and valuation, capital financing and budgeting, basic methods for undertaking economic studies, risk, uncertainty and sensitivity, selections between alternatives, fixed, increment, and sunk costs, the effects of income taxes in economic studies, replacement studies, minimum cost formulas, economic studies of public projects, economic studies in public utilities. Effects of inflation are considered at each step.

Prerequisites: Permission from Department Chair

- EEL 3110 - Principles of Electrical Engineering
  Credits: 3
  Course Description: Introduction to analysis of electric circuit analysis for steady-state and transient analysis applications: Ohm’s and Kirchhoff’s laws; analysis for DC and AC circuits; operational amplifiers, transistors, 1st and 2nd order systems; Filters, Laplace Transform, dc motors, circuit design.
  Prerequisites: PHY 2049 Physics 2
  Co-requisite: MAP 2302 Differential Equations
  Primary Term(s) Offered: Fall, Spring Rotation Year

- IDS 4941 - Professional Experience Internship
  Credits: 0
  Course Description: This course is a co-curricular requirement that provides students with the opportunity to experience working in a professional environment or community-based organization where they can apply the knowledge and skills they have gained from their program.
  This requirement may be satisfied through a traditional internship provided by an employer; a community service experience; or some other form of professional/entrepreneurial experience; pending approval by the Provost or designee. The student is assessed resident tuition and the associated fees for one credit hour (see BOG Regulation 7.0003 and University Policy FPU 4.001). A grade of satisfactory/unsatisfactory is earned and included on the transcript for the course.
  Prerequisites: Completion of at least 72 Credit hours, or permission of Department Chair, Provost, or designee.

- EIN 3390 - Manufacturing Processes
  Credits: 3
  Course Description: This course introduces the fundamental workings of a variety of manufacturing processes. Analysis of a manufacturing process, its capabilities, typical applications, and its advantages and limitations focuses on production of simple and complex components. The topics highlighted in this course are; material selection, measurement and quality control, non destructive inspection techniques/evaluation (NDT/ NDE), material removal using conventional and non traditional machining processes, casting, forming, joining, and the integration of these techniques into a manufacturing system.
  Co-requisite or Prerequisite: EGN 3365 - Structure and Properties of Materials

- EGN 3466 - Discrete Event Simulation
  Credits: 3
  Course Description: Discrete Event Simulation models a large complex system in order to study and analyze its dynamic behavior over time. Simulation of complex discrete-event systems with applications in industrial and service industries. Course topics include modeling and programming, simulations in one or more high-level computer packages such as simul8, input distribution modeling, generating random numbers, and statistical analysis of simulation output data. The course will contain a team simulation project.
  Co-requisite or Prerequisite: (STA 2023 or STA 3032) and COP 2271

Senior Year:
• EGS 3625 - Engineering & Technology Project Management
  o Credits: 3
  o Course Description: This course discusses planning, controlling, and evaluating technology and engineering projects. Topics include modeling, project organization, risk analysis, technical forecasting, time and cost estimation and accommodation, and resource allocation and leveling. Verbal and written technical and managerial reports are also required.
  o Prerequisites: None

NEW COURSES

• IE Lab 1 and IE Lab 2
  o Credits: 4 and 3
  o THIS COURSE INTRODUCES STUDENTS TO FUNDAMENTAL CONCEPTS IN INDUSTRIAL ENGINEERING AND MANUFACTURING MANAGEMENT. FIRST, THE COURSE WILL SURVEY FUNDAMENTAL TOPICS IN SUPPLY CHAIN MANAGEMENT AND LOGISTICS WITH SPECIFIC ATTENTION TO THE INTERPLAY BETWEEN MANUFACTURING SYSTEMS, PROCESS PLANNING, AND THE FLOW OF RESOURCES. THE COURSE ALSO COVERS TOPICS SUCH AS SCHEDULING, QUALITY CONTROL, FORECASTING, QUEUEING THEORY, DATA DRIVEN PRODUCTION CONTROL, ENGINEERING AND MANUFACTURING MANAGEMENT, AND PLANT OPERATIONS.

• Intro to Stochastic Models
  o Credits: 3
  o MODELING PRINCIPLES WITH EMPHASIS ON APPLICATIONS OF MARKOV CHAINS, QUEUEING MODELS, SYSTEMS RELIABILITY, BAYESIAN DECISION ANALYSIS.

• Financial and Managerial Accounting
  o Credits: 3
  o THE STUDY OF THE USE OF ACCOUNTING DATA INTERNALLY BY MANGERS IN PLANNING AND CONTROLLING THE AFFAIRS OF ORANIZATIONS.

• Productivity Analysis: Production Planning and Control
  o Credits: 3
  o ANALYSIS OF PRODUCTION AND INVENTORY SYSTEM. FORECASTING, SCHEDULING, SEQUENCING, PROJECT MANAGEMENT. DETERMINISTIC AND STOCHASTIC INVENTORY MODELS FOR SINGLE AND MULTI-ITEM SYSTEMS. ANALYSIS OF DISTRIBUTION SYSTEMS.

• Design of Experiments ESI 4244
  o Credits: 3
  o ACTIVITY FORECASTING MODELS AND CONTROL. DESIGN AND USE OF INVENTORY CONTROL MODELS, BOTH DESIGNS APPLICABLE TO ENGINEERING ANALYSES. ANALYSIS OF VARIANCE AND REGRESSION.

F. For degree programs in medicine, nursing, and/or allied health sciences, please identify the courses that contain the competencies necessary to meet the requirements identified in Section 1004.08, Florida Statutes. For teacher preparation programs, identify the courses that contain the competencies necessary to meet the requirements outlined in Section 1004.04, Florida Statutes.

☒ Not applicable to this program because the program is not a medicine, nursing, allied health sciences, or teacher preparation program.

G. Describe any potential impact on related academic programs or departments,
such as an increased need for general education or common prerequisite courses or increased need for required or elective courses outside of the proposed academic program. If the proposed program is a collaborative effort between multiple academic departments, colleges, or schools within the institution, provide letters of support or MOUs from each department, college, or school in Appendix D.

The program in Industrial Engineering is anticipated to help the University grow its overall enrollment. As such, there is no expectation that this program will unnecessarily impact or burden any one department as the overall growth plan for the University assumes additional degree programs. Florida Poly curricula are interdisciplinary in many areas. It is routine for programs to offer courses that have a mix of students from different disciplines, particularly design-based courses and core engineering science courses. The Mechanical Engineering department will offer the program as the bulk of the program’s core already lives with the programs delivered through that department.

H. Identify any established or planned educational sites where the program will be offered or administered. If the proposed program will only be offered or administered at a site(s) other than the main campus, provide a rationale.

The program will be offered at greater than 50% face-to-face format on the University’s main campus. Florida Poly has no plans at present to develop off-site locations for educational delivery.

I. Describe the anticipated mode of delivery for the proposed program (e.g., face-to-face, distance learning, hybrid). If the mode(s) of delivery will require specialized services or additional financial support, please describe the projected costs below and discuss how they are reflected in Appendix A – Table 3A or 3B.

The program will be offered at greater than 50% face-to-face format on the University’s main campus. Therefore, no new or special resources will be necessary to support any distance-learning modality. Existing resources are sufficient to deliver the small amount that is already present in all of our curriculum (i.e. 2 credits, hybrid).

J. Provide a narrative addressing the feasibility of delivering the proposed program through collaboration with other institutions, both public and private. Cite any specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.

Florida Poly collaborates with UCF and USF on research and for faculty opportunities. With UCF, we have developed a future-faculty program that brings doctoral students near the end of their program onto our campus to teach courses and get a flavor of the actual academic career.

On the research front, many of our faculty work with and in labs at both UCF and USF and with colleagues at those institutions. The program in Industrial Engineering will similarly benefit from existing relationships and, undoubtedly, will encourage further collaboration between institutions.
At this point, any queries would be theoretical. As we onboard new faculty, more conversations about potential collaborations are anticipated.

K. Describe any currently available sites for internship and/or practicum experiences. Describe any plans to seek additional sites in Years 1 through 5.

☐ Not applicable to this program because the program does not require internships or practicums.

As industrial engineers focus on the efficiency of manufacturing processes and systems, we will be able to utilize many of our current corporate and government connections for internship sites. Specific examples include:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Services and Retailing</td>
<td>Amazon</td>
</tr>
<tr>
<td>Food and Drugstores</td>
<td>Publix</td>
</tr>
<tr>
<td>Logistics</td>
<td>Saddle Creek Logistics</td>
</tr>
<tr>
<td>Healthcare</td>
<td>Lakeland Regional Healthcare</td>
</tr>
<tr>
<td>Government</td>
<td>City of Lakeland</td>
</tr>
</tbody>
</table>

The University’s Career Services Center has developed the following “Career Growth Plan” for all new programs the University implements:

- Year 1: Announce with our local audience the availability of industrial engineering at Florida Poly.
- Year 2: Utilize Curriculum Advisory Boards to strategize on outreach for industrial engineering career opportunities.
- Year 3: Ensure industrial engineering is represented at campus career events.
- Year 4: Review and assess additional steps necessary to connect students with professional opportunities in the industrial engineering field.

V. Program Quality Indicators - Reviews and Accreditation

A. List all accreditation agencies and learned societies that would be concerned with the proposed program. If the institution intends to seek specialized accreditation for the proposed program, as described in Board of Governors Regulation 3.006, provide a timeline for seeking specialized accreditation. If specialized accreditation will not be sought, please provide an explanation.

- ABET – Engineering Accreditation Commission

Industrial Engineering will be an ABET accredited program at Florida Poly, ensuring a consistency of quality and practice across all of our degree programs. The University and department will begin the process at the earliest possible date (last semester of the first program graduate), the University will submit a request for evaluation and begin the process with the Engineering Accreditation Commission of ABET. Assuming a fall 2023 implementation, the process could begin as early as spring 2027.
B. **Identify all internal or external academic program reviews and/or accreditation visits for any degree programs related to the proposed program at the institution, including but not limited to programs within academic unit(s) associated with the proposed degree program.** List all recommendations emanating from the reviews and summarize the institution's progress in implementing those recommendations.

Florida Polytechnic University programs in Mechanical Engineering, Computer Engineering, Electrical Engineering, and Computer Science all hold ABET accreditation. All programs were approved for a 6-year period, with Mechanical having submitted a 3-year report, which was accepted with no additional report required.

C. **For all degree programs, discuss how employer-driven or industry-driven competencies were identified and incorporated into the curriculum. Additionally, indicate whether an industry or employer advisory council exists to provide input for curriculum development, student assessment, and academic-force alignment. If an advisory council is not already in place, describe any plans to develop one or other plans to ensure academic-workforce alignment.**

Learning Outcomes for the program in Industrial Engineering come directly from ABET criterion 3. These outcomes are developed by collection of societies of professional engineers and academics who make up the organization called ABET; thus, the learning outcomes are industry/employer-driven.

Similarly, ABET requires that its programs include “Educational Objectives” (PEOs) that are broad statements that speak to what graduates should accomplish within a few years of earning their degree. These objectives are periodically reviewed by the program’s Curriculum Advisory Board (CAB), made up of industry partner representatives and academics from other institutions. When starting a new program, Florida Poly draws on the PEOs of its other programs as a starting point for the CAB’s review. The PEOs for Industrial Engineering are as follows:

- Graduates demonstrate growth in professional development through graduate study or professional training.
- Graduates demonstrate effective team work as members and leaders in professional environments.
- Graduates demonstrate employability in industry, government, and entrepreneurial endeavors.

Florida Polytechnic University’s mission is to “serve students and industry through excellence in education, discovery, and application of engineering and applied sciences.” The program in Industrial Engineering directly supports these goals through program content in engineering designed to educate students to be successful professionals that serve a range of public, private, and government industries and enhance the research reputation and economy of the state of Florida in keeping with the University System’s strategic plan.
VI. Faculty Participation

A. Use Appendix A – Table 2 to identify existing and anticipated full-time faculty who will participate in the proposed program through Year 5, excluding visiting or adjunct faculty. Include the following information for each faculty member or position in Appendix A – Table 2:

- the faculty code associated with the source of funding for the position
- faculty member’s name
- highest degree held
- academic discipline or specialization
- anticipated participation start date in the proposed program
- contract status (e.g., tenure, tenure-earning, or multi-year annual [MYA])
- contract length in months
- percent of annual effort that will support the proposed program (e.g., instruction, advising, supervising)

This information should be summarized below in narrative form. Additionally, please provide the curriculum vitae (CV) for each identified faculty member in Appendix E.

As Appendix A illustrates, the University has seven full-time, multi-year contract faculty who provide direct and supportive instruction and research associated with the program. Additionally, the University is posting advertisements for Industrial Engineering faculty in spring 2023; however, we are off-cycle. Additionally, we have recently hired a faculty member in the Department of Data Science and Business Analytics (DSBA) who will support the finance and data science aspects of the curriculum. These are critical, but not “core” elements of the program, and these courses are taught regularly; thus, DSBA performs a service role for the degree program by delivering the courses already in its curricula for its own programs. Notably, the addition of students from another major would enhance the quality and experience of these courses without resulting in an overburdensome load based on historical enrollments in these courses.

In fall 2023, we will begin faculty recruitment for the program for the upcoming years. By Year 5, we anticipate at least five full-time credentialed faculty to be on staff to provide primary delivery and quality assurance of the program.

B. Provide specific evidence demonstrating that the academic unit(s) associated with the proposed program have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, and other qualitative indicators of excellence (e.g., thesis, dissertation, or research supervision).

The following workload summary describes the relative proportion of each faculty members’ workload. CVs illustrate their productivity in the areas of research, in particular.
### Appendix D. Faculty Workload Summary

**Faculty Workload Summary for Industrial Engineering**

**Academic Year 2022 - 2023**

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>PT or FT</th>
<th>Classes Taught (Course No./Credit Hrs.)</th>
<th>Teaching</th>
<th>Research or Scholarship</th>
<th>Service/Other</th>
<th>Acad. Admin.</th>
<th>% Time Devoted to the Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall 2022</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mechanical Engineering</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mary Vollaro</td>
<td>FT</td>
<td>IDS 1380 Fundamental Lessons in Applications of Mathematics</td>
<td>33%</td>
<td>13%</td>
<td>54%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>
| Mohammad Reza Khalighani | FT | EEL 3110 Principles of Electrical Engineering  
EGN 2001C Skill and Design 1  
EGN 5975 Thesis 2  
EGL 4500 Design & Analysis of Machine Components | 66.70% | 22.90% | 10.40% | 100% |
| Elizabeth Kames | FT | EGN 1006 Career Design for STEM Discipline  
EGN 2001C Skill and Design 1  
EGL 4500 Design & Analysis of Machine Components | 78.60% | 14.30% | 7.10% | 100% |
| **Data Science and Business Analytics** |       |                                        |          |                         |               |              |                               |
| Shahram Taj | FT      | MAN 5596 Global Supply Chain Management | 25% | 16.70% | 8.30% | 50% | 100% |
| James Dowey | FT      | IDS 4942 Data Analytics Capstone 1  
IDS 5950 Project | 33.4% | 58.30% | 8.33% | 100% |
| Rea Sanchez-Arias | FT | COP 5090 Scientific Computation and Programming | 25.00% | 41.67% | 8.33% | 25% | 100% |
| Artem Malinin | FT | ACG 2020 Accounting for Managers  
ACG 2071 Financial and Managerial Accounting  
ECP 4031 Benefit Cost Analysis | 81.80% | 12.10% | 6.10% | 100% |
VII. Budget

A. Use Appendix A – Table 3A or 3B to provide projected costs and associated funding sources for Year 1 and Year 5 of program operation. In narrative form, describe all projected costs and funding sources for the proposed program(s). Data for Year 1 and Year 5 should reflect snapshots in time rather than cumulative costs.

For Fiscal Year 2023, the University received an increase to its base budget of approximately $5.1 million, which goes almost entirely to supporting program growth, including new faculty. The initial cost of the Industrial Engineering program is well below this threshold, even as projected in year five.

Additionally, in 2018 the University received a recurring appropriation of $4.8 million that we have applied to the development and implementation of new programs. Of this appropriation, around $1.4 million has yet to be directly allocated to a degree program. The total operating revenue for new programs and faculty sits at around $6.5 million.

B. Use Appendix A – Table 4 to show how existing Education & General (E&G) funds will be reallocated to support the proposed program in Year 1. Describe each funding source identified in Appendix A – Table 4, and provide a justification below for the reallocation of resources. Describe the impact the reallocation of financial resources will have on existing programs, including any possible financial impact of a shift in faculty effort, reallocation of instructional resources, greater use of adjunct faculty and teaching assistants, and explain what steps will be taken to mitigate such impacts.

As noted in the previous section (VII.A.), due to recurring appropriations to the University, allocations will not impact or create any shifts in the resource support for existing programs.

C. If the institution intends to operate the program through continuing education, seek approval for market tuition rate, or establish a differentiated graduate-level tuition, as described in Board of Governors Regulation 8.002, provide a rationale and a timeline for seeking Board of Governors’ approval.

☒ Not applicable to this program because the program will not operate through continuing education, seek approval for market tuition rate, or establish a differentiated graduate-level tuition

D. Provide the expected resident and non-resident tuition rate for the proposed program for both resident and non-resident students. The tuition rates should be reported on a per credit hour basis, unless the institution has received approval for a different tuition structure. If the proposed program will operate as a continuing education program per Board of Governors Regulation 8.002, please describe how the tuition amount was calculated and how it is reflected in Appendix A – Table 3B.

Tuition for this program remains the same as it does for all Florida Poly programs. Our posted tuition and fees as of January 26, 2023 is as follows:
E. Describe external resources, both financial and in-kind support, that are available to support the proposed program, and explain how this amount is reflected in Appendix A – Table 3A or 3B.

All Florida Poly programs have the same access to Florida Poly Foundation funds. These funds provide mostly student scholarships although can be used for other purposes such as faculty development, research, or programming associated with the degree program or field.

Appendix A, Tables 3A/3B reflect this in the absence.
VIII. Non-Faculty Resources

A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5 below, including but not limited to the following:

- the total number of volumes and serials available in the discipline and related disciplines
- all major journals that are available to the university’s students

The Library Director must sign the additional signatures page to indicate that they have review Sections VIII.A. and VIII.B.

The Florida Polytechnic University Library is comprised of two distinct collections: the main library collection is a multi-disciplinary digital library, and the Florida Industrial Phosphate Research (FIPR) Institute collection is primarily a comprehensive collection of phosphate-related resources and archival materials. There was a conscious effort at the inception of the institution to establish the main library as an entirely digital library. The Florida Polytechnic University Library provides specialized, STEM-focused resources and learning opportunities for students, faculty, and staff to work successfully with, interpret, and utilize information. Students at Florida Polytechnic University have 24/7/365 access to library resources via the internet.

The Florida Polytechnic University's main library is located on the second floor of the University’s Innovation, Science and Technology Building, in an open-space area called the Commons. The main, digital collection contains over 150,000 full text eBook volumes that are a mixture of owned and licensed materials. There is no physical stack area.

The University Library provides support for all the degrees offered at the institution, and currently supports Masters and Bachelors programs in Computer, Electrical and Mechanical Engineering. Resources that directly support Florida Poly’s current engineering programs will also directly support the proposed Industrial Engineering program. Current library resources include: AccessEngineering, American Society of Mechanical Engineers (ASME), Engineering Village (Inspec and Compendex), Elsevier’s Science Direct, EBSCO Engineering Core eBook collection and databases, IEEE Electronic Library, and ProQuest’s SciTech Premium Collection, and SpingerLINK.

Major journals currently available through the Florida Poly Library that will directly support Industrial Engineering are:

- **IEEE Transactions on Industrial Informatics** (2005 – Present)
- **IEEE Transactions on Engineering Management** (1963 – Present)
- **Journal of Manufacturing Technology Management** (1993 – Present)

B. Discuss any additional library resources that are needed to implement and/or sustain the program through Year 5. Describe how those costs are reflected in Appendix A – Table 3A or 3B.

- Not applicable to this program because no additional library resources are needed to implement or sustain the proposed program.
C. Describe any specialized equipment and space currently available to implement and/or sustain the proposed program through Year 5.

Industrial Engineering has no needs for specialized laboratories beyond what is either planned or in place and the delivery of its classes and labs fits within our overall building plans which include some space in the coming years for teaching expansion with student body growth (moving to full teaching utilization of the new teaching rooms in the Applied Research Center). In addition, there will be a small increase in teaching space that will come with the Gary Wendt Engineering Building which will be completed in two or so years. For laboratories, Industrial Engineering is a “modeling” based field with strong industry ties and will rely on the computational infrastructure that is already in place. In the lower division courses, the laboratories are already in place, and our planning for student body growth includes expansion of the capacity in these laboratories.

D. Describe any additional specialized equipment or space that will be needed to implement and/or sustain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Appendix A – Table 3A or 3B. Costs for new construction should be provided in response to Section X.E. below.

☒ Not applicable to this program because no new I&R costs are needed to implement or sustain the program through Year 5.

E. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university’s fixed capital outlay priority list. Appendix A – Table 3A or 3B includes only I&R costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs, in particular, would necessitate increased costs in non-I&R activities.

☒ Not applicable to this program because no new capital expenditures are needed to implement or sustain the program through Year 5.

F. Describe any additional special categories of resources needed to operate the proposed program through Year 5, such as access to proprietary research facilities, specialized services, or extended travel, and explain how those projected costs of special resources are reflected in Appendix A – Table 3A or 3B.

☒ Not applicable to this program because no additional special categories of resources are needed to implement or sustain the program through Year 5.

G. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5, and explain how those are reflected in Appendix A – Table 3A or 3B.

☒ Not applicable to this program because no fellowships, scholarships and/or graduate assistantships will be allocated to the proposed program through Year 5.
IX. Required Appendices

The appendices listed in tables 1 & 2 below are required for all proposed degree programs except where specifically noted. Institutions should check the appropriate box to indicate if a particular appendix is included to ensure all program-specific requirements are met. Institutions may provide additional appendices to supplement the information provided in the proposal and list them in Table 4 below.

Table 1. Required Appendices by Degree Level

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Appendix Title</th>
<th>Supplemental Instructions</th>
<th>Included? Yes/No</th>
<th>Required for Degree Program Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Tables 1-4</td>
<td></td>
<td>Yes</td>
<td>Bachelors: X Masters/ Specialist: X Doctoral/ Professional: X</td>
</tr>
<tr>
<td>B</td>
<td>Consultant's Report and Institutional Response</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Academic Learning Compacts</td>
<td>Include a copy of the approved or proposed Academic Learning Compacts for the program</td>
<td>Yes</td>
<td>X</td>
</tr>
<tr>
<td>D</td>
<td>Letters of Support or MOU from Other Academic Units</td>
<td>Required only for programs offered in collaboration with multiple academic units within the institution</td>
<td>Not Applicable to this Proposal</td>
<td>Bachelors: X Masters/ Specialist: X Doctoral/ Professional: X</td>
</tr>
<tr>
<td>E</td>
<td>Faculty Curriculum Vitae</td>
<td></td>
<td>Yes</td>
<td>Bachelors: X Masters/ Specialist: X Doctoral/ Professional: X</td>
</tr>
<tr>
<td>F</td>
<td>Common Prerequisite Request Form</td>
<td>This form should also be emailed directly to the BOG Director of Articulation prior to submitting the program proposal to the Board office for review.</td>
<td>Yes</td>
<td>X</td>
</tr>
<tr>
<td>G</td>
<td>Request for Exemption to the 120 Credit Hour Requirement</td>
<td>Required only for baccalaureate degree programs seeking approval to exceed the 120 credit hour requirement</td>
<td>Not Applicable to this Proposal</td>
<td>X</td>
</tr>
<tr>
<td>H</td>
<td>Request for Limited Access Status</td>
<td>Required only for baccalaureate degree programs seeking approval for limited access status</td>
<td>Not Applicable to this Proposal</td>
<td>X</td>
</tr>
<tr>
<td>Appendix</td>
<td>Appendix Title</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
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<td></td>
</tr>
</tbody>
</table>
Appendix A. Enrollment, Faculty, Financial Information

APPENDIX A

TABLE 1-A
PROJECTED HEADCOUNT FROM POTENTIAL SOURCES
(Industrial Engineering Baccalaureate Degree Program)

<table>
<thead>
<tr>
<th>Source of Students (Non-duplicated headcount in any given year)*</th>
<th>Year 1 HC</th>
<th>Year 1 FTE</th>
<th>Year 2 HC</th>
<th>Year 2 FTE</th>
<th>Year 3 HC</th>
<th>Year 3 FTE</th>
<th>Year 4 HC</th>
<th>Year 4 FTE</th>
<th>Year 5 HC</th>
<th>Year 5 FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper-level students who are transferring from other majors within the university**</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Students who initially entered the university as FTIC students and who are progressing from the lower to the upper level***</td>
<td>12</td>
<td>11</td>
<td>16</td>
<td>14</td>
<td>33</td>
<td>31</td>
<td>41</td>
<td>39</td>
<td>63</td>
<td>60</td>
</tr>
<tr>
<td>Florida College System transfers to the upper level***</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Transfers to the upper level from other Florida colleges and universities***</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Transfers from out of state colleges and universities***</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Other (Explain)***</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>20</td>
<td>18</td>
<td>26</td>
<td>23</td>
<td>49</td>
<td>44</td>
<td>56</td>
<td>52</td>
<td>75</td>
<td>71</td>
</tr>
</tbody>
</table>

* List projected annual headcount of students enrolled in the degree program. List projected yearly cumulative ENROLLMENTS instead of admissions.
** If numbers appear in this category, they should go DOWN in later years.
*** Do not include individuals counted in any PRIOR CATEGORY in a given COLUMN.
### APPENDIX A

#### Table 2

**Anticipated Faculty Participation**

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Faculty Name or &quot;New Hire&quot; Highest Degree Held Academic Discipline or Specialty</th>
<th>Rank</th>
<th>Contract Status</th>
<th>Initial Date for Participation in Program</th>
<th>Mos. Contract Year 1</th>
<th>FTE Year 1</th>
<th>% Effort for Prg. Year 1</th>
<th>PY Year 1</th>
<th>Mos. Contract Year 5</th>
<th>FTE Year 5</th>
<th>% Effort for Prg. Year 5</th>
<th>PY Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Shahram Taj, Ph.D. Industrial Engineering</td>
<td>Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
</tr>
<tr>
<td>A</td>
<td>Mary Vollaro, Ph.D. Mechanical Engineering</td>
<td>Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
</tr>
<tr>
<td>A</td>
<td>James Dewey, Ph.D. Economics</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
</tr>
<tr>
<td>A</td>
<td>Rafael Sanchez-Arias, Ph.D. Applied Mathematics</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
</tr>
<tr>
<td>A</td>
<td>Mohammad Reza Khajehani, Ph.D. Electrical Engineering</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.44</td>
<td>0.33</td>
</tr>
<tr>
<td>A</td>
<td>Artem Mailin, Ph.D. Finance</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.44</td>
<td>0.33</td>
</tr>
<tr>
<td>A</td>
<td>Elisabeth Kames, Ph.D. Mechanical Engineering</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.44</td>
<td>0.33</td>
</tr>
<tr>
<td>B</td>
<td>New Hire, Ph.D. Industrial Engineering</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
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<tr>
<td>B</td>
<td>New Hire, Ph.D. Industrial Engineering</td>
<td>Assoc. Prof.</td>
<td>MYA</td>
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<td>0.75</td>
<td>1.00</td>
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<td>Fall 2023</td>
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<td>1.00</td>
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<tr>
<td>B</td>
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<td>MYA</td>
<td>Fall 2025</td>
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<td>0.00</td>
<td>1.00</td>
<td>0.00</td>
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<tr>
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<td>MYA</td>
<td>Fall 2025</td>
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<td>0.00</td>
<td>1.00</td>
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</tbody>
</table>

**Total Person-Years (PY)**

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Faculty Name or &quot;New Hire&quot; Highest Degree Held Academic Discipline or Specialty</th>
<th>Rank</th>
<th>Contract Status</th>
<th>Initial Date for Participation in Program</th>
<th>Mos. Contract Year 1</th>
<th>FTE Year 1</th>
<th>% Effort for Prg. Year 1</th>
<th>PY Year 1</th>
<th>Mos. Contract Year 5</th>
<th>FTE Year 5</th>
<th>% Effort for Prg. Year 5</th>
<th>PY Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Shahram Taj, Ph.D. Industrial Engineering</td>
<td>Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
</tr>
<tr>
<td>A</td>
<td>Mary Vollaro, Ph.D. Mechanical Engineering</td>
<td>Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
</tr>
<tr>
<td>A</td>
<td>James Dewey, Ph.D. Economics</td>
<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
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<td>0.17</td>
</tr>
<tr>
<td>A</td>
<td>Rafael Sanchez-Arias, Ph.D. Applied Mathematics</td>
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<td>0.22</td>
<td>0.17</td>
<td>9</td>
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<tr>
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<td>Mohammad Reza Khajehani, Ph.D. Electrical Engineering</td>
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<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
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<td>0.33</td>
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<tr>
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<td>Artem Mailin, Ph.D. Finance</td>
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<td>0.22</td>
<td>0.17</td>
<td>9</td>
<td>0.75</td>
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<td>0.33</td>
</tr>
<tr>
<td>A</td>
<td>Elisabeth Kames, Ph.D. Mechanical Engineering</td>
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<td>0.75</td>
<td>0.22</td>
<td>0.17</td>
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<td>0.75</td>
<td>0.44</td>
<td>0.33</td>
</tr>
<tr>
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<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
</tr>
<tr>
<td>B</td>
<td>New Hire, Ph.D. Industrial Engineering</td>
<td>Assoc. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
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<td>0.75</td>
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</tr>
<tr>
<td>B</td>
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<td>Asst. Prof.</td>
<td>MYA</td>
<td>Fall 2023</td>
<td>9</td>
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<td>1.00</td>
<td>0.75</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
</tr>
<tr>
<td>B</td>
<td>New Hire, Ph.D. Industrial Engineering</td>
<td>Assoc. Prof.</td>
<td>MYA</td>
<td>Fall 2025</td>
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<td>0.00</td>
<td>1.00</td>
<td>0.00</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
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</tr>
<tr>
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<td>MYA</td>
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<td>0.00</td>
<td>1.00</td>
<td>0.00</td>
<td>9</td>
<td>0.75</td>
<td>1.00</td>
<td>0.75</td>
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</tbody>
</table>

**Total Person-Years (PY)**

- **Year 1**: 3.41
- **Year 5**: 5.40

<table>
<thead>
<tr>
<th>Faculty Code</th>
<th>Code Description</th>
<th>Source of Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code</td>
<td>Description</td>
<td>Source of Funding</td>
</tr>
</tbody>
</table>

- **PY Workload by Budget Classification**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# APPENDIX A

## Table 2

### Anticipated Faculty Participation

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Revenue Source</th>
<th>Hours</th>
<th>Additional Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Existing faculty on a regular line</td>
<td>Current Education &amp; General Revenue</td>
<td>1.16</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>New faculty to be hired on a vacant line</td>
<td>Current Education &amp; General Revenue</td>
<td>2.25</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>New faculty to be hired on a new line</td>
<td>New Education &amp; General Revenue</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Existing faculty hired on contracts/grants</td>
<td>Contracts/Grants</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>New faculty to be hired on contracts/grants</td>
<td>Contracts/Grants</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Existing faculty on endowed lines</td>
<td>Philanthropy &amp; Endowments</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>New faculty on endowed lines</td>
<td>Philanthropy &amp; Endowments</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Regular/tenure-track line course load</td>
<td>Enterprise Auxiliary Funds</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

**Overall Totals for**: 3.41 + 5.40
## APPENDIX A

### TABLE 3A
EROLLMENT AND GROWTH
PROJECTED COSTS AND FUNDING SOURCES

Institutions should not edit the categories or budget lines in the table below. This table is specific to state-funded (E&G) programs, and institutions are expected to explain all costs and funding sources in Section VII.A of the proposal. Detailed definitions for each funding category are located at the bottom of the table.

<table>
<thead>
<tr>
<th>Budget Line Item</th>
<th>Reallocated Base* (E&amp;G) Year 1</th>
<th>Enrollment Growth (E&amp;G) Year 1</th>
<th>New Recurring (E&amp;G) Year 1</th>
<th>New Non-Recurring (E&amp;G) Year 1</th>
<th>Contracts &amp; Grants (E&amp;G) Year 1</th>
<th>Philanthropic/Endowments Year 1</th>
<th>Subtotal Year 1</th>
<th>Continuing Base** (E&amp;G) Year 5</th>
<th>New Enrollment Growth (E&amp;G) Year 5</th>
<th>Other Funding Year 5 - Please Explain in Section VII.A of the Proposal</th>
<th>Contracts &amp; Grants (E&amp;G) Year 5</th>
<th>Philanthropic/Endowments Year 5</th>
<th>Other Funding Year 5 - Please Explain in Section VII.A of the Proposal</th>
<th>Subtotal Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and Benefits (Faculty)</td>
<td>0</td>
<td>0</td>
<td>422,195</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>$422,195</td>
<td>686,706</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Salaries and Benefits (A&amp;R and USPS)</td>
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<td>0</td>
<td>114,096</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>$114,096</td>
<td>120,942</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>OPE ( including fellowship)</td>
<td>0</td>
<td>0</td>
<td>16,000</td>
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<td>13,800</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Programmatic Expenses***</td>
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<tr>
<td>Total Costs</td>
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<td>$800,212</td>
<td>$0</td>
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<td>$0</td>
<td>$0</td>
<td>$800,212</td>
<td>$1,375,461</td>
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<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$1,375,461</td>
</tr>
</tbody>
</table>

*Identify reallocated sources in Table 4.
**Identify if non-recurring.
***Include library costs, expenses, OOE, special categories, etc.

### Faculty and Staff Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Positions</th>
<th>Faculty (person-years)</th>
<th>FTE (A&amp; R and USPS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>3.41</td>
<td>5.69</td>
<td></td>
</tr>
<tr>
<td>Year 5</td>
<td>5.69</td>
<td>8.85</td>
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<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 5</th>
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</thead>
<tbody>
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<td>$201,012</td>
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### Calculated Cost per Student FTE

<table>
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<th>Year 1</th>
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<tr>
<td>$44,560.07</td>
<td>$19,372.69</td>
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### Table 3 Column Explanations

<table>
<thead>
<tr>
<th>Column</th>
<th>Explanation</th>
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<tr>
<td>Reallocated Base (E&amp;G)</td>
<td>E&amp;G funds that are already available in the university’s budget and will be reallocated to support the new program. Please include these funds in the Table 4 – Anticipated reallocation of E&amp;G funds and indicate their source.</td>
</tr>
<tr>
<td>Enrollment Growth (E&amp;G)</td>
<td>Additional E&amp;G funds allocated from the “Student and Other fees Trust Fund” contingent on enrollment increases.</td>
</tr>
<tr>
<td>New Recurring (E&amp;G)</td>
<td>Recurring funds appropriated by the Legislature to support implementation of the program.</td>
</tr>
<tr>
<td>New Non-Recurring (E&amp;G)</td>
<td>Non-recurring funds appropriated by the Legislature to support implementation of the program. Please provide an explanation of the source of these funds in the budget section (section VII.A.) of the proposal. These funds can include initial investments, such as infrastructure.</td>
</tr>
<tr>
<td>Contracts &amp; Grants (E&amp;G)</td>
<td>Contracts and grants funding available for the program.</td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td>Funds provided through the foundation or other Direct Support Organizations (DSO) to support the program.</td>
</tr>
<tr>
<td>Continuing Base (E&amp;G)</td>
<td>Includes the sum of columns 1, 2, and 3 over time.</td>
</tr>
<tr>
<td>New Enrollment Growth (E&amp;G)</td>
<td>See explanation provided for column 2.</td>
</tr>
<tr>
<td>Other** (E&amp;G)</td>
<td>These are specific funds provided by the Legislature to support implementation of the program.</td>
</tr>
<tr>
<td>Philanthropy Endowments</td>
<td>See explanation provided for column 5.</td>
</tr>
<tr>
<td>Other Funding</td>
<td>See explanation provided for column 6.</td>
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</table>

### APPENDIX A

#### TABLE 4

**ANTICIPATED REALLOCATION OF EDUCATION GENERAL FUNDS**

<table>
<thead>
<tr>
<th>Program and/or E&amp;G account from which current funds will be reallocated during Year 1</th>
<th>Base before reallocation</th>
<th>Amount to be reallocated</th>
<th>Base after reallocation</th>
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<tbody>
<tr>
<td>Example: 555-555 World exploration fund (example)</td>
<td>0</td>
<td>0</td>
<td>$0</td>
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<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>$0</td>
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<tr>
<td></td>
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<tr>
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<td>$0</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$0</strong></td>
<td><strong>$0</strong></td>
<td><strong>$0</strong></td>
</tr>
</tbody>
</table>

*If not reallocating E&G funds, please submit a zeroed Table 4*

Funds supporting the program come from unallocated E&G.
Appendix B. Academic Learning Compact

Florida Polytechnic University’s Academic Learning Compact describes what students, who follow the major’s study plan, will know and be able to do. These are listed as core student learning outcomes.

**Program:** Industrial Engineering

**Purpose of the Program:** The Industrial Engineering Bachelor of Science degree program at Florida Polytechnic University is designed to provide students core competencies areas such as logistics, operations research, manufacturing processes, as well as competency in areas of engineering project management and financial and managerial accounting. Industrial Engineers from Florida Poly will graduate with the knowledge and skill to enter industry successfully or continue their education at the graduate level.

**Graduates of the program will demonstrate the following:**

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

**Core Learning Outcomes:**

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>The Outcomes Involve These Skills:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upon completion of the Industrial Engineering Degree, students will possess:</strong></td>
<td><strong>Content</strong></td>
</tr>
<tr>
<td>1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics</td>
<td></td>
</tr>
<tr>
<td>2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors</td>
<td>X</td>
</tr>
<tr>
<td>3. an ability to communicate effectively with a range of audiences</td>
<td></td>
</tr>
<tr>
<td>4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts</td>
<td></td>
</tr>
<tr>
<td>5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives</td>
<td>X</td>
</tr>
<tr>
<td>6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions</td>
<td></td>
</tr>
<tr>
<td>7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.</td>
<td>X</td>
</tr>
</tbody>
</table>
Appendix C. Faculty Vitae

Faculty vitae will be added upon submittal to the Board of Governors.
EDUCATIONAL QUALIFICATIONS
1984 Ph.D., Industrial Engineering and Operations Research
University of Massachusetts
1980 M.S., Industrial Engineering
University of Rhode Island
1977 B.S., Applied Mathematics and Operations Research
College of Planning and Computer Applications, Tehran

(Extensive coursework in all functions of business: economics, management, marketing, finance, accounting, and business law)

HONORS AND AWARDS
2008-2013 Cameron Endowed Chair of Management and Marketing, Cameron School of Business, University of St. Thomas, Houston, Texas
2004 MPD Pride
Award of Academic Recognition in Master of Science in Product Development
University of Detroit Mercy
1999 Franz Edelman Finalist Award- INFORMS
Paper: Productivity on the fast track: simulation-based decision support system drives training, operations, and planning at Visteon Sterling Plant - Results $15.5 million capital savings and $2 billion profit increase
1993 Beta Gamma Sigma Chapter Award
1992 President's Award for Faculty Excellence
University of Detroit Mercy

MAJOR ADMINISTRATIVE RESPONSIBILITIES
2021-Present Chair, Department of Computer Science, Florida Polytechnic University
2018-present Chair, Department of Data Science and Business Analytics, Florida Polytechnic University
2017 Academic Program Coordinator, Graduate Programs
Academic Program Coordinator, Science & Technology Management
Florida Polytechnic University

2013-2016 Chair, Department of Management and Marketing  
College of Management, Lawrence Technological University

2008-2013 Chair, Department of Management and Marketing  
Cameron School of Business, University of St. Thomas

2006-2008 Director of International Programs  
College of Business Administration, University of Detroit Mercy  
Directing the EMBA Joint programs with Fu Jen Catholic University in Taiwan, overseas international business courses, and expansion of business programs in China.

2004-2007 Acting Director of the Executive MBA program  
College of Business Administration, University of Detroit Mercy  
My duties included benchmarking Executive MBAs, developing the new EMBA curriculum, scheduling/coordinating classes, and interview of graduate applicants

2002-2008 Academic Director of the Product Development Program  
University of Detroit Mercy  
As Academic Director my duties included updating curriculum, reviewing and admission of new graduate students, recruiting adjunct faculty, supervising the thesis work of master’s degree students, and supervising research and teaching assistants

2002-2008 Discipline Coordinator of Decision Sciences  
College of Business Administration, University of Detroit Mercy

1990-1998 Academic/Research Coordinator, Decision and System Sciences  
College of Business Administration, University of Detroit Mercy  
As Academic/Research Coordinator my duties included curriculum updates, developing new curricula, recruiting full-time and adjunct faculty, scheduling classes, mentoring junior faculty towards tenure and promotion, promoting research and publications among faculty, and selecting research assistants

ACADEMIC EXPERIENCE

2021-Present Chair, Department of Computer Science, Florida Polytechnic University

2018-present Chair, Department of Data Science and Business Analytics, Florida Polytechnic University

2016-Present Professor of Logistics & Supply Chain Management  
Department of Data Science and Business Analytics  
Florida Polytechnic University

2013-2016 Professor and Chair  
Department of Management and Marketing  
College of Management, Lawrence Technological University
2008-2013  Cameron Endowed Chair of Management and Marketing  
Professor of Management  
Cameron School of Business, University of St. Thomas

1994-2010  Professor of Operations Management and Systems Optimization  
College of Business Administration, University of Detroit Mercy

2004  Visiting Professor of Operations Management  
Beijing International MBA Program, Peking University, China

1987-1994  Associate Professor, Operations Management and Systems Optimization  
College of Business Administration, University of Detroit Mercy

1984-1987  Assistant Professor, Department of Management  
Bernard Baruch College, The City University of New York

1982-1983  Research Associate, School of Management, University of Massachusetts  
Developed a Decision Support System for computing food plans for the USDA. The food plans are used by the USDA, U.S. Bureau of Labor Statistics, and the Food Stamp Program

1981-1983  Instructor, School of Management  
University of Massachusetts

1980-1982  Research Assistant, School of Management, University of Massachusetts  
Designed a User Controlled Database Management System for computing iron in meals for the USDA

1978-1980  Research Assistant, Department of Industrial Engineering, University of Rhode Island  
Designed and implemented Health Care Information Systems for the University of Rhode Island Health Services (The system processes over 35,000 records annually)

MAJOR CONSULTING CONTRACTS

2009-2010  Baker Hughes  
Technical Advisor to Supply Chain Executives (VP levels)

2001-2006  Optimal Scheduling Solutions, L.L.C.  
Vice President of Product Development  
Consulting and overseeing software development for supply chain

1999-2000  Consortium of Marubeni, Japan High Comm, and PAC  
Senior Consultant  
Worked with Japanese, Australian, and American engineers/managers in Australia and Japan in designing a new automotive high performance engine plant for GM/Holden in Australia
1998-2000  New Venture Gear (Joint Venture of GM and DaimlerChrysler)  
Executive Consultant in Simulation, Optimization, and Lean Manufacturing  
Worked directly with the executive vice president of worldwide operations in designing a new 
lean automotive power-train manufacturing plant in Germany —The lean production system 
design approach resulted in savings of $21 million.

1997-2000  Ford Motor Company, Sterling Axle Plant  
Senior Consultant in Simulation & Optimization  
Implementing lean manufacturing with a combination of new and existing facilities for gear 
manufacturing, —in cooperation with Dr. David Cochran at the Production Systems Design 
Laboratory at the Massachusetts Institute of Technology

1996-2000  Ford Motor Company, Sterling Axle Plant  
Senior Consultant in Simulation & Optimization  
Productivity improvement, optimizing, and design of assembly lines for axles - capital 
savings of $15.5 million, profit increase of $2 billion

Senior Consultant in Simulation & Optimization  
Optimized and improved the design of slip-yoke manufacturing line that resulted in cost 
avoidance of $10.5 million, simulation and productivity improvement of the Driveshaft 
Business Unit identified about 250 excess daily labor hours due to batch operations, lack of 
coordination, unlimited WIP, and unavailability of accurate production data with potential 
annual cost savings of $2 million

Faculty Intern  
Developed a simulation-based productivity training that became very successful and used at 
several other Ford’s plants worldwide

1981-1982  Comcater International Inc  
Management Information System Consultant  
Developed commercial grade food/menu planning software

GRANTS

2019  $500,000 (REJECTED), NASA MUREP GRANT, Dr. Shahram Taj, Dr. Seyed Soltani, Dr. Jim 
Mennie and UCF

Co-PIs:  
University of Detroit Mercy: Utpal Dutta  
University of Toledo: Subba Rao, Mark Vonderembse, and Paul Hong  
A collaborative Supply Chain/Transportation Efficiency Systems graduate degree program

2004  $3,000, PI, Founding: BiMBA, Peking University, China
Assessing the State of Lean Manufacturing in China

2000  $15,000, PI, Funding: NSF Grant for PD21
Transfer the systems optimization curriculum for product development from MIT and develop relevant materials/application to the automotive industry

1999  $38,000, PI, Funding: NSF Grant for PD21
Transfer the operations management curriculum for product development from MIT and develop relevant materials/application to the automotive industry

1990  Summer Research Grant, University of Detroit Mercy
Application of Mathematical Programming in Planning of Human Diets

1985  Summer Research Grant, Bernard Baruch College
Bi-Criterion Quadratic Programming Model of the Diet Problem

PROFESSIONAL CONFERENCES AND TRAINING

- Department Chairpersons Workshop, Institute for Academic Leadership, the Florida State University, Howey-in-the-Hills, Florida, June 3-6, 2018. The agenda for this session included discussions on leadership; sustaining morale; departmental budgeting; teaching effectiveness; and goals and assessment.
- Department Chairpersons Workshop, Institute for Academic Leadership, the Florida State University, Howey-in-the-Hills, Florida, October 1-4, 2017.
- Leadership Development, Emily Rogers, Training Series 2018 (awarded certificate of completion)
- AACSB International Annual Accreditation Conference, St. Louis, September 22-24, 2013
- AACSB Continuous Improvement Conference, Atlanta, September 21-23, 2008
- AACSB International Conferences - “World Class Practices in Management Education” 21-22 May 2007, Beijing
- Lean for the Twenty-first Century Auto Industry, University of Michigan Japan Technology Management Program / Lean Enterprise Institute, Dearborn, May 1-3, 2000
- Value Stream Workshop, Ford-Visteon Chassis Division, April 12-14, 2000
- Education Consortium for Product Development, Massachusetts Institute of Technology, July 12-16, 1999
- Innovation in Product Development, Engineering/Manufacturing Conference, Massachusetts Institute of Technology, April 20-21, 1999
- Teaching Management Science with Spreadsheet, The Amos Tuck School of Business Administration, Dartmouth College, June 27-30, 1998
- Ford Production System / Lean Manufacturing Design Rules, April 29-30, 1998
- Lean Manufacturing Workshop, by Dr. Cochran from MIT, April 20-21, 1998
- Taylor II Simulation Training, Sundance, Utah, 1995
- AACSB Continuous Improvement Symposium. St. Louis, Missouri, Sept., 1994
- Quality, Productivity, and Competitive Position, by Dr. W. Edward Deming, Dearborn, Michigan, June 4-7, 1991
COURSES TAUGHT

Manufacturing Planning and Control
Logistics and Technology
Sustainable Logistics
Design Lab
Global Strategic Management
Operations Management and Supply Chain
Optimization and Simulation
Discrete Event Simulation
Global Supply Chain Management
Design and Management of Global Supply Chain
Management and Control of Operations and Quality
Lean Management
Systems Thinking - System Dynamics
Decision Analysis
Modeling and Executive Decision Analysis
Systems Optimization and Simulation
Simulation
Operations Research
Quantitative Methods for Decision Making
Management Information Systems
Introduction to Information Systems

CURRICULA DEVELOPMENT

Florida Polytechnic University
• Master of Science in Engineering – Engineering Management Track (2019)
• Master of Science in Computer Science – Data Science Track (2019)
• Curricula revisions for two degrees – BS in Data Science and BS in Business Analytics with concentrations in Big Data Analytics, Internet of Things, Health Informatics, Logistics and Supply Chain Management, Intelligent Mobility, and Quantitative Economics and Econometrics (2018)
• Revision of Logistics and Supply Chain Management (2017)
• Master of Science in Engineering – Concentration in Electrical Control Systems (2017)
• Master of Science in Engineering – Concentration in Robotics (2017)
• Master of Science in Innovation & Technology – Concentrations in Big Data Analytics and Logistics Analytics (2017)

Other Universities
• Proposal - Master of Science in System Engineering and Management (2012)
• Revision of Applied Strategic Management – MBA Capstone (2009)
• Sustainable Business Development – MBA elective (2009)
• System Dynamics – MBA elective (2009)
• Master of Science in Supply Chain/Transportation Efficiency Systems – This program has been developed with cooperation with the University of Toledo (2006-2007)
• Executive MBA – This cohort-based program is designed around nine cross-functional themes, (2005)
• Master of Science in Product Development - This cohort-based graduate program is based on the system design and management program/product development track at the Massachusetts Institute of Technology, developed in cooperation with Ford, General Motors, IBM, ITT, Polaroid, Xerox with funding from the NSF (1999)
- Master of Science in Software Management/Engineering (1991)

RESEARCH

In Progress

1. Planning and Executing Lean & Agile Manufacturing Facilities for Global Supply Chain
2. Rack Requirement Logistic Planning for Green Supply Chain
3. Supply Chain Optimization: MRP-Based Production Optimization – Multi-product, Multi-Plant, Hierarchy of tiers suppliers
4. Portfolio optimization modeling for social media advertising

Published Journal (Refereed) Article


10. Cristian Morosan, Natalya Delcoure, Shahram Taj and Bahman Mirshab “An Exploratory Study of


Refereed Proceedings


35. Sarena Garcia-DeLeone and Shahram Taj, "Reaching the BOP through “DIY” Apparel Kits: A Business Model Designed to Tap into the BOP” Proceedings of 2014 IABPAD conference, Las Vegas, October.


50. Cyrus Motlagh and Shahram Taj, "Diet for a Small Planet," Proceedings of Twenty Sixth
Annual Conference of Southwest DSI, Houston, March 1995.


1989.


Thesis:


CONFERENCE PRESENTATIONS AND INVITED TALKS


3. FLORIDA POLY GLOBAL SCHOLARS TO BRAZIL – São Paulo, Sorocaba, March 20, 2019 to March 3, 2019. Presented two talks and one workshop:
   a. Business Model Innovation for the Bottom of Pyramid
      i. Presentation to MBA students – Travison University – Sao Paulo – March 20, 2019
      ii. Presentation at MAUA Institute of Technology, March 21, 2019
      iii. Presentation at FACEN, Sorocaba, March 23, 2019
      iv. Presentation at Sao Judas University, Sao Paulo, March 25, 2019
      v. Presentation at Belas Artes, Sao Paulo, March 28, 2019
   b. Planning and Executing Lean and Agile Manufacturing Facilities for Global Supply Chains
      i. Presentation at Sao Judas University, Sao Paulo March 26, 2019
   c. Workshop: Product Innovation for Bottom of Pyramid - Sao Judas University, March 27, 2019


5. Shahram Taj and Reinaldo Sanchez-Arias, “Innovative Undergraduate Degree Programs in Data

6. FLORIDA POLY GLOBAL SCHOLARS TO BRAZIL – São Paulo, Sorocaba, March 31, 2018 to April 6, 2018. Presented three talks and participated in panels:
   a. Planning and Executing Lean and Agile Manufacturing Facilities for Global Supply Chains – FACEN https://youtu.be/Q_M2Ji9vA0w
   c. Higher Education in the US, Education Methodology – FACEN Leadership Team and Professors.
   d. How AI will change the world – FIAP Panels


32. Cyrus Motlagh and Shahram Taj, “Eating Healthier in the 90s: Do We have to Give Up All of Our


Meeting, Honolulu, November 1986.


GRADUATE THESES/PROJECTS

Doctoral Students:


2. Saso Krstovski, Optimization of an Asynchronous Manufacturing Production System Incorporating Mixed Operational Cycle Time Variation, Doctor of Engineering in Manufacturing Systems, Lawrence Technological University, March 2018. (Member of Thesis Committee)


Master Students Theses/Projects:


5. Morgan Nibert, “Cross-Platform Content Recommendation System Using Sentiment Analysis of Microblogging Data”, Completed as a requirement for Master of Science in Computer Science Data Science Track at Florida Polytechnic University, Spring 2021. (Committee Member)

6. Richard Truncle, "Developing a Framework and Guidelines for Successful CRM & Marketing Automation Implementation for a Small-To-Medium Size Company with Limited Resources”, Completed as a requirement for MS in Innovation & Technology - Data Analytics, Florida Polytechnic University, Spring 2018. (Committee Member)
Polytechnic University, Spring 2020. (Project Advisor)


PROFESSIONAL SERVICE

Book Review

1. Quantitative Analysis for Business Decisions, Irwin, August 1994

Paper Review

Journals:

- Journal of Manufacturing Technology Management
- International Journal of Simulation and Process Modelling
- International Journal of Production Economics
- International Journal of Operations & Production Management
- Interfaces
- Decision Sciences
- Editorial Board Member, Detroit Business Journal, 1990-1992

Professional Meetings:

- Winter Simulation
- DSI National Meetings
- Northeast DSI Meeting

Test Writer

Item writer for the Regents College Examination in Production/Operations Management

Professional Societies (Past Participation)

- INFORMS
- APICS
- The Decision Science Institute
- Charter Member, TIMS College on Production and Operations Management

Track Chairperson

- Lean Manufacturing, Manufacturing Information Management, Supply Chain, and Product Development, SAE International / Automotive & Transportation Technology Congress and Exhibition, Barcelona, Spain, October 1-3, 2001. (Also served as the Chair of the Award Committee)
• Advanced Manufacturing, Modular Manufacturing, Supplier Integration, and Production Planning, ISATA 2000: Automotive & Transportation Technology, Dublin, Ireland, September 25-27, 2000

Proceedings Editor


Session Chairperson

• Session Chair and Organizer, IEOM Global Business Management Education, August 14, 2020, 5th North American International Conference on Industrial Engineering and Operations Management, Detroit, August 10-14, 2020 (Virtual).
• National Decision Sciences Institute Meeting, Orlando, November 1996
• National Decision Sciences Institute Meeting, Washington, D.C., November 1993
• National Decision Sciences Institute Meeting, Miami Beach, November 1991
• Joint National Meeting of ORSA/TIMS, Boston, April 1985

Community

▪ Member of Advisory Board, Lakeland Regional Health and Florida Polytechnic University, 2018 – 2019.
▪ Participated at several meeting of the Financial Education Institute, Detroit, 2013-2014
▪ Participated at several meeting of the Council on Foreign Relations, Houston, 2008-2009
▪ Participated at several meeting of the Council on Foreign Relations, Houston, 2008-2012
▪ Participated at several meeting of the Financial Education Institute, Houston, 2008-2011
▪ Michigan-Ohio University Transportation Center Operating Committee, 2006 - 2007
▪ Participated at the Detroit Chapter of The American Production and Inventory Control Society, 1990-1992
▪ Selected as a member of a high-level United Nations delegation of university professors to visit Iran, the delegation subsequently met with and advised top level government and industry officials including vice-presidents and other cabinet members in regard to economic planning and possible cooperation between institutions of higher education in Iran and the United States, 1991
▪ Participated at the Detroit Chapter of American Society for Quality Control, 1988-1990

UNIVERSITY SERVICE

Florida Polytechnic University

▪ Member of the DSBA Reappointment and Promotion Clarifications, 2019 – present
▪ Chair, Program Evaluation Panel for Data science and Business Analytics, 2020 - present
▪ Member, University Evaluation Committee, 2020 – Present
▪ Member of SAM’s Program Evaluation Panel, 2020.
▪ Chair of the Economic Impact Committee and member of the Leadership Team, 2018 - present
▪ Member, Academic Policies and Procedure Committee, 2017 - present
▪ Member of the Search Committee for Computer Science (S3), 2018-2019
▪ Member of the Search Committee for Mechanical Engineering, 2018-2019
▪ Member of the Search Committee for Math Associate Professor, 2018-2019
- Member of the University Student Technology Fee Committee, 2018-2019
- Chair, Graduate Study Committee, 2017-2018
- Member, Undergraduate Curriculum Committee, 2016-2018
- Co-Chair of Dept. Curriculum Committee, 2017-2018
- Member, Data Analytics and STM Search Committee, 2017-2018
- Member, Special Task Force Committee to update the Faculty Handbook, 2016

**Lawrence Technological University**

- Department Chair, Management and Marketing, 2013-2016
- Chair, Faculty Search Committee, College of Management, 2013-2016
- Chair, Faculty Development Committee, College of Management, 2014-2016
- Member, Assessment Committee, College of Management, August 2013-2016
- Member, Strategic Planning Committee, College of Management, August 2015-2016
- Member, Faculty Development Committee, College of Management, August 2013-2014
- Member, AACSB Advisory Committee, College of Management, August 2013-2016
- Member, Math Task Force, University, Spring 2015-2016

**University of St. Thomas**

- Department Chair, Management and Marketing, August 2008-December 2012
- Faculty Development Committee, Cameron School of Business, 2008-2013
- Cameron School of Business Council, 2008-2013

**University of Detroit Mercy**

- College of Business Faculty Development Committee, 2004-2008
- College of Business Graduate Curriculum Committee, 1997-2008
- College of Business Assessment and Standard Committee, 2004-2007
- College of Business Administration Dean’s Search Committee, 2006
- Prioritization Process Steering Committee, 2001-2002
- Search Committee for Academic Vice President and Provost, 1999-2000
- College of Business Faculty Development Council, 1991-1998
- Chairman of the College of Business Administration’s Selection Committee for the Faculty Award
- College of Business Student Grievance Committee, 1992-1993
- University Faculty Development Committee, 1992-1993
- Insignis Interview, 1990-1991
- Co-chaired the curriculum development in the field of MIS and CIS for the consolidated College of
  Business Administration, 1990-1991
- College of Business Professional Development Committee, 1990-1991
- University Selection Committee for the Faculty Award for Excellence, 1990-1991
- College of Business Planning Committee, 1988-1991
- Professional Negotiating Committee, 1989-1990
- Faculty Marshal at the University Commencement, 1991

**RESEARCH INTERESTS**

Business Model Innovation, sustainable business development, global supply chain design, production system design, productivity improvement, lean operations, optimizing human diets
MARY B. VOLARO, Ph.D.

mvollaro@flpoly.org 863.874.8604

EDUCATION

Ph.D. in Materials Science, Field of Metallurgy, May 1996
UNIVERSITY OF CONNECTICUT, Storrs, CT
Dissertation: Phase Formation, Microstructures, and Electrical Properties of Ni-Cr Films
Advisor: Dr. Donald I. Potter

M.S. in Metallurgy, 1986
RENSSELAER POLYTECHNIC INSTITUTE
The Hartford Graduate Center, Hartford, CT

B.S. in Mechanical Engineering, 1983
WESTERN NEW ENGLAND COLLEGE, Springfield, MA

PROFESSIONAL EXPERIENCE

Associate Professor, Mechanical & Industrial Engineering  Aug ’16 - present
FLORIDA POLYTECHNIC UNIVERSITY, Lakeland, FL

Associate Professor, Mechanical Engineering  Aug ’04- May ’16
Assistant Professor, Mechanical Engineering  Sept ’98 – Aug ‘04
Assistant Professor of Engineering (Visiting)  Sept ‘97 – Aug ‘98
WESTERN NEW ENGLAND UNIVERSITY, Springfield, MA

Assistant Professor (adjunct)  Summer ‘97
FAIRFIELD UNIVERSITY, BEI School of Engineering, Fairfield, CT

Research Scientist  Feb ’96 – Aug ’97
ADVANCED TECHNOLOGY MATERIALS, INC., Danbury, CT

Graduate Research Assistant / Teaching Assistant  June ’89 – Apr ‘96
UNIVERSITY OF CONNECTICUT, Storrs, CT

Manufacturing Engineer / Process Planner  July ’86 – Aug ‘88
PRATT AND WHITNEY AIRCRAFT, North Haven, CT

Materials Engineer I  June ’83– July ‘86
AVCO LYCOMING, Stratford, CT


Vollaro, Mary B., and Brennan, Michael, “Leveraging student's interests in a senior design project through integration of materials selection methodology”, Proceedings of the 2014 ASEE National Conference

Dr. Owe G. Petersen (Milwaukee School of Engineering), Dr. R. David Kent (Milwaukee School of Engineering), Dr. Christina Howe (University of Evansville), and Dr. Mary B. Vollaro (Western New England University), “General Education: Key for Success for an Entrepreneurial Engineering Career”, Proceedings of the 2012 ASEE National Conference


Schreiner, S., Keyser, T., Musiak, R., Mindek, R., Vollaro, M., “Strategic use of Manhattan: An Internet communication tool used with a freshmen engineering design course”, Proceedings of 2002 ASEE Annual Conference


PRESENTATIONS


Vollaro, M.B., “A model for senior design projects = Student’s personal interests + Materials Selectin Methodology”, at the 6th North American Materials Education Symposium, March 25-27, 2015, at The Ohio State University, Columbus, OH

Vollaro, Mary B., and Brennan, Michael, “Leveraging student’s interests in a senior design project through integration of materials selection methodology”, 2014 ASEE National Conference, Indianapolis, IN, June 16, 2014

Vollaro, M.B., and Klein, R.R., “Training in teaming and leadership from ‘start to finish’ in school and beyond…”, Poster presentation, at KEEN 2013 Winter Meeting, January 3-4, 2013 in Tempe, AZ and at poster session of KEEN & ENT Division, June 25, 2013 at the ASEE 2013 Annual Conference in Atlanta, GA


Mary B. Vollaro and Craig Johnson (Central Washington University) Materials Education 2004 Topical Trends and Outreach Effort, 2004 ASEE Annual Conference, Salt Lake City, UT


Bronson, C., and Vollaro, M.B., “Assessment though our Roots: Transforming a Course Assignment in to a Course Embedded Assessment Tool”, 2002 American Association for Higher Education (AAHE) Assessment Conference, Boston, MA

Vollaro, M.B., “Poster Sessions: A Learner-Centered Activity and Assessment Tool for Engineering Students”, 2002 American Society for Engineering Education Zone 1 Conference, April 5-6, 2002, United States Military Academy, West Point, NY

Presented workshop with ENGR103 team members, “Workshop: Introduction of the Design Process to Freshman Engineering Students” at the 2002 American Society for Engineering Education Zone 1 Conference, April 5 – 6, 2002 at the United States Military Academy, West Point, NY


PROFESSIONAL DEVELOPMENT

Attended workshop, Engineering Leadership Lab Demonstration, at 2015 ASEE Annual Conference in Seattle, WA on June 14, 2015

Attended workshop, Web-Enabled Tools and Resources for More Effective Teaching and Learning, at ASEE Annual Conference in Indianapolis, IN, on June 15, 2014

Attended workshop, Fast Formative Feedback to Enhance Learning and Motivation, at 2013 ASEE Annual Conference in Atlanta, GA on June 23, 2013

Activities in support Kern Entrepreneurship Education Network (KEEN):

SEE Faculty Workshop, “Shaping Entrepreneurial Engineers Faculty Workshop” sponsored by KEEN network on best practices, January 5, 2013 in Tempe, AZ

Winter Meeting in Tempe, AZ on January 3-5, 2013

SCAN Meeting for KEEN group, Villanova University in November 16, 2012

KEEN Fall meeting in Milwaukee, WI on September 28-29, 2012

Pre-meeting workshop on KEEN Student Outcomes (KSO) rubrics for outcomes 1, 2 and 4, Milwaukee, WI on September 27, 2012

Meeting of SCAN Group at Union College in Schenectady, NY on June 1, 2012
KEEN Assessment Workshop and Meeting in Milwaukee, WI on April 18-20, 2012

SEE Workshop and Winter Meeting in Orlando, FL on January 3-6, 2012

KEEN Workshop and meeting in Milwaukee, WI on September 28-30, 2011


Attended symposium, *Information Technology in Support of Materials Education*, at Stevens Institute of Technology, March 20, 2010

Participation with students, *2009 WERC International Environmental Design Contest on the task of “Wind-2-H2O: Converting Wind Energy to Mechanical Energy for Water Treatment”* at New Mexico State University in Las Cruces, MN


Attended short course, *New Approaches in Materials Education; CES Edupack 2006* presented by Prof. Mike Ashby from Cambridge University, held in Chicago, IL, June 2006

Attended one-week course (NFS Grant funded), *Nanoscale Mechanical Characterization: The Theory and Practice of Contact Probe Techniques*, held Northwestern University, Evanston, IL, on Aug. 11-15, 2003

Attended short course, *New Approaches in Materials and Manufacturing Education; CES 4.0 Material Selector*, presented by Prof. Mike Ashby from Cambridge University, held in Nashville, TN, June 22, 2003

Attended 3-day teaching workshop, *Teaching Engineering Faculty to Teach in an Active Learning Environment*, Roger Williams University, August 13-15, 2001

Attended workshop, *Instruction on the use of Lego-Dacta kits and ROBOLAB software for age appropriate engineering experiences for grades K-12*, Tufts University, May 23, 2001
GRANTS AWARDED

September 2011, Kern Entrepreneurship Education Network (KEEN), Phase 1, Kern Family Foundation, $75,000

Summer 2011, Scholarship for the Olin I2E2 faculty workshop, Meeting the Needs of the 21st Century: Designing for Student Engagement, at Franklin W. Olin College of Engineering in Needham, MA (Awarded $2000 scholarship to participate in this week-long event attended by engineering faculty from around the world, e.g., mainland China, Peru, Singapore, England, Saudi Arabia, and more.)

Summer 2010, WNEC School of Engineering Summer Development Grant- Write proposal for WNEC’s participation in the Grand Challenges Scholars Program sponsored by NAE (National Academy of Engineers), $1000

2009-10, Clean Energy Workforce Training Capacity Building Grant Program, Development in Life Cycle Analysis Course, $3500

Summer 2008, WNEC Curriculum Development Grant for ENGR105 course redesign, $500

2008-09, Center for the Advancement of Scholarship on Engineering Education, National Academy of Engineering to improve recruitment and retention of female students in mechanical engineering. $2400

Summer 2005, Curriculum grant for development of new ENGR105- freshman engineering course for applications and computer programming design using MATLAB, $1000

Summer 2003, National Science Foundation (NSF) Fellowship, Summer Institute on Nano Mechanics and Materials, at Northwestern University, Evanston, IL, on August 11-15, 2003


2001 SME Library Award, Society of Manufacturing Engineers (SME) Education Foundation, Materials to upgrade manufacturing library, $2252

March 2001, Western New England College Faculty Professional Development Grant, “Additional course development for ENGR103 Introduction to Engineering”, $2000

SPECIAL ASSIGNMENTS (at Western New England University)

2012-2016, Program Coordinator College of Engineering Honors Program, and Chair of College of Engineering Honors Program Committee. Developed hybrid model with cohort and honors-by-contract courses to meet the needs of the College of Engineering Honors students

2011-2013, KEEN PI and WNE Coordinator, PI and Coordinator for KEEN grant

2011-2013, Program Designer and Coordinator, WNE College of Engineering Grand Challenges Scholars Program sponsored by NAE (National Academy of Engineers)

2012-2013, Coordinator, WNE College of Engineering Study Abroad initiatives with HEI in Universite Catholique De Lille in Lille, France

COURSES TAUGHT  (at Western New England University)

ME309 Materials Science, 3 credits, Undergraduate
EE312 Electrical Materials and Devices, 3 credits, Undergraduate
BME340 Introduction to Biomaterials, 3 credits, Undergraduate
ME208 Mechanics of Materials, 3 credits, Undergraduate
ME322 (previously IE314) Manufacturing Processes, 3 credits, Undergraduate
ENGR103 Introduction to Engineering; 4 credits, Freshmen
ENGR102 First Year Engineering Seminar, 1 credit, Required, Freshmen
HONE 102 Honors First Year Engineering Seminar, 1 credit, Freshmen
ENGR 100 Engineering Seminar & College Success Skills, 2 credits, Freshmen
ENGR 105 (ENGR110) Computer Applications in Engineering, 2(3) credits), Freshmen
ME313 ME Laboratory I, Undergraduate (Jr.) –Strain gauges & cantilever beam
ME314 ME Laboratory II, Undergraduate (Jr.) - Cold work & recrystallization of cartridge brass
IE318 IE Design Lab I, Undergraduate (Jr.) , IE428 IE Design Lab III, Undergraduate (Sr.)
ME 412 Green Engineering: Materials Selection in the Life Cycle Design Process, 3 credits, Upper level undergraduate
ME 480 Internship for Mechanical Engineering, 3 credits
EMGT 590 and EMGT690 – Special Topics in Engineering Management: Topics in Advanced Manufacturing Processes, Upper level undergraduate/ Graduate
ME640 Materials Selection and Manufacturing Process, 3 credits, Graduate
COURSE HIGHLIGHTS (from Western New England University)

Use of virtual classroom Kodiak (Desire2Learn software) – All courses presented on this platform and contain course materials. Report from WNE Information Technology indicated ENGR 102 First Year Seminar course utilized the most Kodiak features (7) of any course on campus.

The Annual Materials Science Poster Session – Students chose a topic, research the literature for information on ‘properties, processing, and microstructure’, create a poster, and present it in a symposium format.

Information Literacy for Materials Science – Workshop conducted in collaboration with our librarian in support of the ME309 project, i.e., poster and paper.

‘Muddiest Points’ student centered inquiry to facilitate student learning in Materials Science.

Interactive classroom in Manufacturing Processes, including hands-on activities, videos with guided reflection, ‘video’ exams, and student presentations.

Assignments utilizing the CES Edupack Materials Selection software (Granta Design) in Materials Science and Manufacturing Processes.

Exemplar assignments in ENGR 102 First Year Seminar for assessment of university-wide competencies in information literacy and professional development for the WNE First Year Program.

Course management in ENGR 102 First Year Engineering Seminar with 160-180 freshman students and 18 FSA’s (Freshman Seminar Assistant), who conduct lessons and activities in ‘breakout rooms’ for their group of 20-25 students prior to meeting as a large group.

Leadership and teamwork skills in ENGR 102 First Year Engineering Seminar utilizing assessment instruments, MBTI (Myers-Briggs Type Indicator) and new KGI (Klein Group Instrument), and students are ‘trained’ in workshops and with guided reflection.

Industry tours in Manufacturing Processes- The required industrial tours coincided with the manufacturing processes being studied in class and a guided reflection activity was required. Tours included: • Yankee Casting Co., Inc. / Yankee Magcast Co. in Enfield, CT • Techni-Products, Inc. in East Longmeadow, MA • Smith & Wesson, Inc. in Springfield, MA • O-A, Inc. in Agawam, MA • American Saw & Manufacturing, Co. in East Longmeadow, MA • A.G. Miller, Inc. in Springfield, MA • Hamilton Sundstrand in Windsor Locks, CT • Columbia Manufacturing, Inc., in Westfield, MA
ADVISING (at Western New England University)

Academic advisor to 20-30 students per year; 1997-2011 for freshman engineering students, and 2012 – present for Mechanical Engineering students in sophomore, junior, and senior years.

FACULTY SUPPORT ACTIVITIES (at Western New England University)

Coordinate the Alumni Mentoring Program (AMP) with College of Engineering and Alumni Office.

Sponsored many Learning Beyond the Classroom (LBC) experiences and reviewed papers for more than 20 students per year.

Support recruitment and retention efforts by conducting tours and interviews for prospective students, making recruiting calls (50+ calls per year to prospective ME and ENGR students)

Wrote numerous Letters of Recommendation for student’s at all academic levels, ongoing

Participate in department efforts to hire new faculty, ABET, student recognition events, and program improvements, ongoing

Participate Convocation (Marshall), Academic Awards events (presenter), Commencement (platform party and assisting with diplomas)

Faculty representative, Western New England University Open House for prospective students, 1997 - present

Instructor and Faculty Advisor, SOAR (Summer Orientation and Registration) program: First Class in Engineering, Faculty Expectations Panel, Advising and Registration, 1997 - present

PROFESSIONAL SERVICE

Leadership positions, Materials Division, American Society For Engineering Education (ASEE) Materials Division, Immediate-Past Division Chair (2008-09), National Division Chair (2006-07), Program Chair (2004-05)

Peer Reviewer, Materials Division, ASEE Annual Conference, 2003- present

Session Chair, Materials Division, ASEE Annual Conference numerous times, 2003-present

Peer Reviewer, Leadership (LEAD) Division, ASEE Annual Conference, 2015-16

Member, Organizing Committee, National Educators Workshop for Materials Education (NEW), 2005- 09, Session chair, peer reviewer NEW at numerous times, 2002-2009

Member, Review Panel, National Science Foundation, for proposals submitted to the Division of Undergraduate Education (CSEMS), Washington, D.C., November 1999.
UNIVERSITY-WIDE GOVERNANCE (at Western New England University)

**Member**, University Senate Athletics and Recreation Committee, 2015- present

**Member**, Academic Standards Committee of the Faculty Council, 2011-present

**Chair** of Western New England University Faculty Senate, 2012-13

**Chair** of Nominations and Rules Committee, University Faculty Senate, 2012-13

**Member** of General University Requirements (GUR) Committee 2012-15; **Chair** 2013-15

**Senator**, Western New England University Faculty Senate, 2012-14

**Member** of University-wide Ad Hoc Committee on General Education Requirements, 2011-14

**Member** of General College Requirements Committee 2007-11; **Chair** 2008-09

**Chair** of Western New England College Faculty Senate, 2006-07

**Vice-Chair** of Western New England College Faculty Senate, 2005-06

**Senator**, Western New England College Faculty Senate, 2 terms (2005-07 and 2007-2009)

**Member** of college wide committee for 2011 NEASC Accreditation Committee, **Chair** of NEASC Standard #11, Integrity

**Member** of Academic Standards Committee 2007-11; **Chair** 2007-08, 2008-09

**Member** of college-wide Strategic Planning Committee 2008 thru Fall 2009, **Chair** of Sub-committee for Sustainability

**Member** of college-wide 2001 NEASC Accreditation Committee; **Member** of NEASC Integrity Committee

**Member** of Lecture Day Committee, 1998-1999

**Member** of Academic Standards Committee, 1997-98

**Member of Search Committee** for Provost/Vice President of Academic Affairs (Selected by President Caprio) 1997
COLLEGE OF ENGINEERING GOVERANCE (at Western New England)

Chair of Honors Committee, 2011- present
Member of Hall of Fame Committee, 2014-present
Chair of Peer Review Committee (PRC) for Promotion and Tenure, 2014-15
Member of Peer Review Committee (PRC) for Promotion and Tenure, 2013-14
Member of New Initiatives Committee, 2008-09
Member of Strategic Planning Committee, 1997-98
Member of Admissions/Retention Committee, 1997-98
Member of Curriculum Committee, 1997
Member of Retention and Outreach Committee, 1997

OUTREACH FOR STUDENTS AND THE COMMUNITY


Faculty representative, Leadership School Science Fair Activity, Western New England College, May 29, 2003

Instructor, “Exploring Engineering”, Workshop for after school enrichment program, March Madness”, at Somers Elementary School, Somers, CT, March 2001 and 2002

Instructor, “Introduce a Girl to Engineering Day”, Outreach program and activities at Western New England College, Springfield, MA on February 22 and April 26, 2001

Faculty advisor, WNEC student chapter of the Society of Women Engineers (SWE),1997-2007 Highlights: Team Building and Networking through the Ropes Course Activities at Springfield College, Springfield, MA, October 19, 2002; SWE Alumni Dinner and Panel Discussion 2000-2003, Western New England College, Springfield, MA


Session moderator, The Annual Engineering Symposium on May 22, 2002 at Western New England College, Springfield, MA.
FACULTY ADVISOR FOR SENIOR DESIGN PROJECTS / INTERNSHIPS

**Work done in the WNE College of Engineering laboratories unless otherwise noted.


**Fall 2015, “Design and Analysis of a Hockey Stick: A Material Selection Project”, Anthony Vincenque


**Spring 2015 “Surface Characterization of Indium Tin Oxide Bioelectrodes”, Stephen Faivre

**Spring 2015 “Design and Analysis of the Quick-Release Mechanism for Facemasks of a Football Helmet; A Material Selection Project”, Andrew Gatzogiannis

**Spring 2015 “Material Science and Manufacturing: Design Process for Welding”, Ryan Gazlay


**Spring 2015 Design of an Exhibit to Demonstrate Engineering Principles in Rowing, Ryan Scott


**Spring 2014, “Feasibility and Material Selection for an Electronic Turf Field”, Ryan Flanigan

**Spring 2014, “The Design and Feasibility Study of An Artificial Turf Field”, Terry Crocker

**Spring 2014, “Material Study and Performance Comparison of Baseball Bats”, Ryan Skelly


**Spring 2013, “Unweldable or just difficult? A Comparison of TIG Welding Parameters on Precipitation Hardened Stainless Steel”, Shane Haluch


**Spring 2013 “Determination of Bend Point and Associated Attributes for Lenox Tools”, Nicholas Wiltey, Industrial sponsor: Lenox Tools, East Longmeadow, MA
Spring 2013 “Analysis of Core Materials for the Design and Fabrication of an All Mountain Ski”, Michael Brennan

Spring 2013 “A Comparison of TIG Welding Joint Design with Aluminum”, Dillon Young
*Poster award winner*

Spring 2012 “Why do I keep fixing the same old thing? A comparison of Two Welding Processes”, Andrew Scanlon


Spring 2012, “Effect of Coolant on Chips Produced by Milling”, Paul Dougan


Spring 2011, “Re-design of the WNEC Freshman Design Project”, Adam Petrillo

Spring 2011, “Material Selection and Product Development”, Andrew Labrie

Spring 2009, “Wind-2-H2O: Design and Fabrication of a Water Treatment Device’, Brian Carrigan and Michael Massa WERC International Environmental Design Contest at University of New Mexico, Las Cruces, NM


Spring 2007, “Design of an Exhibit on Welding Processes”, Christopher Orlando


1998-99 “The Design and Fabrication of a Device that will Investigate the Effects of Bruxism on Teeth”, Co-advisor, Lino S. Italia

Curriculum Vitae—Jim Dewey—January 2015

Contact Information
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Email: jdewey@flpoly.org

Office Address
Florida Polytechnic University, IST 2092
4700 Research Way
Lakeland, FL 33805-8531

Employment
August 2014—Present. Assistant Professor of Economics and Director of Economic Analysis, Florida Polytechnic University.

Education
Fields: Microeconomic Theory, Industrial Organization, Public Economics
Awards and Honors: Rafael Lusky Prize; Robert F. Lanzillotti Prize; Walter-Lanzillotti Dissertation Fellowship; College of Liberal Arts and Sciences Dissertation Fellowship; Madelyn M. Lockhart Award
Awards and Honors: Summa Cum Laude, Kosove Scholar

Research Interests
Applied analysis at the intersection of urban and regional economics, education economics, and public policy, e.g.: 1) local economic development; 2) determinants of local government spending; 3) teacher supply and demand; 4) education finance and reform; 5) population projections and public planning; 6) the fiscal impact of development.

Teaching
2014-2015: Florida Polytechnic University: Principles of Microeconomics; Principles of Macroeconomics; Statistics 1; Research Methods (graduate).
1997-2013: University of Florida: 2009-10 Warrington College of Business Administration Teacher of the Year; Electronic Platform Managerial Economics (600-800 students, extensive course development, advising, and mentoring); Traditional Managerial Economics; University Scholars Program Faculty Mentor; Quantitative Foundations of Educational Research.

Refereed Journal Articles
8) Variability in Demand for Special Education Teachers. Exceptionality. April 2013. (With Ed Boe, Lorrie deBettencourt, Chris Leko, Mike Rosenberg, and Paul Sindelar)
7) Cost Effectiveness of Alternative Route Special Education Teacher Preparation. Exceptional Children. Fall 2012. (With Nancy Corbett, Bob Lotfinia, Mike Rosenberg, & Paul Sindelar)


**Other Publications**


5) Soaring House Prices and Wages of Local Government Employees. *Florida Focus*. (BEBR) June 2007. (With Dave Denslow and Tom Durrenberger)


**Working Papers and Works in Progress**

10) Passing the Buck for Public Spending or Feeding Leviathan? The Interacting Roles of Assessment Limits and Voter Education. Working Paper. (With Larry Kenny).


6) Using Simple Wage Indices in School Funding Adjustments: A Test Using Teacher Turnover in Florida and Texas. (With Shiva Koohi and Belen Chavez)
5) Teacher Attrition and Alternative Teacher Certification Programs. (With Natalia Pakhotina)
4) Funding Disequalization – When Price Indices are Not Appropriate for Spatial Cost Adjustments. (With Dave Denslow)
3) Why Less Can Be More with Spatial Price Indices. (With Henrique Romero)
2) Impact Fees and Optimal Growth. (With Burcin Unel)
1) Improved Starting Salary Based Rankings of Undergraduate Business Programs: Adjusting for Regional Variation in Amenities and Price Levels. (With Mike Canencia)

Technical Reports
26) Florida Price Level Index. Annual 2000-Present. (With others)
24) Plum Creek, UF, and Economic Growth in Gainesville. November 2013. (With Dave Denslow and Ray Schaub)
19) Indicators of Florida’s Economic Competitiveness. May 2011. 66 pages with appendices. (With Dave Denslow, Eve Irwin, and Susan Floyd)
18) Analysis of a Florida Beverage Container Deposit Refund System. March 2011. 20 pages. (With Dave Denslow, Lynne Holt, Belen Chavez, and Henrique Romero)
9) Growth and Infrastructure in Manatee County, Florida: Does Conventional Development Pay its Share of Public Costs? October 2003. 40 Pages. (For the Home Builders Association of Manatee County and the Gulf Coast Builders Exchange)


Presentations


14) Are Alternative Route Programs Cost Effective? Georgia State University, Research Wednesday Speaker Series. December 2009. Atlanta, Georgia.

10) Summary of Research and Recommendation on the FPLI in the DCD. Presentation to the Florida House of Representatives, meeting as a Committee of the Whole. April 22, 2004.
6) Growth and the Cost of Living in Marion County, Florida. Presentation to the Marion County Public Policy Institute, April 2003. Ocala, Florida.

Funded Research
13) Analysis of the University of Florida’s Clinical Translational Science Institute’s Pilot Award Program. University of Florida’s Clinical Translational Science Institute. 2014. $29,000.
9) Indicators of Florida’s Economic Competitiveness. UF President’s Office. 2011. $30,000.
8) Analysis of a Beverage Container Deposit Refund System. Owens IL, Inc. 2010-11. $31,750
6) An Analysis of Reforms to Florida’s Property Tax System. Florida Legislature, Office of Economic and Demographic Research. 2006-07. $142,597
3) Benefit-Cost Analysis of Alternative Routes to Certification in Special Education. UF Center for Personnel Studies in Special Education. 2003-05. $180,000.
2) Rail/Truck Freight Allocation Policy Research. Florida Dept. of Trans. 2001-02. $80,000.
Consulting
1) Analysis of the fiscal impact of new development in Alachua County, Florida, for the Gainesville Builder’s Association. 2001.

Florida Polytechnic Service
3) Florida Polytechnic Committee Ad Hoc Committees: Faculty-Administration Relations Study Committee (Chair), 2014-2015.
1) Florida Polytechnic, Other: Academic Advising; Preparation of materials on Florida Polytechnic’s role in catalyzing STEM based economic development in Florida for administrative use.

Professional Service
5) Numerous presentations to and meetings with state and local officials on economic and policy issues, e.g. local option taxes, property taxes, economic development, sustainability.
4) Regularly responding to inquiries from the media, state and local governments, and businesses for information and interpretation of data or events.
3) ACCRA COLI Advisory Board, Council for Community and Economic Research.
2) Committees related to Florida’s Social Science Teacher Certification Exam (Grades 6-12), including competency and skill revision, item specification validation, and test validation.

Professional Associations
Southern Regional Science Association; American Economic Association; American Real Estate and Urban Economics Association; Southern Economic Association; Council for Exceptional Children, Teacher Education Division.
Research Interests include: numerical optimization, operations research, computational linear algebra, data mining, machine learning, data science education

Research and Teaching Experience

**Assistant Professor of Data Science and Assistant Department Chair**  
*Department of Data Science and Business Analytics*  
Florida Polytechnic University  
*August 2018 – Present*

Courses taught: (* indicates graduate courses)

- **CAP 4770** | Data Mining and Text Mining
- **COP 2073** | Introduction to Data Science
- **STA 3241** | Statistical Learning
- **CDA 4910** | Directed Research
- **CIS 3301** | Business Intelligence
- **IDC 4942** | Data Analytics Capstone I
- **QMB 5565** | Quantitative Research Methods *
- **CAP 5320** | Data Wrangling and Exploratory Data Analysis *
- **CAP 5771** | Data Mining and Text Mining *
- **CAP 5735** | Data Visualization and Reproducible Research *
- **COP 5910** | Scientific Computing and Programming *
- **Thesis I, Thesis II, and Graduate Project**

**Assistant Professor of Applied Mathematics**  
Program Director Master of Science in Big Data Analytics, School of Science  
St. Thomas University  
*August 2016 – July 2018*

Also served as Mathematics and Data Science Program Coordinator. Courses taught: (* indicates graduate courses)

- **MAC 1140** | Precalculus
- **MAC 2311** | Calculus I
- **CIS 204** | Introduction to Data Science
- **MAT 502** | Statistical Methods *
- **CIS 543** | Programming for Big Data Analytics *
- **CIS 546** | Data Visualization*
- **CIS 544** | Data Mining and Machine Learning *
- **MAT 602** | Applied Machine Learning *
- **CIS 626** | Big Data Analytics Applications *
- **CIS 627** | Big Data Analytics Capstone *

**Assistant Professor of Applied Mathematics**  
*Department of Applied Mathematics*  
Wentworth Institute of Technology  
*September 2014 – July 2016*

Taught courses for Applied Mathematics and Engineering majors; served as Academic Advisor for Applied Mathematics students; nominated and served as the Faculty Advisor for the Society of Industrial and Applied Mathematics (SIAM) Student Chapter; coordinated multiple sections of MATH 2860; reviewed and developed material for MATH 1900, MATH 3700, and MATH 5000; and was member of the Science Committee for the BS in Engineering program.

Courses taught:

- **MATH 1500** | Precalculus
- **MATH 1850** | Engineering Calculus II
- **MATH 1900** | Introduction to Operations Research
- **MATH 2025** | Multivariable Calculus
- **MATH 2300** | Discrete Math
- **MATH 2800** | Finite Math
- **MATH 2860** | Linear Algebra and Matrix Theory
- **MATH 2500** | Differential Equations
- **MATH 3700** | Operations Research
- **MATH 5000** | Applied Math Final Year Design I

**Postdoctoral Researcher**  
Department of Mathematical Sciences  
The University of Texas at El Paso  
*June 2013 – August 2014*

Postdoctoral Researcher in the Computational Science Program, for the Army High Performance Computing Research Center (AHPCRC) grant in collaboration with Stanford University.

Advisors: Dr. Miguel Argaez and Dr. Martine Ceberio.

Emphasis: Reduced-order modeling, data analysis and sparse optimization.
Adjunct Instructor  
Department of Mathematical Sciences  
The University of Texas at El Paso  
January 2013 – December 2013  
Courses taught: MATH 2301 Mathematics for the Social Sciences II

Research Assistant  
Department of Mathematical Sciences  
The University of Texas at El Paso  
January 2009 – January 2013  
Computational Science Program, for the Army High Performance Computing Research Center (AHPCRC) grant. PI: Dr. Miguel Argaez and Dr. Leticia Velazquez.  
– Algorithmic implementation of $\ell_1$-optimization problems.  
– Applications in Compressed Sensing, Large Scale Parameter Estimation, and Classification problems.

Research Intern  
Research and Innovation Geophysics Department  
Repsol USA, The Woodlands, TX  
July 2012  
Seismic Image Segmentation and classification via Sparse Representation. PI: Dr. G. Larrazabal, Dr. P. Guillen and Dr. M. Argaez.

Research Intern  
Research and Innovation Geophysics Department  
Repsol USA, The Woodlands, TX  
June 2011 – August 2011  
Study and implementation of absorbing boundary conditions for the wave equation. Dip and Azimuth angles computation for seismic ray tracing. PI: Dr. German Larrazabal and Dr. Miguel Argaez.

Teaching Assistant  
Department of Mathematical Sciences  
The University of Texas at El Paso  
Fall 2008 and Fall 2009  

Teaching Assistant  
Department of Mathematical Sciences  
Universidad del Valle. Cali, Colombia.  
January 2007 – June 2008  
Tutor and Problem Solving Session Leader for Calculus, Linear Algebra, and Differential Equations.

Education

Ph.D. Computational Science  
El Paso, TX. United States  
The University of Texas at El Paso  
May 2013  
- Dissertation Title: “A Convex Optimization Algorithm for Sparse Representation and Applications in Classification Problems”  
- Advisor: Dr. Miguel Argaez.  
- Area of Study: Sparse Optimization, Dimensionality Reduction. GPA: 4.0/4.0

M.S. Computational Science  
El Paso, TX. United States  
The University of Texas at El Paso  
May 2011  
- Thesis Title: “A Sparse Representation Technique for Classification Problems”  
- Advisor: Dr. Miguel Argaez.  
- Area of Study: $\ell_1$-optimization methods. GPA: 4.0/4.0

B.S Mathematics  
Cali, Valle. Colombia  
Universidad del Valle  
May 2008  
- Advisor: Dr. Jairo Duque.  
- Area of Study: Finite Element Methods for Elasticity Problems. GPA: 4.4/5.0
Relevant Coursework


Awards

- **nanoHUB Champions Program 2021.** nanoHUB NCN Purdue University. Utilizing Modern Data Exploration and Visualization Tools for STEM Applications and Datasets
  May 2021, West Lafayette, IN, USA.

- **Ablaze Excellence in Teaching Award.** Florida Polytechnic University 2020 Ablaze Award. The Excellence in Teaching Award is designed to encourage, reward, and publicly acknowledge sustained excellence in teaching by members of the University’s faculty.
  May 2020, Lakeland, FL, USA.

- **AMI 2020-2021 Seed Award Program.** Florida Polytechnic University Advanced Mobility Institute (AMI). Enhancing simulation and testing of emergency medical service vehicles in AVs settings. PI: Dr. Sanchez-Arias, Co-PI: Dr. Centeno
  April 2020, Lakeland, FL, USA.

- **Travel Award.** NSF funded Big Data Spoke Bootcamps. Data Wrangling and Electronic Health Records Analysis using R. H. Qin (University of Tennessee at Chattanooga), E. Fong and Z. Miao (Center for Health Systems Innovation at the Oklahoma State University)
  July 29th - Aug 2nd, 2019, Chattanooga, TN, USA.

- **Travel Award.** NSF CISE Proposal Writing Workshop
  April 9-10th, 2018, Alexandria, VA, USA.

- **Travel Award.** The National Conference on Race and Ethnicity in American Higher Education (NCORE).
  May 26-30th, 2015, Washington, D.C., USA.

  April 6-8th 2014, Knoxville, TN, USA.

- **Travel Award.** NSF Funded Workshop, Academic Careers Workshop 2014.
  March 27-30th 2014, Northwestern University, Evanston, IL, USA.

- **Outstanding Ph.D. Dissertation Award Computational Science Program.**
  April 25th, 2014, El Paso, TX, USA.

- **Best Student Interval Paper Award.** IFSA/NAFIPS Congress 2013.
  June 24-28th 2013, Edmonton, Canada.

- **Academic Excellence Graduate Student Award UTEP College of Science.**
  May 10th 2013, El Paso, TX, USA.

- **Second Place Best Oral Presentation.** UTEP Graduate Research Expo.
  November 9th 2012, El Paso, TX, USA.

Publications


- Husowitz B., Sanchez-Arias R. “A Machine Learning Approach to Designing Guidelines for Acute Aquatic Toxicity”. In:
Talks


- "Sparse Representation via l1 optimization and Supervised Learning Applications" (Invited Talk). Department of Biomedical Engineering Seminar. Universidad de los Andes, Bogota, Colombia. July 17, 2014.


- "Sparse Representation and Applications in Classification - Keep it sparse, be happy -". *UTEP 2nd Annual Graduate Research Expo*. (Contributed Talk) El Paso, TX, USA. November 2012.


Posters


“Music Data Mining using Audio Features Extracted from Spotify” (presented by Sandy Benito). Poster presentation at STU Summer Research Institute 10th Annual Symposium, Miami Gardens, FL, October 2018. Sandy Benito won “outstanding paper presentation award” for this work.

“Text Mining and Pattern Recognition for Online Reviews” (presented by Maudeline Deus). Poster presentation at Miami-Dade College Undergraduate Research Symposium, Miami, FL, September 2018. Maudeline Deus won second-place for “best poster presentation award” for this work.


“An algorithm for constrained $\ell_1$-minimization problems and applications”. Sixth Blackwell-Tapia Conference, Columbus, OH. November 2010.


“A Path Following Method for large scale $\ell_1$-underdetermined problems”. The International Conference for High Performance Computing (SC09), Portland, OR USA. November 2009.


**Service**

- **Chair, Curriculum and Assessment Committee Data Science and Business Analytics Department.**
  Florida Polytechnic University, Fall 2018 – Present.
- **Member, Graduate Curriculum Council.**
  Florida Polytechnic University, Fall 2018 – Present.
- **Member, Data Science and Business Analytics Faculty Hiring Committee.**
  Florida Polytechnic University, Fall 2018, Spring 2019, Spring 2020, Fall 2020.
- **Member, Scenarios of the Future, COVID-19 Campus Planning Subgroup.**
  Florida Polytechnic University, Spring/Summer 2020.
- **Member, INFORMS Education Outreach Committee**
  INFORMS, Fall 2019 – Present.
- **Member, Evaluation Panel Student Coding Bootcamp**
  Analyze COVID-19 Data with R and Google CoLab (organized by Dr. Qin, UTC), December 2020.
- **Chair, Computer Science Faculty Hiring Committee.**
  St. Thomas University, Spring 2018.
- **Member, General Education Committee.**
  St. Thomas University, Spring 2018.
- **Member, Faculty Lead Dual Enrollment Program.**
  St. Thomas University, Fall 2017, Spring 2018.
- **Member, Dean School of Science Search Committee.**
  St. Thomas University, Spring 2017.
- **Faculty Advisor, SIAM Student Chapter.**
- **Member, Applied Mathematics Faculty Hiring Committee**
- **UTEP Graduate Research Expo Judge.** Fall 2013.
- **UTEP SIAM Student Chapter Vice-president.** Spring 2011 - Spring 2013.

**Academic Supervision and Mentoring**

**Graduate**

- **Graduate Advisor** for Angel Sarmiento. *MS in CS Data Science Track*. Florida Polytechnic University. Expected graduation: Fall 2021.
  Topic: Association Rule Mining for Spot Rate Quoting Process Improvement.
- **Final Project Supervisor** for Katie Dills. *MS in CS Data Science Track*. Florida Polytechnic University. Expected graduation: Fall 2021.
  Topic: Logistics Store Forecast Workspace and Analytics.
  Topic: Graph Kernels for Text Mining in Unsupervised Learning.
  Topic: Sentiment Analysis and Clustering for Content Recommendation System Using Microblogging Data.
  Topic: Data Mining and Analytics Applications for Interconnected Data Centers in a Smart Campus (collaboration with Facens in Brazil).
  Topic: Unsupervised and Supervised Machine Learning Methods for Healthcare Data Sources.
- **Capstone Project Supervisor** for Adam Seevers. *MS in CS Big Data Analytics*. Florida Polytechnic University.
Topic: Data Analytics and Predictive Modeling for Social Networks Data.
- **Capstone Project Supervisor** for Jonathan Ferrer. *MS in CS Big Data Analytics*. Florida Polytechnic University
  Topic: Supervised Machine Learning Algorithm for the IB Program Hillsborough County Florida.
- **Capstone Project Supervisor** for Yasshin Lozano. *MS in Big Data Analytics*. St. Thomas University
  Graduation term: Summer 2018.
  Topic: Development of an Analytics App for the Canvas Learning Management System.
- **Capstone Project Supervisor** for Javier Rojas. *MS in Big Data Analytics*. St. Thomas University
  Topic: Predictive Modeling and Development of an Early Warning Score for Patient Deterioration.

Undergraduate

- **nanoHUB URE NCN Mentor Summer 2020**. Cindy Nguyen’s (Florida Polytechnic University, Data Science) Undergraduate Computational Education Experience with nanoHUB (with Dr. Tanya Faltens, Network for Computational Nanotechnology at Purdue University)
- **Fulbright Canada Killam Fellow Mentor Fall 2019**. Peter Akloyamen’s (Western University, Applied Mathematics and Data Science) semester abroad at Florida Polytechnic University.
- **STU Summer Research Institute 2017 and 2018 Mentor and Supervisor**. Eliana Espinosa and Sierra Hawthorne (STU, Math), Jayden Carr (STU, Computer Science), Sandy Benito and Celeste Pereira (STU, Biology), Kevin Osorio, Acel Vega, Jose Muguira and Sabrina Romero (MDC, Computer Science), Maudeline Deus (MDC, Math)

**Professional Affiliations**

- Society for Industrial and Applied Mathematics (SIAM).
- Institute for Operations Research and the Management Sciences (INFORMS).
- Institute of Electrical and Electronics Engineers (IEEE).

**Technical and Personal Skills**

- **Technology**: R, Python, MATLAB, Tableau, UNIX Shell scripting
- **Languages**: English (Fluent), Spanish (Native).
Mohammad Reza Khalghani

**Current Position:** Assistant Professor at Florida Polytechnic University

**E-mail:** mkhalghani@floridapoly.edu

**Homepage**

**Google Scholar**

**LinkedIn**

**Phone:** +18638748737

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### EDUCATION

- **[January 2016– August 2019]** Ph.D. in Electrical Engineering-Power (Research Assistant), West Virginia University, Department of Electrical and Computer Engineering, Faculty of Engineering, Morgantown, West Virginia.
  
  **Thesis:** Resilient Stochastic Control Strategies in Cyber-Physical Microgrids

- **[September 2010–July 2012]** M.Sc. in Electrical Engineering-Power, University of Birjand, Department of Electrical and Computer Engineering, Faculty of Engineering, Birjand, Iran.
  
  **Thesis:** Representing of Novel Control and Intelligent Algorithms Methods for Electrical Motors Drive in Normal and Fault Conditions

- **[September 2006– September 2010]** B.Sc. in Electrical Engineering-Power, Sadjad University of Technology, Department of Electrical Engineering, Mashhad, Iran.
  
  **Thesis:** Protection Relay Coordination with PSO Algorithm

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### RESEARCH AND WORK EXPERIENCES

- **2019 (Fall)– Present,** Assistant Professor at Florida Polytechnic University. (Selected project topics mentioned below:)
  
  o Teaching undergraduate (including freshman) and graduate students.
  o Conducting research on smart grids and cyber-security, and renewable energy.
  o Advising two Graduate Students for their research theses.
  o Giving services regarding the department outreach, initiating new educational program, serving in different committees, etc.

- **2016- 2019,** Research Assistant in West Virginia University. (Selected project topics mentioned below :)
  
  o Distributed frequency control in smart grids.
  o Control of power electronic converter-based model of microgrids using artificial intelligence methods.
  o Fast-Charging station for electric vehicles in smart grids.
  o Designing a resilient and stochastic controller for islanded microgrids

- **2014,** Impact of Electric Vehicles on power quality, Iran Ministry of Energy, Khorasan Regional Electric Company (KREC).
  
  o Impact of electric vehicles on distribution systems.

- **2013-2014,** Applying probabilistic planning approaches in Khorasan province's power system with considering uncertainties, Iran Ministry of Energy, Khorasan Regional Electric Company (KREC).
  
  o Investigation various probabilistic methods and presenting a literature review about it and finally finding the best strategy for my research.
  o Considering uncertainties in loads, wind power, system elements outages.
  o Implementation this approach on real power system (400 kV, 132 kV) using DlgSILENT PowerFactory Software and DlgSILENT Programming Language (DPL).

  
  o Evaluation of probabilistic reliability indices.

- **2013,** An overview on recent control strategies for grid-connected voltage-sourced inverters, Iran Ministry of Energy, Khorasan Regional Electric Company (KREC).
### HONORS AND AWARDS

- **2019**, Best Paper Award of PES General Meeting Conference (Leading conference in power engineering)
- **2012-Present**, National Elite Foundation, IRAN, (Highest Institute for Elite People).
- **2010-2012**, Ranked 5th among all students of Power Engineering in MS. (Out of 28).
- **2006-2010**, Ranked 1st and 2nd among all Power Engineering students in 4 terms during B.S. (Between out of 78, Ranked Top 1%, 2%).
- **2006-2010**, Ranked 4th among all students of Power Eng in BS. (Out of 78, Top 5%).
- **2006-2010**, Ranked 10th among all students of Electrical Eng in BS. (Out of 282, Top 3%).

### TEACHING EXPERIENCES

#### Undergraduate and Graduate Courses (As an Assistant Professor)

- **Fall 2019, and 2020**, “IDS 1380- Introduction to Science, Technology, Engineering, Math (STEM)” Florida Polytechnic University. This is a common course for Freshmen.
- **Fall 2019, and 2020**, “EEL 3287- Renewable Energy and Sustainability”, Florida Polytechnic University. This course was offered for junior-level students in electrical engineering, mechanical engineering, physics engineering, and environmental engineering.
- **Fall 2019, and 2020**, “EEL 4251- Power System Analysis”, Florida Polytechnic University. This course was offered for senior level students.
- **Fall 2020**, “EEL 5250- Power System Analysis”, Florida Polytechnic University. This course was offered for graduate students.
- **Spring 2020**, “EEL 4290- Sustainability for Engineering, Technology and Entrepreneurship”, Florida Polytechnic University. I intensively redesigned and reorganized this course that is now can be offered for junior level students with different concentrations and in all engineering departments.
- **Spring 2020**, “EEL 4283- Renewable Energy Systems”, Florida Polytechnic University. This course was offered for Senior level students in electrical engineering and physics engineering.
- **Spring 2020**, “EEL 5286- Advanced Renewable Energy Systems”, Florida Polytechnic University. This course was offered for graduate students.
- **Spring 2021**, “EGN 1007- Concepts and Methods”, Florida Polytechnic University. This freshman level course is an introduction to computer software applications/tools involving engineering data analytics and visualization to solve a variety of engineering-related problems.
- **Spring 2021**, “EEL 4312- Electric and Hybrid Vehicles”, Florida Polytechnic University. This senior level (undergraduate) course focuses on all electric vehicle components and technologies.

#### Undergraduate Courses (As a Lecturer)

- **Fall 2015**, “Power Electronic” & “Electric Energy Systems I” Sadjad University of Technology.
- **Fall 2013**, “Special Machines”, Shandiz Institute of Higher Education.
- **Fall 2013**, “Logic Circuits and Digital Design”, Sadjad University of Technology.
- **Fall 2013**, “Power Electronics” Laboratory, Sadjad University of Technology.
- **Fall 2012-Winter 2014**, “Electrical Machines I” Laboratory, Shandiz Institute of Higher Education.
- **Spring 2012- Spring 2014**, “Electrical Machines II” Laboratory, Shandiz Institute of Higher Education.
- **Spring 2011- Spring 2012**, “Electrical Machines” Laboratory, University of Birjand.

#### Undergraduate Teaching Assistant:

- **Fall 2008- Spring 2010**, “Electrical Machines I”, Sadjad University of Technology.
- **Spring 2009**, “Power System Analysis”, Sadjad University of Technology.
ACADEMIC ACTIVITIES

• Secretary-Elect of IEEE PES Power & Energy Education Committee (PEEC).
• Review Editor for Power Electronics (Frontiers in Electronics)
• Technical Program Assistant in North American Power Symposium (NAPS), 2017.
• Reviewer of IEEE Transaction on Smart Grids.
• Reviewer of IEEE Transaction on Industrial Electronics.
• Reviewer of IEEE Transaction on Vehicular Technology.
• Reviewer of Journal of Applied Energy.
• Reviewer of Journal of Sustainable Cities and Society.
• Reviewer of Journal Engineering Applications of Artificial Intelligence
• Reviewer of Journal of Energies (MDPI).
• Reviewer of Journal of Sustainability (MDPI).
• Reviewer of Journal of Neural Computing and Applications (NCAA).
• Reviewer of Journal Sustainable Cities and Society.
• Reviewer of PES General Meeting Conference.
• Reviewer of Optimal Control, Applications and Methods.
• Reviewer of International Journal of Hydrogen Energy.
• Reviewer of Journal of Vibration and Control.
• Reviewer of Turkish Journal of Electrical Engineering & Computer Sciences.
• Reviewer of Journal of Nonlinear Dynamics, Springer Ltd.
• Reviewer of Journal of Electrical Engineering & Technology.
• Reviewer of SouthEastCon 2020 conference.
• Reviewer of IEEE Symposium on Computers & Informatics Conference.
• Reviewer of IEEE International Conference on Computer Applications and Industrial Electronics (ICCAIE).

PUBLICATIONS

Journal Papers:


**Conference Papers:**


Book (Chapter):


Posters/Presentations:


<table>
<thead>
<tr>
<th>FIELDS OF INTERESTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Smart Grids and Cyber-Security</td>
</tr>
<tr>
<td>• Modeling and Control of Converter-Based Microgrids</td>
</tr>
<tr>
<td>• Renewable Energy Integration</td>
</tr>
<tr>
<td>• Electric Vehicle Design and Integration</td>
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</table>

<table>
<thead>
<tr>
<th>GRANTS AND FUNDING</th>
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<tbody>
<tr>
<td>• <strong>Project Title</strong>: Resilient Integration and Control Design of Mobile Emergency Resources to Microgrids.</td>
</tr>
<tr>
<td>o <strong>PI</strong>: Dr. Mohammad Reza Khalghani</td>
</tr>
<tr>
<td>o <strong>Funder</strong>: The Woodrow W. Everett, Jr. SCEE Development Fund</td>
</tr>
<tr>
<td>o <strong>Date</strong>: from July 1, 2020 to June 30, 2021</td>
</tr>
<tr>
<td>o <strong>Awarded Amount</strong>: $60,000 (Main Award: $55,000; REU Supplement: $5,000)</td>
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<tr>
<td>• <strong>Project Title</strong>: Use of Renewable Energy-based Autonomous Vehicles for COVID-19 Related Problems.</td>
</tr>
<tr>
<td>o <strong>PI</strong>: Dr. Mohammad Reza Khalghani, Co-PI: Dr. Onur Toker</td>
</tr>
<tr>
<td>o <strong>Funder</strong>: Advanced Mobility Institute (AMI)</td>
</tr>
<tr>
<td>o <strong>Date</strong>: from August 1, 2020 to July 31, 2021</td>
</tr>
<tr>
<td>o <strong>Awarded Amount</strong>: $14,000</td>
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</table>
• Defining project topics for Senior Design Project and supervising students for their projects.

• Facilitating the laboratory of “smart grid, power systems, and renewable energy”.

• Actively participated in curriculum development for new program of “Cyber Security Engineering” which we will start Fall 2021.

• Developed a proposal and syllabus for the new course of “Smart Grid and Cyber Security” that we need for the new program of cyber-security engineering.

• Serving as the contact faculty (EE Faculty Mentor Advising) of “Renewable Energy” and “Autonomous and Electric Vehicle” concentrations.

• Serving in the ECE curriculum committee at Florida Polytechnic University.

• Serving in the ECE research committee at Florida Polytechnic University.

• Served in the strategic planning committee at the ECE department of Florida Polytechnic University.

• Serving in the Employee Activity committee at Florida Polytechnic University.

REFERENCES

• Sarika Khushalani Solanki, Ph.D., Associate Professor of Lane Department of Computer Science and Electrical Engineering, West Virginia University. Email: Sarika.Khushalani-Solanki@mail.wvu.edu

• Jignesh Solanki, Ph.D., Research Assistant Professor of Lane Department of Computer Science and Electrical Engineering, West Virginia University. Email: jignesh.solanki@mail.wvu.edu

• Arman Sargolzaei, Ph.D., Assistant Professor of Mechanical Engineering Department, Tennessee Tech University. Email: asargolzaei@tntech.edu

• Mohammad Hassan Khooban, Ph.D., Assistant Professor of Department of Engineering-Electrical and Computer Engineering, University of Aarhus, Denmark. Email: khooban@eng.au.dk

• Navid Khoshavi Najafabadi, Ph.D., Assistant Professor of Electrical and Computer Engineering Department, Florida Polytechnic University. Email: nkhoshavinajafabadi@floridapoly.edu
ARTEM MALININ

TEACHING INTERESTS
• Investments, Corporate Finance, Financial Modeling, International Finance, Financial Institutions

RESEARCH INTERESTS
• Investments (bond mutual funds, stocks), Corporate Finance (social networks, boards), Entrepreneurial Finance (diversity, performance), International Finance (law, politics), Financial institutions (crises, lending)

EDUCATION

Florida Atlantic University, Boca Raton, Florida (August 2018 – present)
• Ph.D. Candidate in Finance, dissertation proposal date: 09/03/2021, expected graduation date: 05/2022
• Dissertation committee: Dr. Luis Garcia-Feijoo (chair), Dr. David Javakhadze, Dr. Anita Pennathur
• Presidential Fellowship (2018-2021)

University of Houston-Downtown, Houston, Texas (August 2016-August 2017)
• Master of Business Administration, Concentration: Finance, GPA: 3.92
• Graduate Certificate in Finance
• Member of National Honor Society of International Financial Management Association (FMA)
• Member of the international business honor society Beta Gamma Sigma

Bauman Moscow State Technical University, Russia (September 2004 – June 2010)
• Bachelor of Science in Financial Management in Business (Hons.)
• Diploma work on the topic “Forecasting of bankruptcies”
• Best Student of 2010 according to McKinsey

COURSES TAUGHT
• High overall teaching effectiveness from SPOT Instructor Evaluation report: student evaluation; 1=best, 5=worst
• Cases in Financial Management (Summer 2021): 1.59
• Advanced Managerial Finance (Spring 2021): 1.72
• Financial Institutions (Spring 2021): 2.11

WORKING PAPERS
• “Sources of herding in bond mutual funds”
• “Style drift in bond mutual funds”
• “Droughts impact on banks’ lending in the US”
• “Board characteristics and company’s performance”
• “Founders traits, board characteristics, and entrepreneurial success”

CONFERENCE PARTICIPATION
• Presenter: Southwestern Finance Association (SWFA) 2021 meeting, Boca Corporate Finance and Governance Conference 2021, New Zealand Finance Meeting 2021, Southwestern Finance Association (SWFA) 2022 meeting
• Reviewer: SFA 2021 conference, Journal of Management Education
• Chair: Southwestern Finance Association (SWFA) 2021, Southern Finance Association (SFA) 2021, Boca Corporate Finance and Governance Conference 2020/2021, Southwestern Finance Association (SWFA) 2022

PROFESSIONAL EXPERIENCE

University of Houston-Downtown College of Business, Houston, Texas
Finance Tutor (December 2017 – July 2018)
• Help MBA and undergraduate students with finance, economics, accounting, and management

Deep Energy, Houston, Texas
Financial Analyst (September 2017 – December 2017)
• Set up, maintain, and improve financial processes and models
• Provide overall support in financial monitoring and cost control

Houston Technology Center, Houston, Texas
Intern (September 2016 – February 2018)
• Produce financial modeling, budgeting reports, and due diligence for startups
• Best Intern award recipient

Aeroflot Russian Airlines, Moscow, Russia
Chief Analyst (June 2012 – September 2015)
Project Manager (September 2015 – June 2016)
• Prepare financial forecasts, managerial accounting reports
• Supervise team of 25 managers abroad

ISG Consulting, Moscow, Russia
Management Consultant (March 2011 – June 2012)
• Optimize budgeting, organizational structures, and incentive programs
• Most productive consultant award recipient

Troika Dialog Investment Bank, Moscow, Russia
Investment Reporting Analyst (July 2008 – March 2011)
• Prepare bond offering memoranda
• Implement and administrate SAP and Oracle databases
Dear Members of the Hiring Committee,

I am writing to apply for the Assistant Professor of Business Analytics position at Florida Polytechnic University.

ENTREPRENEURIAL ACCOMPLISHMENTS

- Coach more than 25 students during 7 years of private tutoring
- Organize own successful educational business with more than 200 customers

TECHNICAL SKILLS

- STATA, SAS, SPSS, Bloomberg
- MS Excel, Visio, Word, Access, Power Point, Project, Outlook
- Visual Basic for Applications (VBA), C, Pascal, HTML, SQL
- SAP Crystal Reports, Actuate Analytics, Jira, Oracle Siebel 7.5 and 8.0
- MIDT Sabre, Salesforce, BSPlink, Google Analytics

CERTIFICATIONS

- FINRA SIE
- Bloomberg Market Concepts certificate (BMC), Top 10% investors (Investopedia)
- Lean Six Sigma White Belt certificate, CFI “Excel crash course” certificate
- MS Excel and MS Access certificates
- Russian Federal Financial Markets Service (FFMS) professional certificates 1.0 and 5.0 (in managing investment funds)
- Business negotiations certificate

REFERENCES

Luis Garcia-Feijoo, Ph.D. (Chair)
Associate Professor of Finance
College of Business
Florida Atlantic University
Phone: 954-236-1239
Email: luis.garcia@fau.edu

Anita Pennathur, Ph.D.
Stone Fellow & O'Maley Distinguished Professor
College of Business
Florida Atlantic University
Phone: (954) 236-1272
Email: pennathu@fau.edu

David Javakhadze, Ph.D.
Associate Professor of Finance
College of Business
Florida Atlantic University
Phone: 561-297-2914
Email: djavakhadze@fau.edu
# ELISABETH KAMES, Ph.D.

**Professional Contact**
4700 Research Way  
Department of Mechanical Engineering  
Lakeland, FL. 33805

**Personal Contact**
1720 Hamilton Ave. SW  
Palm Bay, FL. 32908  
Cell: (630) 476 -1265

## EDUCATION

<table>
<thead>
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<th>Field</th>
<th>Institution</th>
<th>Date</th>
<th>Location</th>
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<tr>
<td>Ph.D.</td>
<td>Mechanical Engineering</td>
<td>Florida Institute of Technology</td>
<td>May 2020</td>
<td>Melbourne, FL</td>
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<tr>
<td>M.S.</td>
<td>Mechanical Engineering</td>
<td>Florida Institute of Technology</td>
<td>December 2016</td>
<td>Melbourne, FL</td>
</tr>
<tr>
<td>B.S.</td>
<td>Mechanical Engineering (cum laude)</td>
<td>Florida Institute of Technology</td>
<td>May 2015</td>
<td>Melbourne, FL</td>
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</table>

**Dissertation:** Examining the Impact of Student Motivation on Performance in Mechanical Engineering Design Courses  
Advisor: Beshoy W. Morkos, Ph.D.

## ACADEMIC APPOINTMENTS

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<th>Position</th>
<th>Location</th>
<th>Term</th>
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<tbody>
<tr>
<td>Florida Polytechnic University</td>
<td>Assistant Professor</td>
<td>Lakeland, FL</td>
<td>March 2021 – Present</td>
</tr>
<tr>
<td>Florida Polytechnic University</td>
<td>Visiting Assistant Professor</td>
<td>Lakeland, FL</td>
<td>August 2020 – March 2021</td>
</tr>
<tr>
<td>Florida Institute of Technology</td>
<td>Visiting Instructor</td>
<td>Melbourne, FL</td>
<td>August 2019 – May 2020</td>
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## ACADEMIC EXPERIENCE

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<th>Position</th>
<th>Location</th>
<th>Term</th>
<th>Responsibilities</th>
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<td>Florida Polytechnic University</td>
<td>Assistant Professor</td>
<td>Lakeland, FL</td>
<td>March 2021 – present</td>
<td></td>
</tr>
</tbody>
</table>
- Serve as an assistant professor in the Department of Mechanical Engineering  
- Conducting research on persistence and retention in mechanical engineering |
| Florida Polytechnic University | Visiting Assistant Professor | Lakeland, FL | August 2020 – March 2021 |  
- Served as a visiting assistant professor in the Department of Mechanical Engineering for the 2020-2021 academic year  
- Taught three courses during the fall semester and three courses in the spring semester  
- Conducting research on persistence and retention in mechanical engineering |
| Florida Institute of Technology | Visiting Instructor | Melbourne, FL | August 2019 – May 2020 |  
- Served as a visiting instructor in the Department of Mechanical and Civil Engineering for the 2019-2020 academic year  
- Taught, as the instructor on record, seven different courses throughout the year to over 300 students  
- Secured $60K in industry funding for student capstone projects |
| Florida Institute of Technology | Graduate Research Assistant | Melbourne, FL | May 2015 – May 2020 |  
- Worked with Dr. Beshoy Morkos on industry (~$300K) and federally (~$1M) funded projects. Work included |
learning how to write grants, executing the research, and leading multiple research teams.

- Developed research tools, methods, and techniques as part of research findings.
- Presented work at multiple American Society for Engineering Education (ASEE) Annual Conferences (where some of my papers were selected as the best within division), American Society of Mechanical Engineers International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (ASME IDETC/CIE)
- Published work in relevant journals such as the International Journal of Engineering Education

PROFESSIONAL EXPERIENCE

Engineer in Training No. 1100022752, Florida 2019

Structural Composites/Compsys, Inc. Melbourne, FL.
Composite Engineering Intern 2016 – 2019
- Designed and developed machinery to facilitate and automate composite manufacturing projects
- Developed and manufactured tooling for projects for the U.S. Navy, Lockheed Martin, and Wabash National Corporation

TEACHING EXPERIENCE

Instructor on record: 11 unique courses
Graduate Assistant: 8 unique courses

Florida Polytechnic University – Mechanical Engineering Lakeland, FL.
Professor – EGN 2002C – Skills and Design 2 Spring 2021
- Taught two sections of Skills and Design 2
- Lectured to freshman/sophomore level students on the fundamentals of design and manufacturing
- Overviewed the importance of Geometric Dimensioning and Tolerancing on part creation
- Organized and executed a small design project (miniature catapults) to showcase dynamics principles

Professor – EML 3811 – Mechatronics Spring 2021
- Taught EML 3811 to upper-level undergraduate students in a FLEX modality
- Topics included sensors and signal conditioning, digital signals and logic, actuation, first-order and second-order engineering system models, and transfer functions
- Delivered class syllabus, material, homework problems, quizzes, exams, and semester project

Professor – EGN 2001C – Skills and Design 1 Fall 2020/Fall 2021
- Taught two sections of Skills and Design 1 in two different modalities (online and FLEX section)
- Lectured to freshman/sophomore level students on the fundamentals of design
- Facilitated the use of Solidworks for 3D modeling and design
- Organized and executed a small manufacturing project (manila folder bridge) to showcase statics principles

Professor – EML 4500 – Design and Analysis of Machine Components Fall 2020/Fall 2021
- Taught EML 4500 during the fall semester to 18 undergraduate students in a FLEX modality
- Educated students on the fundamentals of the design of basic machine elements, emphasizing failure prevention for static and variable loading scenarios
- Topics included permanent and nonpermanent joints, springs, bearings, gears, clutches, flywheels, and geometric dimensioning and tolerancing
- Prepared class syllabus, material, homework problems, quizzes, exams, and semester project

Florida Institute of Technology – Mechanical Engineering Melbourne, FL.
Instructor – MEE 4193/4194 – ME Design 1 & 2 (Capstone Design) Fall 2019/Spring 2020
- Secured $60K in competitive funding (not donations) to support industry funded student projects
- Organized student project teams based on student skillsets and interests
- Procured funding from 4 industry sponsors for student projects
- Oversaw 109 students on 11 different senior capstone design teams
▪ Lectured on engineering design and proper design procedures

**Instructor – MEE 4190 – Design Methodologies (Junior Design)**
▪ Taught MEE 4190 during the spring semester to 84 undergraduate students
▪ Assigned student project teams based on student skillsets and interests
▪ Prepared class syllabus, material, homework problems, and three miniature, group projects to prepare students for capstone design

**Instructor – MEE 3090 – Design of Machine Elements**
▪ Taught MEE 3090 during the fall semester to 56 undergraduate students
▪ Lectured and educated students on the fundamentals of engineering mechanics and the design of basic machine elements, emphasizing failure prevention
▪ Prepared class syllabus, material, homework problems, quizzes, exams, and semester project

**Instructor – MEE 1025 – ME Practicum 1**
▪ Lectured to freshman level students on the fundamentals of the design process and design principles
▪ Advised students on their project work, interfacing with senior level students to assist with capstone design

**Instructor – MEE 2025 – ME Practicum 2**
▪ Lectured to sophomore level students on the fundamentals of the design process and design principles
▪ Advised students on their project work, interfacing with senior level students to assist with capstone design

**Instructor – MEE 3025 – ME Practicum 3**
▪ Lectured to junior level students on the fundamentals of the design process and design principles
▪ Advised students on their project work, interfacing with senior level students to assist with capstone design projects

**Graduate Teaching Assistant**
▪ Served as a teaching assistant to multiple engineering courses at all curriculum levels
▪ Classes included: Statics, Dynamics, Computer Aided Engineering, Design Methodologies, Mechanical Vibrations, Control Systems, Mechanical Engineering Design 1, and Mechanical Engineering Design 2

**Graduate Advisor – MEE 4193/MEE 4194 – Senior Capstone Design**
▪ Advised multiple student teams as a Graduate Student Advisor for Mechanical Engineering Design 1 and 2
▪ Interfaced with over 50 student teams (~400 students)
▪ Interfaced with both industry and federal industry sponsored project liaisons
▪ Completed ordering, oversaw student project progress, and advised students to successful project completion

---

**PUBLICATIONS**

**Journal Publications (2 published, 2 accepted pending revision, 6 in preparation)**


Conference Proceedings (12 published, 1 in preparation)

4. Kames, E., Shah, D., Clark, M., Morkos, B. (2019), A Mixed Methods Analysis of Motivation Factors in Senior Capstone Design Courses. Paper presented at 2019 ASEE Annual Conference & Exposition, Tampa, Florida. (selected as one of the top 5 papers in Division out of >120 submission)

Poster Sessions (1 posters)


Award Papers (3 papers)

FUNDING SECURED
Total: $60,000 (Kames as PI: $60,000)
- **Kames, E.**, (PI), 2019, “Design of Beam Data Scanning System – Phase II”, **Sun Nuclear Corporation**, $15,000
- **Kames, E.**, (PI), 2019, “Design and Analysis of Complex System” (Title Removed for Restrictions), **Lockheed Martin**, $15,000
- **Kames, E.**, (PI), 2019, “Design and Analysis of Complex System” (Title Removed for Restrictions), **US Navy**, $15,000
- **Kames, E.**, (PI), 2019, “System Optimization Through Use of Additive Manufacturing”, **Leonardo DRS**, $15,000

HONORS, ACTIVITIES, AND SERVICE

**Awards**
- Best of Design Engineering Education Division (from >120 submission) for “A Mixed Methods Analysis of Motivation Factors in Senior Capstone Design Courses” at 2019 ASEE Annual Conference & Exposition
- Recipient of 2019 ASEE DEED Graduate Design Essay Competition for “Addressing the Possibilities: The Benefits of Implementing Artificial Intelligence in Engineering Design Education,” Tampa, FL
- Recipient of 2018 ASME IDETC/CIE CAPP Graduate Research Poster Award for “Examining the Effect of Student Motivation on Academic Performance in Design Courses,” Quebec City, Quebec, Canada
- **NSF Graduate Research Fellowship Program Honorable Mention, 2016**
- Recipient of 2015 ASME Graduate Student of the Year Award recipient at Florida Institute of Technology
- Pi Tau Sigma Mechanical Engineering Honor Society inductee at Florida Institute of Technology
- Tau Beta Pi Engineering Honor Society inductee at Florida Institute of Technology

**Publications Reviewed**

**Conference Proceedings**
- International Design Engineering Technical Conference
- International Conference on Engineering Design
- American Society for Engineering Education

**Journal Submissions**
- ASME Journal of Mechanical Design
- ASME Journal of Medical Devices

**Memberships**
- Member, American Society of Mechanical Engineers, ASME 2011 – Present
- Member, Society for Women Engineers, SWE 2011 – Present
- Member, Order of the Engineer 2013 – Present
- Member, American Society for Engineering Education, ASEE 2016 – Present
- Member, Astrobiology Research and Education Society, ARES 2016 – Present
- Member, Society of Automotive Engineers, SAE 2019 – Present

**Community Activities**
- Volunteer/Mentor, FIRST Robotics 2010 – Present

**FELLOWSHIPS AND AWARDS**
- ASEE Travel Award $500 July 2019
- ASME CIE Travel Award $750 August 2018
- NSF/ASME Travel Award $1,250 August 2017
### SKILLS AND QUALIFICATIONS

**Computer**
- Solidworks
- AutoDesk Inventor
- Creo/ProE
- R/RStudio
- C++

- ANSYS APDL
- ANSYS Workbench
- AMESim
- MATLAB
- Microsoft Office

**Engineering**
- Technical drawing
- Geometric dimensioning & tolerancing (GD&T)
- Analysis
- Composite design

- Graphical synthesis
- Rapid prototyping
- Statistical data analysis

**Mechanical**
- Machine shop
- CNC machines
- Composite work
Appendix D. Common Pre-requisite Form

Note: Included on ACC Agenda for Feb 2023 as a technical change.

RE: for ACC

Hi Lynn,

I met today on this, and it was agreed that these are technical changes. These have been added to the agenda for the February ACC meeting.

Thank you!

Lynn

From: Tom Dvorske <tdvorske@floridapoly.edu>
Sent: Tuesday, January 31, 2023 2:28 PM
To: Nelson, Lynn <lynn.nelson@fliboo.edu>
Subject: RE: ACC

Hi Lynn—

I just got off the ACC Oversight Committee and it got me to thinking about our own requests to ACC. Back in October, I sent a request to Lynda to add Civil Engineering to the agenda for Poly. Lynda indicated — and confirmed — she sent it to Michael Stowell to include on the agenda.

So, two things:

1. I meant to, but did not, include Industrial Engineering as well; form attached.
2. I am similarly submitting Industrial Engineering (simply an oversight — thought I sent it in October as well).

Both are TECHNICAL CHANGES only. Please let me know if there are issues. I would like them to be included on the February 22 Agenda.

Best to you,

Tom

Tom Dvorske, Ph.D. (Architectural)
Vice Provost of Academic Affairs
SAC/CCDC Liaison
Florida Polytechnic University
4700 Research Way
Lakeland, FL 33805-8531
Ph: 352.874.8548 | F: 352.863.4118
https://floridapoly.edu/
Common Prerequisite Request

<table>
<thead>
<tr>
<th>Institution:</th>
<th>Florida Polytechnic University</th>
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<tr>
<td>Institution Liaison:</td>
<td>Tom Dvorske, Vice Provost of Academic Affairs</td>
</tr>
<tr>
<td>Date of Submission:</td>
<td>01.31.2023</td>
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<tr>
<td>Program/Degree Type:</td>
<td>Bachelor of Science in Industrial Engineering</td>
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<td>Program CIP Code:</td>
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<tr>
<td>Program Credit Hours:</td>
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If applicable, please complete the following if you are notifying us of a change to:

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<tr>
<td></td>
<td>Effective Date: Click or tap here to enter text.</td>
</tr>
<tr>
<td>Limited Access Program Status:</td>
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<tr>
<td></td>
<td>☐ Change from limited access to open access</td>
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<tr>
<td></td>
<td>Effective Date: Click or tap here to enter text.</td>
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<td>Program CIP Code:</td>
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<tr>
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<td>New CIP Code: Click or tap here to enter text.</td>
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<tr>
<td></td>
<td>Effective Date: Click or tap here to enter text.</td>
</tr>
<tr>
<td>Baccalaureate Program Status:</td>
<td>☐ Notification of a Program Termination - Term/Year Program Should be Removed from the CPM: Click or tap here to enter text.</td>
</tr>
<tr>
<td></td>
<td>☒ Notification of New Program - Anticipated Program Implementation Date: Fall 2023</td>
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Proposed Revisions(s) to the CPM (check all that apply)

The CIP Code Is Currently in the CPM:
☐ 1. Make curriculum changes to an existing track at proposing institution
☒ 2. Add program to a current track without curriculum changes
☐ 3. Add program to a current track with curriculum changes
☐ 4. Establish a new track without prerequisites
☐ 5. Establish a new track with prerequisites
  6. For numbers 1-5, please provide track information below:
     a. ☐ Track 1 ☐ Track 2 ☐ Track 3 ☐ Track 4 ☐ Track 5 ☐ Track 6
     b. Track Name: Click or tap here to enter text.
     c. If this is a request to establish a new track, please provide justification as to why a new track is needed: Click or tap here to enter text.

The CIP Code Is Not Currently in the CPM:
☐ 7. Add program to the CPM without prerequisites
☐ 8. Add program to the CPM with prerequisites

Proposed Curriculum Changes:
☐ Add course(s) and/or course alternative(s)
☐ Eliminate course(s) and/or course alternative(s) (delete course from the CPM)
☐ Exempt course(s) and/or course alternative(s) (request exception from course)
☐ Carry over prerequisites from previous CIP without changes
☐ Carry over prerequisites from previous CIP with changes
☒ Other – please specify No changes; only adding a program

Please include the following supporting documentation with this proposal.

- The program page from the Common Prerequisite Manual, if applicable.

See next page 3.

- The program requirements for the baccalaureate degree program at your institution.

See page 4. The table illustrates the structure of all Florida Poly baccalaureate programs and explains each category.
Program: Industrial/Manufacturing Engineering  
Offered At: FAMU, FSU, UCF, USF  
CIP: 14.3501  
Track: 1  
Program Length: 128 Cr. Hrs.

LOWER LEVEL COURSES

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<td>MACX281</td>
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<td>MACX312</td>
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<td>MACX282</td>
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<td>MACX313</td>
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<td>MACX283</td>
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<td>3</td>
</tr>
<tr>
<td>MAPX305</td>
<td>3</td>
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<tr>
<td>CHMX045/X045L</td>
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<tr>
<td>CHMX045C</td>
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<tr>
<td>CHSX440/X440L</td>
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</table>

FOR ALL MAJORS: Students are strongly encouraged to select required lower division electives that will enhance their general education coursework and that will support their intended baccalaureate degree program. Students should consult with an academic advisor in their major degree area.
# University Undergraduate Program Curriculum Template -- Category View

<table>
<thead>
<tr>
<th>Category</th>
<th>Course</th>
<th>Credits</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I. Learning Foundations</strong></td>
<td></td>
<td>38</td>
<td></td>
</tr>
<tr>
<td><strong>Professional Foundations and Critical Communication</strong></td>
<td></td>
<td>8</td>
<td>GESR</td>
</tr>
<tr>
<td>ENC 1101 - English Composition 1: Exp and Arg Writing (W)</td>
<td></td>
<td>3</td>
<td>GESR</td>
</tr>
<tr>
<td>ENC 2210 - Technical Writing (W)</td>
<td></td>
<td>3</td>
<td>GESR</td>
</tr>
<tr>
<td>EGN 1006 - Career Design for STEM Professionals</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EGN 1007C - Concepts and Methods for Engineering and Computer Science</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>IDS 4941 - Professional Experience Internship</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>STEM Core</strong></td>
<td></td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>IDS 1380 - Foundational Lessons and Applications in Mathematics</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COP 2271 - Introduction to Computation and Programming</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MAC 2311 - Analytic Geometry and Calculus 1</td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MAC 2312 - Analytic Geometry and Calculus 2</td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CHM 2045 - Chemistry 1</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHM 2045L - Chemistry 1 Laboratory</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>PHY 2048 - Physics 1</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHY 2048L - Physics 1 Laboratory</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Cultural and Social Awareness</strong></td>
<td></td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>ARH 2000 - Art Appreciation</td>
<td></td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td>PHI 2010 - Introduction to Philosophy</td>
<td></td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td>HUM 2020 - Introduction to the Humanities</td>
<td></td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td>MUL 2010 - Music Appreciation</td>
<td></td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td>LIT 2000 - Introduction to Literature</td>
<td></td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td>HUM 2022 Explorations in the Humanities (Various Topics)</td>
<td></td>
<td>3</td>
<td>GEO</td>
</tr>
<tr>
<td>IDS 2144 Legal, Ethical, and Management Issues in Technology</td>
<td></td>
<td>3</td>
<td>GEO</td>
</tr>
<tr>
<td>AMH 2010 - American History to 1877</td>
<td></td>
<td>3</td>
<td>GESR</td>
</tr>
<tr>
<td>AMH 2020 - American History Since 1877</td>
<td></td>
<td>3</td>
<td>GESR</td>
</tr>
<tr>
<td>AMH 2930 - History: Special Topics</td>
<td></td>
<td>3</td>
<td>GEO</td>
</tr>
<tr>
<td>ECO 2013 - Principles of Macroeconomics</td>
<td></td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td>ECO 2023 - Principles of Microeconomics</td>
<td></td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td>PSY 2012 - General Psychology</td>
<td></td>
<td>3</td>
<td>GESRO</td>
</tr>
<tr>
<td><strong>II. Advanced Math and Science (some may be included in program core)</strong></td>
<td></td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>
### I. Learning Foundations -- Description

The courses in this category comprise the general education program. The State of Florida and institutional accreditors required 36 hours in GE, across broad disciplinary areas including communication, math, science, humanities, social sciences. Florida Poly include an additional two credits associated with professional foundations as part of the core learning foundations for all students. These lists are largely prescriptive.

Florida Poly's Learning Foundations core includes three sub-categories that address both broad educational essentials and institutional values such as critical thinking, teamwork in professional contexts, effective communication, and fundamental knowledge, skills, and behaviors in mathematics and science essential to STEM students' learning.
Professional Foundations and Critical Communication course support students' educational and career objectives and provide foundation for thoughtful and effective communication essential to career success and civic engagement.

STEM Core is the critical pathway to success for Florida Poly students. All courses must be passed with C or better and any grade lower than C results in required retake of that course in the subsequent semester. In some cases, a program my not required MAC 2312 to be taken.

Cultural and Social Awareness courses advance the objectives of a broad, liberal education for all students and provide foundation for students to make informed judgments that consider the impact of science, technology, and engineering solutions in global, economic, environmental, and social contexts.

II. Advanced Math and Science -- Description

A Florida Poly students' foundational education continues to build with additional study in advanced mathematics and sciences to ensure that engineering and applied solutions are grounded in strong mathematical and scientific principles and methods.

Each program draws approximately 15 credits from this list. Some courses here may be included elsewhere, such as in program core, depending on the program's discipline and focus.

This list is not prescriptive, but descriptive of the different ways programs fulfill the advanced math/science category.

III. Program Core -- Description

Program core vary by discipline and degree program. All program core include multiple channels that round out disciplinary theory, application, and professional experience. For example, a typical construct includes a "core" of engineering sciences that parallel a design sequence. Another example is a program core that includes a programming channel, which may parallel a database/data analysis channel.

All programs culminate in a two-semester capstone design sequence where students collaborate on interdisciplinary teams in an effort to provide a solution to an industry-sponsored problem.
IV. Concentration(s) -- Description

Many programs include "concentrations." A 12-credit grouping of courses that augment the essential core curriculum of the degree program. Concentrations provide students with exposure to a subfield within the discipline and are intended to enhance the breadth of knowledge obtained within the degree. Concentrations are typically junior and senior year classes.

V. Electives -- Descriptions

Providing room is available in the curriculum, a program may include a slot or two for 3-6 credits (occasionally more) of elective credit. Elective courses should do for the program in a single course, what a concentration does over 4 courses: provides an exposure to a subfield/application/theory or other that adds depth and or breadth to the student's educational experience.

Total Credits.

All Florida Poly baccalaureate degree programs consist of 120 credit hours only. This is consistent with the standards for baccalaureate degrees and supports the State of Florida’s emphasis on completion in four-years and reduced overall cost to students.
If this request is for any of the following, do not complete anything further:

- Add program to a current track without curriculum changes
- Establish a new track without prerequisites
- Add program to the CPM without prerequisites

If this request is for any of the following, please complete 1-7, where applicable:

- Make curriculum changes to an existing track at proposing institution
- Carry over prerequisites from previous CIP with no changes
- Carry over prerequisites from previous CIP with changes
- Add program to a current track with curriculum changes
- Establish a new track with prerequisites
- Add program to the CPM with prerequisites

1. For required prerequisite course(s) and/or course alternative(s), please list the following information for each course (add rows if necessary).

<table>
<thead>
<tr>
<th>Course Prefix and Number</th>
<th>Course Title</th>
<th>Course Alternative</th>
<th>Justification for Course(s)</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
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<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits
2. If the course(s) above includes a course(s) that is offered currently at three or fewer FCS or SUS institutions, please provide justification as to why the course is critical for a student’s success in the baccalaureate degree program. Please visit the Statewide Course Numbering System to determine the number of institutions that offer the course(s) (add rows if necessary). Click here for instructions on how to navigate the SCNS.

<table>
<thead>
<tr>
<th>Course(s) limited to 3 or less FCS/SUS institutions</th>
<th>Number of FCS Institutions Currently Offering Course (out of 28)</th>
<th>Number of SUS Institutions Currently Offering Course (out of 12)</th>
<th>Justification for Course(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
</tr>
<tr>
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<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
</tr>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
</tr>
</tbody>
</table>

3. If the request includes courses that are offered only at your institution, explain what options are available to students at other institutions for completing the required courses (add rows if necessary).

<table>
<thead>
<tr>
<th>Course(s) Only at Proposing Institution</th>
<th>Option(s) at Other Institutions</th>
<th>Explanation of Option(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
</tr>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
</tr>
<tr>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
<td>Click or tap here to enter text.</td>
</tr>
</tbody>
</table>
4. If the request includes exemption from or elimination of a prerequisite course(s) and/or course alternative(s), please list the following information for each course that you would like to be exempt from or eliminate (add rows if necessary).

<table>
<thead>
<tr>
<th>Course Prefix and Number</th>
<th>Course Title</th>
<th>Justification for Course Elimination/Exemption</th>
</tr>
</thead>
</table>
| Click or tap here to enter text. | Click or tap here to enter text. | □ Exempt from Course  
□ Elimination of Course  
Click or tap here to enter text. |
| Click or tap here to enter text. | Click or tap here to enter text. | □ Exempt from Course  
□ Elimination of Course  
Click or tap here to enter text. |
| Click or tap here to enter text. | Click or tap here to enter text. | □ Exempt from Course  
□ Elimination of Course  
Click or tap here to enter text. |

5. Please provide the college level prerequisite(s) for the common prerequisite course(s) if applicable (add rows if necessary).

<table>
<thead>
<tr>
<th>Course Prefix</th>
<th>College Level Prerequisites</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Click or tap here</td>
<td>Click or tap here to enter text.</td>
<td></td>
</tr>
<tr>
<td>Click or tap here</td>
<td>Click or tap here to enter text.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td></td>
</tr>
</tbody>
</table>

6. Please provide the information requested below for the review of common prerequisite completion within 60 credit hours.

<table>
<thead>
<tr>
<th>Number of credit hours for AA</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtract number of credit hours required for common prerequisites</td>
<td>-</td>
</tr>
<tr>
<td>Subtract number of college level course prerequisites for common prerequisite courses (if known)</td>
<td>-</td>
</tr>
<tr>
<td>Add the number of credit hours for common prerequisites that are also general education core requirements</td>
<td>+</td>
</tr>
<tr>
<td>Total number of credit hours left to complete the rest of the student's general education requirements</td>
<td>=</td>
</tr>
</tbody>
</table>

7. If a student does not have enough room in the "total" above to complete the rest of the general education requirements, please provide justification for requiring more common prerequisite course credit hours than can be accommodated by the student in 60 credit hours.

Click or tap here to enter text.
Subject: Graduate Student Tuition Waiver

Proposed Committee Action

At the November 2021 Board of Trustees meeting, the board approved a $150 per credit hour waiver for graduate tuition. This waiver was authorized for students that entered the university in the 2022-23 academic year and produces a competitive price position for our graduate degree compared to neighboring institutions. The price positioning is necessary to facilitate growth in the self-funded graduate student market.

This request is to extend this waiver for the coming three years. The formal resolution is:

Recommend to the Board of Trustees approval of an automatic tuition waiver of $150 per credit hour for all graduate students who are starting graduate school at the university in AY 2023-24, AY 2024-25, AY 2025-26. This waiver, defined as the "BOT Graduate Tuition Waiver" is distinct from our general tuition waiver and our out-of-state tuition waiver.

Background Information

Performance Based Funding as currently configured includes Metric 8 which is "Graduate Degrees awarded in Areas of Strategic Emphasis." This metric is an area of strength for the campus since all of our degrees are in Strategic Emphasis Areas. As a requirement to use this metric, and not the alternative metric ("Freshman in Top 10% of Graduating High School Class"), Florida Poly was required to produce more than 25 Master of Science graduate in one academic year. We met this goal last year and now must maintain (and grow) graduate student production.

To facilitate growth, we have considered and put in place different tracks and funding models for our graduate degrees. These tracks and funding models are:

- **Thesis based M.S. degrees.** These degrees are intended to require 21 months to complete and require independent research that culminates in a thesis. Support for these degrees is typically either from a research grant (external funding source) or from the institution (internally funded, typically some level of supporting work is required from the student). Due to the youth of the institution and its faculty, nearly all thesis based funding support comes from institutional funds. These degrees are limited by the internal budget and/or external research funding available for direct support of students (typical awards include all tuition and fees in addition to a modest living stipend). At this time, this is not sufficient funding to support an appropriate volume of students.

- **Non-thesis based degrees.** These are course-work only M.S. degrees and we have produced degree “tracks” that are 11 months in duration. This program is targeted at
the self-funded student and is highly cost effective because of the cost structure of the
degree (noting the $150.00 per credit hour tuition waiver), and the accelerated nature
of the degree program. For self-funded students, much of the cost for the degree is
NOT tuition and fees, but rather is the living costs while a student is in school. Moving
an M.S. degree from 21 months to 11 months is a very real cost saving to the student.

- Since we have implemented these changes we have moved from 100% of our students
that are admitted to the graduate program being recipients of full tuition, fee, and
stipend aid in fall 2020 to 25% of our students being fully supported students in the
fall of 2022.

The following table and figure provide important context for this request.

<table>
<thead>
<tr>
<th>GRADUATE STUDENT FEE SCHEDULE</th>
<th>RESIDENT</th>
<th>RESIDENT with tuition waiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition</td>
<td>$385.00</td>
<td>$385.00</td>
</tr>
<tr>
<td>BOT Graduation Tuition Waiver</td>
<td>0</td>
<td>-$150.00</td>
</tr>
<tr>
<td>Out-Of-State Fee</td>
<td>$0.00</td>
<td>$0.00</td>
</tr>
<tr>
<td>Financial Aid Fee</td>
<td>$19.25</td>
<td>$19.25</td>
</tr>
<tr>
<td>Non-Resident Financial Aid Fee</td>
<td>$0.00</td>
<td>$30.40</td>
</tr>
<tr>
<td>Capital Improvement Trust Fund Fee</td>
<td>$4.76</td>
<td>$4.76</td>
</tr>
<tr>
<td>Transportation Fee</td>
<td>$3.00</td>
<td>$3.00</td>
</tr>
<tr>
<td>Activity and Service Fee</td>
<td>$17.62</td>
<td>$17.62</td>
</tr>
<tr>
<td>Athletic Fee</td>
<td>$14.12</td>
<td>$14.12</td>
</tr>
<tr>
<td>Health Fee</td>
<td>$9.58</td>
<td>$9.58</td>
</tr>
<tr>
<td>Technology Fee</td>
<td>$19.25</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$472.58</strong></td>
<td><strong>$333.73</strong></td>
</tr>
</tbody>
</table>

Table 1. Graduate tuition and fee schedule for Florida resident students

![In-State Tuition and Fees](image)

Figure 1. Bar chart that shows per credit hour resident tuition and fees for several universities in the state system. The purple bar on the left shows the net per credit hour cost after the
tuition waiver. The bar that is the third from the right shows the Florida Poly tuition without the waiver.

**Supporting Documentation:** N/A

**Prepared by:** Dr. Terry Parker, EVP and Provost
Subject: Student Success Plan Review and Report Approval

Proposed Committee Action
Recommend approval to the Board of Trustees of the final report for the Student Success Plan.

Background Information
This final report provides an abbreviated motivation for the Student Success Plan followed by abbreviated task descriptions from the plan that was approved by the Board of Governors at their September 2022 meeting. Each task is followed by a status statement on the task. These descriptions are clearly marked in shaded boxes below each task description.

Supporting Documentation: Final Report for the Student Success Plan

Prepared by:  Dr. Terry Parker, EVP & Provost
              Dr. Tom Dvorske, Vice Provost Academic Affairs
              Dr. Kathryn Miller, Vice Provost Student Affairs
              Dr. Ben Matthew Corpus, Vice Provost Enrollment Management
              Andrew Konapelsky, University Registrar
              Dr. Mary Vollaro, Chair, Mechanical Engineering
I. Executive Summary

This Student Success Plan is focused on advancement in areas guided by Performance-Based Funding (PBF) metrics where the University has underperformed. Florida Polytechnic University has developed six strategies that will strengthen the execution of our mission and advance performance on seven key performance metrics. Positioning Florida Poly to sustainably receive a score of at least 70 or more excellence points within the PBF system is central to this plan. The University has aggressively pursued the tasks defined in the original plan, and has completed, or will complete in the coming weeks, the plan.

This final report provides an abbreviated motivation for the Student Success Plan followed by abbreviated task descriptions from the plan that was approved by the Board of Governors at their September 2022 meeting. Each task is followed by a status statement on the task. These descriptions are clearly marked in shaded boxes below each task description.

II. University Mission and Background for Performance-Based Funding

The table below shows results from our two years in the PBF system (2021 and 2022) for the metrics addressed in this plan. The precipitous drop in score from 2021 to 2022 is driven by performance in the first year where improvement points provided 33 of the 83 points received. For year 2022, our performance was similar to the prior year (or, in the case of Academic Progression Rate [APR], impacted by COVID) thus shifting the campus to “excellence points” which were not sufficient to achieve a score above 70. This plan positions Florida Poly for sustained achievement, based on excellence points, to be above 70 points; Florida Poly will use this Student Success Plan to drive excellence scores upward in critical metrics, in support of the University mission.

Academic Progression Rate (APR, for the First Time In College [FTIC]) cohort and for Pell students, metrics 5 and 9.B), FTIC four-

<table>
<thead>
<tr>
<th>PERFORMANCE-BASED FUNDING METRIC</th>
<th>POINTS</th>
<th>2021 Score</th>
<th>SCORE</th>
<th>2022 Score</th>
<th>SCORE</th>
<th>Variance from 2021 to 2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of B.S. Grads Employed ($30K) or Cont. their Ed.</td>
<td>1</td>
<td>74.1%</td>
<td>10</td>
<td>EXCELLENCE</td>
<td>69.6%</td>
<td>9 (norm)</td>
</tr>
<tr>
<td>Four-Year Graduation Rate Full-Time FTIC Only</td>
<td>4</td>
<td>34.3%</td>
<td>0</td>
<td>EXCELLENCE</td>
<td>38.2%</td>
<td>1</td>
</tr>
<tr>
<td>Academic Progress Rate (APR)</td>
<td>5</td>
<td>76.6%</td>
<td>10</td>
<td>EXCELLENCE</td>
<td>64.2%</td>
<td>0</td>
</tr>
<tr>
<td>University Access Rate Percent of UG w/ Pell</td>
<td>7</td>
<td>33.8%</td>
<td>8</td>
<td>EXCELLENCE</td>
<td>33.1%</td>
<td>7</td>
</tr>
<tr>
<td>Percent of Freshmen in Top 10% of H. S. Class</td>
<td>8.A</td>
<td>32.0%</td>
<td>10</td>
<td>EXCELLENCE</td>
<td>33.0%</td>
<td>2</td>
</tr>
<tr>
<td>2-Year Graduation Rate AA Transfer</td>
<td>9.A</td>
<td>4.2%</td>
<td>0</td>
<td>EXCELLENCE</td>
<td>4.0%</td>
<td>0</td>
</tr>
<tr>
<td>2nd Year Retention for FTIC with a Pell-Grant</td>
<td>9.B.1</td>
<td>87.8%</td>
<td>5</td>
<td>EXCELLENCE</td>
<td>66.0%</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>83</td>
<td>66</td>
<td></td>
<td></td>
<td>-17</td>
</tr>
</tbody>
</table>

Table 1. Performance based metrics that are the focus of this student success plan. The total shown at the bottom is the sum for all metrics.
year graduation rates (metric 4), and three-year graduation rates for Associate of Arts (AA) Transfer students (metric 9.A\(^1\)) are naturally difficult metrics for all our STEM peer institutions. In addition to promoting student success that aligns with the metrics listed above, Florida Poly will strengthen its support of graduate programs where the university has transitioned from metric 8.A (fraction of incoming FTIC students in top 10% of their high school class) to Metric 8 (Fraction of graduate degrees in areas of strategic emphasis).\(^2\) The plan described below focuses on improvement in the metrics listed in Table 1. Based on the long time scales associated with academic progression and graduation rates we started student success activity in support of PBF improvement in summer 2021. The Student Success Plan formalizes and extends this important activity.

III. The Student Success Plan

This Student Success Plan is designed to achieve a score of 70 or more excellence points by summer 2024 (noting that we expect our score to be above 70 in 2023 with the inclusion of improvement points). The Student Success Plan is based on six strategies that create systemic change on our campus in support of improved student success. The strategies are:

- A. Excellence and Achievement in the Freshman Year (PBF #4, PBF #5, PBF #9.B)
- B. Student Culture: Supporting the Whole Student (PBF #1, PBF #4, PBF #5)
- C. Graduate On Time (PBF #4, PBF #9.A)
- D. Grow and Support the Graduate Program (PBF #8)
- E. Provide Tailored Support for Pell Students (PBF #7, PBF #9.B)
- F. Promote Strong Employment Outcomes for Our Students (PBF #1)

These six strategies are briefly presented below with rationale for each strategy and an overview of critical elements required to execute the plan.

A. Excellence and Achievement in the Freshman Year (PBF #4, PBF #5, PBF #9.B)

Student progression and on-time graduation are critical areas where the University struggles; the most important issue is low retention from the freshman to sophomore year (as measured by APR) of students. An analysis of FTIC students who do not return in their sophomore year shows poor academic performance as the root cause. Rationale for poor performance includes the rigors of an all-STEM curriculum (noting the nationwide failure rate for calculus 1 is over 30% and that other core freshman STEM courses have similar failure rates) and the destructive effect of COVID on both student academic preparation and overall maturity. Our analysis shows that Florida Poly’s fall 2020 cohort of FTIC students had an APR of 64%; our projection for fall 2021 FTIC students is significantly better with a 76% APR. This gain in APR is based in part on the Freshman Initiative, which we launched in fall 2021. We expanded this Freshman Initiative into “Excellence and Achievement in the Freshman Year,” which is a part of this Student Success Plan with the elements listed below.

i. Freshman Council: The Freshman Council provides organizational consistency for critical freshman courses and produces coordination across the multiple departments that deliver first-year courses. This Council will impact the entire first-year experience and culture with coordination and

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\(^1\) Note that this metric is transitioning from a two-year rate to a three-year rate starting in summer 2023.

\(^2\) Metric 8 is used for ten other universities in the SUS.
collaboration across the STEM core curriculum. The council, acting as the managing department for a key set of courses, is empowered to manage:

- **Policies:** Common grade scale; similar percentages assigned to homework and exams; attendance policies; student-friendly exam schedule.

- **Effective and efficient learning initiatives:** Explicit use of course learning objectives in driving curriculum; focus on process, communication, and critical thinking; focus on the use of out-of-class student time-commitment and learning resources with to learn; emphasis on active learning in highly engaged classrooms.

- **Student support:** Frequent feedback to students through formative assessment; strong academic support network through Peer Learning Strategists (PLS) and a centralized help center.

- **Broad feedback on overall success:** Progress metered via a STEM core GPA and course-completion count.

**Progress on this task: This activity has been accomplished.**

The Freshman council was established at the start of the fall 2022 semester; it has provided the framework to maintain and demand common policies in freshman courses, supports a focus on high quality teaching, has been a critical player in managing the Peer Learning Strategists program, and regularly considers, and advocates for the academic needs of the freshman. The STEM core GPA and completion ratio within a student’s freshman year will be used as a predictive tool to measure a student’s academic progress and their potential to graduate on time.

ii. **Creation of the STEM Core:** The STEM Core curriculum consists of 22 credits: two courses from the Calculus sequence, Physics 1 and Chemistry 1 with labs, an introduction to computer programming course, and an introductory course in STEM applications. FTIC students who matriculate through these courses over the fall, spring, and summer (if needed) of their freshman year are well positioned to confidently enter their selected degree programs as sophomores on track to graduate in four years.

**Progress on this task: This activity has been accomplished.**

The STEM Core has been established, integrated into our advising best practices and used actively in the monitoring of student academic progression. Students are required to complete the STEM core as early in their degree program as is practical. The University has implemented progression policies are rigorously applied to students and strong interventions are applied when students are not progressing through the STEM Core.

iii. **Enhancing the Freshman Year with Hands-On, Team-Based Projects:** To address issues around poor student engagement, we identified key curricular opportunities to reconfigure course experiences and include team-based projects which encourage student engagement. Specifically, hands-on and team-based activities have been added to two key first year courses.
iv. **Policy Enhancements:** We have changed our policy execution to require students to progress toward their declared degree, augmenting the already in place traditional GPA-based probation and suspension controls. This more tightly controlled student progression has resulted in some student suspensions, but it allows us to focus resources on students who are making academic progress.

**Progress on this task:** *This activity has been accomplished.*

These first-year team-based projects position students to advance through the design and/or project sequences specific to their program of study. We delivered an entry course to ~450 entering students initially in fall 2021 and repeated in fall 2022 (EGN 1006 Career Design for STEM Disciplines). The course includes a team-based, multi-hour project as the culminating activity. We are including a similar (but slightly more complicated) project in EGN 1007 Concepts and Methods for Engineering and Computer Science (approximately 350 students) in spring of 2023. The team-based project in each course provides a faculty-led opportunity to engage with the curriculum as a part of a team.

v. **Student Support Services:** As a part of Student Support Services, we have restructured tutoring and academic support on the campus starting in fall 2021. This restructuring was driven by aligning departments and faculty for the key foundational courses with peer tutors/Peer Learning Strategists (PLS) familiar with the subject matter and trained in learning techniques. This activity, coupled with a designated place on campus for PLS, has been well received by students and faculty. In addition, we are rebuilding our advising unit, starting with the position creation and hiring of an Associate Vice Provost of Student Success with direct reporting line to the Provost. Three new dedicated success coaches will also be hired (bringing the total to four). Strongly included in the mission of this success center is the “emotional and information support” that is necessary; students need a place to have their questions answered and a place to go with complicated, non-academic questions.

**Progress on this task:** *This activity is underway and will be completed in the coming weeks.*

We continue to use a combination of policies: grade forgiveness policies that provide a pathway for success by helping students recover from first-term course failures; and academic progression policies that require students to repeat courses they have failed or withdrawn from that prove critical to successful academic progression.

We committed to hire an Associate Vice Provost of Student Success (AVPSS) and three success coaches. To date we have hired the AVPSS and one of the three success coaches. We are finalizing the hiring process for the final two success coaches in the coming weeks to complete this task.
vi. **Freshman Course Assignment and Registration Requirement:** At Florida Poly, we enroll all new students in their first semester of courses to ensure they begin on an appropriate path that will lead to optimal degree progression. As an enhancement to this initiative, starting with the 2021 FTIC cohort, we analyzed prior student admissions data and course performance data to develop schedule-based cohorts for students with varying levels of rigor. Using this data, students were registered for schedules where they are more likely to be successful. For the entering 2022 FTIC cohort, we have refined this practice with a strong focus on mathematics placement with a data-driven, multi-step process to account for our students’ varying mathematical backgrounds.

In addition to the care taken in assigning freshman year courses, we have also changed our practice to require all students to see a faculty advisor before they register for courses in the sophomore year (and beyond), and we have additionally put in place registration hold-based intervention mechanisms to require students to take key courses that are necessary for them to maintain academic progress and graduate on time.

**Progress on this task:** *This activity has been accomplished.*

As we created student schedules in the fall, we followed the process noted above. In our advising for students, we have proactively noted the importance of completing the STEM core in their freshman year and the utility of the summer to retake STEM core courses. We continue to require students to meet with an advisor in order to register for classes.

**B. Student Culture: Supporting the Whole Student (PBF #1, PBF #4, PBF #5)**

Florida Poly strives to support the whole student and hone not only their academic talent, but their professional skills with guidance, engagement, and a wide range of opportunities to match the unique individuals in our student body. Leadership is a critical part of the whole student experience, as well as career development. Employers expect students to navigate the workplace seamlessly, knowing when to lead and when and how to contribute. An active and complete program in leadership supports retention, on-time graduation, and positive employment outcomes.

As a part of this Student Success Plan, we will hire a new Director of Career Services, and also a program coordinator who will organize the full suite of leadership activities at the University. These individuals will work with a department chair who has over a decade of experience with leadership programs on another campus.

The ULead program was established in fall of 2021 and has provided training and experience for students through activities sponsored by Students Affairs. Expansion of leadership opportunities includes an Emerging Leaders Program, focused on inviting students “in” to participate in activity outside the required curriculum. The curricular piece of this program reaches out to all students by mapping experiential learning activities with a leadership component throughout the curriculum.
C. Graduate on Time (PBF #4, PBF #9A)

Providing students with a comprehensive and timely advising experience is essential to ensure they efficiently complete the necessary coursework to graduate on time. To facilitate this integrated, holistic, and individualized advising support, Florida Poly will implement a comprehensive advising system which will become the key advising resource and tool. Facilitating progression in this strategically supported manner will lead to improvements in retention and degree completion for all populations of students, which will directly impact PBF #4 and PBF #9.A, as well as PBF #5 and PBF #9.B.

The improved academic advising system will provide key infrastructure needed to support the significant improvements to student advising that Florida Poly began to implement in fall 2021. The creation of start-to-finish degree plans for FTIC students and AA transfers, during the first term, will provide students with a full pathway to on-schedule degree completion.

Progress on this task: *This activity is underway and will be completed in the coming weeks.*

This task includes implementation of a comprehensive advising system that provides “start to finish” advising for students and degree progress tracking. The system (product name is Stellic) has been integrated with our Student Information System and will be released for use on or before March 1, 2023. In addition, we have created (consistent with the guidance for this task) start-to-finish progress plans for first-year Florida College System (FCS) AA transfer students.

D. Grow and Support the Graduate Program (PBF #8)

Metric 8.A (percentage of incoming class that is the top 10% of their high school class) is applied to Florida Poly and one other member of the SUS due to the small size of the graduate program. Florida Poly moving forward will use Metric 8.

To continue to support the graduate program in terms of growth and management, we will hire a graduate program coordinator this year.

Progress on this task: *This activity has been accomplished.*

This task called for the hiring of a Graduate Coordinator. This person has been hired, and in addition, as we move to growing the graduate program, the reporting for the Graduate Coordinator has been moved to the provost in anticipation of the formation of a formal Graduate Office.

E. Provide Appropriate Support for Pell Students (PBF #7, PBF #9.B)

About one-third of Florida Poly students are Pell eligible, however, up to half have household incomes under $40,000 a year. Roughly 35% of our students are also the first in their families to attend college.

Progress on this task:

As a part of this task, we were to hire a new Director of Career Services and a program coordinator to support career services. We have hired the Director of Career Services and expect to complete the hiring process for a leadership coordinator in the coming weeks.
Many of these students attended under-resourced high schools with little academic support, no AP courses, low graduation rates, and high student-counselor ratios. All of the opportunities for the overall student body are available to our Pell students. In addition, low-income and first-generation students will be provided a comprehensive set of academic support services that include, but are not limited to:

- Intrusive academic advisement, as necessary or required
- Identify and provide additional training for a success coach specializing in Pell
- Campus work-study programming with mentors
- Campus programming and financial aid counseling
- Additional funding opportunities for textbooks and academic materials

**Progress on this task:** *This activity has been accomplished.*

This task asks for increased services for Pell and First-Generation students. We have established a Pell “working group” and begun tailoring key services for these students. In addition, we awarded an average aid package in the fall semester of $6340 to Pell students in support of their ongoing funding needs as they seek degrees. Additional aid in the fall of $600 per student was disbursed to approximately 350 students. Finally, there was significant other aid provided by additional need-based aid and the Florida Assistance Grant.

**F. Promote Strong Employment Outcomes for Our Students (PBF #1)**

To support strong employment outcomes for our students, a Director of Career and Leadership will be hired. We have elevated this position to include leadership programs based on a philanthropic gift that intends to couple a broad concept of leadership with programs across the University that promote skills and behaviors that make our students more employable. This gift allows us to recruit and pay for a seasoned professional in this unique area. A larger discussion of leadership is provided in section B (Student Culture: Supporting the Whole Student).

**Progress on this task:** *This activity has been accomplished.*

As noted before, we have hired the Director of Career Services who will work to develop “career growth plans” specific to each major. These career growth plans are grounded in discussions with industry with a focus on providing internship and career opportunities to our students.

**IV. Student Success Plan Status**

Florida Polytechnic University has embraced the importance of student academic and career success, and with this plan, has moved expeditiously to respond to difficulties with academic progression. This Student Success Plan was formally approved at the start of the Fall semester in 2022 and will improve University PBF performance to meet the required score of 70 based on excellence points by summer 2024. This Student Success Plan describes our strategies and tactics for continuing to build on the foundations we’ve already established through continuous improvement and incorporating additional key tactics, tools, and methods.

Florida Polytechnic University is pleased to report that we have accomplished nearly all tasks that were outlined in the six strategies of the student success plan, and notes that we expect all tasks to be fully complete before March 1, 2023.
Subject: Regional Accreditation Discussion

Proposed Committee Action

Information only – no action required.

Background Information

On July 1, 2020, the Code of Federal Regulations eliminated the regional restrictions associated with accreditation of higher education institutions. The result of this change is that institutions are now free to pursue accreditation with a federally recognized institutional accreditor from outside of their region, provided the institution does so voluntarily.

Until July 1, 2022, all Florida institutions of higher education were by statute and/or regulation required to be accredited by the Southern Association of Colleges and Schools Commission on Colleges (the University’s current institutional accreditor, SACSCOC). The change in Florida law brings the state in line with Federal Regulation in that colleges and universities may now voluntarily pursue institutional accreditation from an agency other than SACSCOC. Importantly, Florida state law requires that once an institution completes either its decennial (or equivalent) reaffirmation or fifth-year review, the institution must seek membership with another agency.

Florida Poly was reaffirmed by SACSCOC on December 6, 2022, for a ten-year period, thus triggering the institution, by law, to begin this process.

Changing institutional accreditation agencies begins with informing the University’s Board of Trustees. Second, the university must submit a request for change in agency to the U.S. Department of Education. This request must be voluntary, demonstrate reasonable cause for the change, and explain how the change will strengthen the University and benefit the students. If the Department of Education approves the University seeking another agency, Florida Poly intends to begin the application and candidacy process with the Higher Learning Commission (HLC).

University accreditation liaisons in collaboration with Board of Governors’ staff conducted a review of all institutional accreditors. This review included meetings between the BOG Chancellor and Vice Chancellor, accreditation liaisons from Florida Poly and UCF, and the Presidents and senior staff of each of the five eligible institutional accrediting agencies.

Throughout this research process, the Higher Learning Commission emerged as the best fit for Florida Poly. Factors contributing to this choice include:

- **Capacity**: HLC is the largest institutional accreditor with a staff and operations able to accommodate existing accredited institutions in a streamlined, accelerated process.
- **Governance**: HLC’s exhibits a strong shared governance process where the agency actively engages member in policy and standards-making processes.
• Client-Focus: HLC displays a strong client-focused culture and has been highly responsive to interest from Florida institutions. HLC has set aside a special session at its Annual Meeting in March 2023 for Florida institutions seeking accreditation.

• Efficiency: HLC’s decision-making processes occur approximately four-times per year, whereas SACSCOC makes decisions only twice per year. HLC also maintains a short timeline between routine requests for approval and final decisions, which facilitates institutional innovation and responsiveness to industry needs.

The relative time frame for officially changing agencies depends on several factors but tends to be approximately 18 – 36 months. Critical to the University throughout this process is that it maintain compliance with all applicable policies and principles of SACSCOC, while also making appropriate adjustments to ensure compliance with HLC standards.

This process should not disrupt the University’s ability to award federal financial aid or participate in federal grants.

Supporting Documentation:

1. Florida Polytechnic University DRAFT letter to the U.S. Department of Education
2. Code of Federal Regulations 34 CFR 600.11. Special rules regarding institutional accreditation or pre-accreditation (up-to-date as of 1/13/2023)
3. US Department of Education Letter to Accrediting Agencies, July 19, 2022
4. Department of Education Federal Student Aid publications:
   a. Guidance for Institutions Seeking to Change or Add Accrediting Agencies (July 19, 2022; DCL ID: GEN-22-10)
   b. Procedures for Institutions Seeking Approval of a Request to Change or Add Accrediting Agencies. (Updated September 26, 2022; DCL ID: GEN-22-11)
5. Florida Board of Governors report on Accreditation
6. Florida Board of Governors report on Accreditation – Appendices on agencies

Prepared by: Dr. Randy K. Avent, President; and Dr. Tom Dvorske, Vice Provost of Academic Affairs, Accreditation Liaison
February 17, 2023

RE: Request to seek a different institutional accrediting agency

Florida Polytechnic University formally requests approval from the United States Department of Education to pursue a change in institutional accreditor, per the Code of Federal Regulations (CFR) that became effective July 1, 2020.

Until 2022, Florida law and state regulation specified that all public institutions of higher education must be accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). Newly implemented Florida Statute 1008.46, along with other state regulatory changes, removes that language, allowing state colleges and universities the opportunity to pursue accreditation through another agency. The Florida Statute also requires that institutions must change accreditors upon next reaffirmation or fifth-year report; however, it does not dictate the agency.

Florida Poly’s request to change accrediting agency to the Higher Learning Commission (HLC) is the result of careful analysis of several characteristics of the potential agencies. Our investigation included meetings between the Chancellor and Vice Chancellor of the Florida Board of Governors, accreditation liaisons from Florida Poly and University of Central Florida, and the Presidents and senior staff of each of the five eligible institutional accrediting agencies. In addition to the results of these meetings, the University has examined accreditor mission and vision statements, standards and principles, policies, processes for achieving accreditation and subsequent reaffirmation cycles, governance models, operations infrastructure, and cost of membership. In the end, we feel confident that our proposed change will benefit Florida Polytechnic University students and the State of Florida.

a. The name of the institution’s current primary accrediting agency and the name of the institution’s propose new agency;
   • Florida Polytechnic University’s current accrediting agency is the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC)

b. Whether the institution is seeking to change primary accrediting agencies or seeking multiple accreditation;
   • Florida Poly’s proposed new agency is the Higher Learning Commission (HLC)

c. If the institution is seeking multiple accreditation, whether the institution plans to relinquish accreditation by its current primary accrediting agency and, if so, the timeframe for relinquishment;
   • Not applicable to our institution.

d. The date that the institution’s current accreditation is set to expire;
   • Florida Poly’s next reaffirmation is 2032.
e. **The reason(s) the institution is seeking the change:**

Put simply, Florida Poly is seeking this change because we believe HLC offers several opportunities for our students and the institution not currently present to us under our existing accreditation. As a result of Florida Poly’s research, and collaboration within the Florida System, the Higher Learning Commission emerged as the best fit for Florida Poly. Factors contributing to this choice include:

- **Capacity:** HLC is the largest institutional accreditor with a staff and operations able to accommodate existing accredited institutions in a streamlined, accelerated process.
- **Governance:** HLC’s exhibits a strong shared governance process where the agency actively engages member in policy and standards-making processes.
- **Client-Focus:** HLC displays a strong client-focused culture and has been highly responsive to interest from Florida institutions. HLC has set aside a special session at its Annual Meeting in March 2023 for Florida institutions seeking accreditation.
- **Efficiency:** HLC’s decision-making processes occur approximately four-times per year, whereas SACSCOC makes decisions only twice per year. HLC also maintains a short timeline between routine requests for approval and final decisions, which facilitates institutional innovation and responsiveness to industry needs.
- **Peers:** Many of Florida Poly’s institutional and aspirational peer institutions are members of HLC as illustrated by the following table.

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<thead>
<tr>
<th>Institution</th>
<th>Accrediting Organization</th>
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<tr>
<td><strong>Aspirational</strong></td>
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<tr>
<td>Stevens Institute of Technology</td>
<td>Middle States Commission on Higher Education (MSCHE)</td>
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<tr>
<td>Rose-Hulman Institute of Technology</td>
<td>Higher Learning Commission (HLC)</td>
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<tr>
<td>Colorado School of Mines</td>
<td>Higher Learning Commission (HLC)</td>
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<tr>
<td>Rensselaer Polytechnic Institute</td>
<td>Middle States Commission on Higher Education (MSCHE)</td>
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<tr>
<td>Worcester Polytechnic</td>
<td>New England Commission of Higher Education (NECHE)</td>
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<td><strong>Peer</strong></td>
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<tr>
<td>Missouri University of Science and Technology</td>
<td>Higher Learning Commission (HLC)</td>
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<tr>
<td>New Mexico Institute of Mining and Technology</td>
<td>Higher Learning Commission (HLC)</td>
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<td>Michigan Technological University</td>
<td>Higher Learning Commission (HLC)</td>
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<td>Clarkson University</td>
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<tr>
<td>Florida Institute of Technology</td>
<td>Southern Association of Colleges and Schools Commission on Colleges (SACSCOC)</td>
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f. If applicable, an explanation of how the institution believes the new agency would strengthen institutional quality; and

It is important to begin with some context in order to address this topic. Florida Polytechnic University was created in 2012 by the Florida State legislature and welcomed its inaugural class in fall 2014. Now, in our 9th academic year, we have achieved accreditation candidacy, initial accreditation, and most recently reaffirmation from SACSCOC.

The accreditation process was enormously beneficial to the University’s development and growth. One repeated concern from SACSCOC staff during each of these phases was the difficulty they had in finding reviewers from institutions similar to ours in the southern region. HLC is much larger and includes institutional reviewers on its teams from outside the region as well as within. Thus, the perspectives and inputs from an HLC visit provide greater opportunities for improvement.

As a new University, Florida Poly has undergone huge challenges. As we look toward our 10th academic year in operation, we will welcome it with a new University strategic plan. While this is still in development, our annual Board of Governors’ Accountability Plan includes a “statement of strategy” that contextualizes the University, defines where we are in our development, and what our priorities are over short and long-term.

**Statement of Strategy** Florida Poly continues on its path to become an Engineering University of Distinction ranked in the top 15 of engineering schools nationwide that do not offer a doctoral program. For the coming year we will continue our focused strategy that integrates three critical areas: student quality and growth; faculty quality and growth; academic and student programs and services to support the needs of a residential campus focused on STEM education and industry relations.

The expansion of the student body and the attendant “impact” of the university requires Florida Poly to grow its degree programs so that it is a true polytechnic university with a strategic array of degree offerings. Over the next two years, the University will continue to explore potential academic programs that will expand our portfolio as an engineering school. We grow new degrees consistent with our principles to serve foundational and emerging disciplines, with strong future job demand.

The best and brightest students are attracted to, and increasingly demand, world-class faculty and programs. We are selectively hiring faculty across all our programs and our two-year hiring program that ends in fall of 2022 will have added approximately 25 highly qualified individuals to our campus. This a growth in over 30% of the faculty body. This hiring of faculty is underpinned by the principle that faculty are the keystone element in the institution, and we must add faculty to create an expanded and top engineering academic portfolio rich in applied research and of global significance.

Student programs and services is the third element of our integrated strategy that is focused on growth and excellence. Fall 2021 brought with it a “return to normal” for campus operations with a focus on both the instruction and campus life that a residential campus provides. Entering 2021 – 2022, we began multiple critical projects and changes to improve the quality of the campus. These included the creation of an Academic Review Board to directly address students at-risk, the piloting and roll out of a peer-led learning strategy program connected directly to our critical first-year courses in mathematics and the sciences. The objective of this program is to improve our APR with a notable emphasis on facilitating learning/achievement maturity in students with a goal producing student academic excellence with an improved quality of learning.
Our three-pronged strategy focused on student quality and growth; faculty quality and growth; and highly engaged academic and student programs and services sets the baseline for all planning at Florida Poly. Our mission is: “Serve students and industry through excellence in education, discovery, and application of engineering and applied sciences.” The strategy that we have identified advances this mission with an overarching goal of joining the top fifteen engineering schools that do not grant a doctoral degree. As a small institution we continue to practice agility by proactively addressing areas of concern, building on our successes, and advancing our mission by growing the campus and our value to industry and the Florida economy.

Since its first semester, University enrollment has continued to grow. Starting from an incoming class of 560, we have grown to the almost 1600 students in Academic Year 2022-2023. The University is presently positioning itself for strong growth by building a new residence hall, adding research and classroom space, and building a student center. The University continues to produce high-quality graduates, awarding between 250 and 300 degrees annually over the last three years. Our student population is predominantly traditional aged and comes from throughout the state of Florida, but mainly from Polk County, where we are located, Tampa, and Miami areas. The student population is roughly 30% Pell-recipient, and our graduates start off making the highest salaries of all graduates in the University System.

Given the full context presented here, Florida Poly strongly supports a change to HLC because its operational efficiencies are more conducive to a new, start-up University whose mission includes being responsive to industry needs, which ultimately benefit our students who will work in those industries. HLC processes are modern, utilizing a strong portal system to streamline requests, reports, and exchanges of information that currently, under SACSCOC, remain still a mail-in process. HLC’s Board also meets three times per year (rather than just twice) to make high-level decisions. Additionally, HLC’s Institutional Actions Council (IAC), a body of peer reviewers that meets six to eight times per year, has the delegated authority to make routine approvals, thereby, providing institutions with more timely feedback as they attempt to respond to stakeholder needs and innovate.

A second reason Florida Poly believes HLC membership will strengthen its institutional quality is the stronger, more geographically and culturally diverse mix of quality, public four-year institutions that are HLC members. As noted above, HLC is home to more of Florida Poly’s peer and aspirational peer institutions. This matters because adhering to principles of different agencies risks missing critical pieces of how our peers are successful in ways we are still trying to achieve. While one can simply attempt to copy a program from another institution, the benefit of operating by the same standards is that the nuance of interpretation will also be shared, helping us more accurately address the challenges we face. A common standard and the resulting programs and practices to support that compliance necessarily drives resource allocation, which may not be justifiable under a different agency.

A third reason for changing to HLC is in the area of Governance. Below, we discuss how specific standards in Governance can benefit Florida Poly’s students. But Florida Poly will also benefit from the shared governance process that HLC embraces, particularly as it relates to policy and standards changes where ample opportunities for member input are available. The HLC process is more iterative ensuring in the end, better policy, and better shared practices for implementing and complying with those policies. A few more specific examples of HLC’s governance and stakeholder engagement include:

- Regular contact with governing boards, which supports common understanding of priorities, standards, rules, and other practices that impact all institutions.
• Engages in its own continuous improvement process via tools like annual members’ survey.
• Engages all members in its policy review processes rather than a subset with the authority to review, comment, and approve. HLC has a minimum of two readings and reviews before a policy can be adopted.

g. If applicable, how the new agency’s standards are more closely aligned with the institution’s mission.

In collaboration with our Florida sister institutions, Florida Poly has analyzed standards crosswalks between our current accreditor and the five other candidates. While there are differences among all of the agencies, our focus was less on how closely SACSCOC aligns with a prospective accreditor, but on how the standards that do not match can enhance the University and Florida Poly students.

In reviewing HLC standards alongside SACSCOC Principles, we find a great deal of alignment, although some HLC standards are addressed in different types of compliance documents rather than all in one. For example, HLC’s eligibility requirements, which must necessarily be met for consideration as a member institution, gather together several SACSCOC Principles that are otherwise distributed. By separating these standards, HLC emphasizes the critical importance and focus of standards related to student success and quality improvement, facilitating member institutions’ focus on these important aspects.

HLC has eight standards that do not appear either directly or obliquely in the SACSCOC Principles. These can be grouped and summarized as follows:

- Institutional Governance
- Civic Engagement and standards related to living and working in a global context
- Faculty – Student scholarship.

Governance under HLC standards requires broader, constituent-based input. Students and staff (“where appropriate”) are expected to be included in setting academic requirements, policies, and processes. While Florida Poly does engage these constituents in many areas of University governance, the benefit of conducting self-study to determine compliance with an explicit requirement is that it will continue to push Florida Poly to reevaluate and mature many of these operations. Student engagement and student satisfaction are critical to our success and to the students themselves. The University will benefit from having to reconsider how it engages its students in these capacities and the appropriate boundary conditions that will facilitate the growth of a campus where students want to live and learn.

Several HLC standards not found in SACSCOC directly address civic engagement and graduating students who have experience through their degree program to be successful working in a global environment. Civic engagement has been a priority in Florida in higher education for many years, and this standard brings into alignment those activities with accreditor expectations. The opportunity created by this standard means that our efforts can be more meaningfully integrated in different aspects of campus life. As engineers and applied scientists, it is critical that our graduates demonstrate a knowledge and facility with understanding and working in diverse cultures and in a global context. While this is an expectation for our ABET accredited programs, the positioning of it at the institutional level with accreditation compliance implications presents an opportunity to think through all aspects of student curricular and co-curricular experience supports all of our majors.
HLC also includes a standard specifically related to faculty and student scholarship. While at this time, we are not fully read-in on the nuances of this standard, the emphasis on student-faculty collaboration is, again, something we already do, but not in a fully conceived institutional context. This standard likewise gives us the opportunity to build this systemically to the benefit of students and faculty alike.

One final point to make on this topic. The benefits of membership are not limited simply to having to address some different standards that may align strategically with a University’s plan. Rather, membership means access to the wisdom and experience of all member institutions that also have to address these specific things. Engagement with an accreditor is not just about shaping an institution to ensure compliance with standards and best practices, but it is also about participating in the dialogue around these issues with other member institutions.

**TIMELINE**
Florida Polytechnic University’s next scheduled accreditation review is the 5th year review, due in 2028. Backing up from there with two years of preparation puts us in 2026 to earnestly begin building the report and gathering the evidence. Considering preparation time needed for an HLC application and the subsequent processing and review time, we respectfully ask the U.S. Department of Education for its decision by August 2023.

**Documentation from Current Primary Accrediting Agency**
- a. Most recent determination letter
- b. Documentation that the institution remains in good standing since the determination letter; and
- c. Any substantive correspondence or other communications with the agency relating to the institution’s accreditation status, requests for information, or inquiries since the most recent determination letter.
- d. Substantive correspondence, if applicable, with the new accrediting agency relating to the institution’s planned application.
§ 600.11 Special rules regarding institutional accreditation or preaccreditation.

(a) Change of accrediting agencies.

(1) For purposes of §§ 600.4(a)(5)(i), 600.5(a)(6), and 600.6(a)(5)(i), the Secretary does not recognize the accreditation or preaccreditation of an otherwise eligible institution if that institution is in the process of changing its accrediting agency, unless the institution provides the following to the Secretary and receives approval:

(i) All materials related to its prior accreditation or preaccreditation.

(ii) Materials demonstrating reasonable cause for changing its accrediting agency. The Secretary will not determine such cause to be reasonable if the institution-

(A) Has had its accreditation withdrawn, revoked, or otherwise terminated for cause during the preceding 24 months, unless such withdrawal, revocation, or termination has been rescinded by the same accrediting agency; or

(B) Has been subject to a probation or equivalent, show cause order, or suspension order during the preceding 24 months.

(2) Notwithstanding paragraph (a)(1)(ii) of this section, the Secretary may determine the institution's cause for changing its accrediting agency to be reasonable if the agency did not provide the institution its due process rights as defined in § 602.25, the agency applied its standards and criteria inconsistently, or if the adverse action or show cause or suspension order was the result of an agency's failure to respect an institution's stated mission, including religious mission.

(b) Multiple accreditation. The Secretary does not recognize the accreditation or preaccreditation of an otherwise eligible institution if that institution is accredited or preaccredited as an institution by more than one accrediting agency, unless the institution-

(1) Provides to each such accrediting agency and the Secretary the reasons for that multiple accreditation or preaccreditation;

(2) Demonstrates to the Secretary reasonable cause for that multiple accreditation or preaccreditation.

(i) The Secretary determines the institution's cause for multiple accreditation to be reasonable unless the institution -
(A) Has had its accreditation withdrawn, revoked, or otherwise terminated for cause during the preceding 24 months, unless such withdrawal, revocation, or termination has been rescinded by the same accrediting agency; or

(B) Has been subject to a probation or equivalent, show cause order, or suspension order during the preceding 24 months.

(ii) Notwithstanding paragraphs (b)(2)(i)(A) and (B) of this section, the Secretary may determine the institution's cause for seeking multiple accreditation or preaccreditation to be reasonable if the institution's primary interest in seeking multiple accreditation is based on that agency's geographic area, program-area focus, or mission; and

(3) Designates to the Secretary which agency's accreditation or preaccreditation the institution uses to establish its eligibility under this part.

(c) Loss of accreditation or preaccreditation.

(1) An institution may not be considered eligible for 24 months after it has had its accreditation or preaccreditation withdrawn, revoked, or otherwise terminated for cause, unless the accrediting agency that took that action rescinds that action.

(2) An institution may not be considered eligible for 24 months after it has withdrawn voluntarily from its accreditation or preaccreditation status under a show-cause or suspension order issued by an accrediting agency, unless that agency rescinds its order.

(d) Religious exception.

(1) If an otherwise eligible institution loses its accreditation or preaccreditation, the Secretary considers the institution to be accredited or preaccredited for purposes of complying with the provisions of §§ 600.4, 600.5, and 600.6 if the Secretary determines that its loss of accreditation or preaccreditation -

(i) Is related to the religious mission or affiliation of the institution; and

(ii) Is not related to its failure to satisfy the accrediting agency's standards.

(2) If the Secretary considers an unaccredited institution to be accredited or preaccredited under the provisions of paragraph (d)(1) of this section, the Secretary will consider that unaccredited institution to be accredited or preaccredited for a period sufficient to allow the institution to obtain alternative accreditation or preaccreditation, except that period may not exceed 18 months.

(Authority: 20 U.S.C. 1099b)

[59 FR 22336, Apr. 29, 1994, as amended at 85 FR 58916, Nov. 1, 2019]
Institutional Accrediting Agencies:

Recently, the Department of Education (Department) has received inquiries regarding the “voluntary membership” requirement for federally recognized accrediting agencies in 34 C.F.R. § 602.14(a). In this letter, we respond to those inquiries and clarify the voluntary membership requirement of the accreditation regulations.

Historically, accreditation in the United States began with a voluntary association of institutions of higher education that sought to develop a consensus on the content of the educational programs offered by postsecondary educational institutions and on the distinctions between educational offerings at secondary and postsecondary institutions. By the 1970s, most institutions of higher education voluntarily participated in the accreditation process to ensure a mark of quality and a common level of academic standards for their respective institutions.

Congress, in creating the overall statutory schema for higher education starting with the Higher Education Act of 1965 (HEA), recognized the importance of an institution of higher education's voluntary membership in an accrediting agency or accrediting association beginning with the Higher Education Amendments Act of 1992. Indeed, a voluntary association for quality assurance, as opposed to a compelled one, or even one centralized through or by the federal government, is one of the unique features of American higher education. This voluntary association is intended to engender a willing and cooperative environment for the review and improvement of educational programs at American institutions of higher education.

Similarly, through the Higher Education Amendments Act of 1992, Congress established the concept of the program integrity triad, consisting of States, accrediting agencies, and the Department. The members of the triad work together to ensure quality in higher education, but with distinct principal areas of responsibility for each member.

The Department, following the statutory schema of the 1992 HEA reauthorization, included the voluntary requirement in its initial accreditation regulations in 1994. Today, “voluntary membership” remains a requirement for the Secretary’s recognition of accrediting agencies under § 602.14(a)(2), (a)(3), and (a)(4). As used in § 602.14, the word “voluntary” is important

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2 Id. at 2.
in defining the expected nature and quality of the relationship between an accrediting agency and the institutions it accredits.

Because the requirement of voluntary association between accrediting agencies and institutions has been an accepted norm, the Department has not previously had reason to further consider the requirement. However, Florida law SB 7044, which took effect on July 1, 2022, requires public institutions in Florida to seek new accrediting agencies, which potentially undermines the voluntary nature of the relationship and the independent roles of the various actors in the triad. Thus, the Department has reexamined the issue of voluntary membership in two circumstances: when institutions seek to change accrediting agencies (or seek multiple accreditation) and when the Department reviews accrediting agencies as part of the recognition process.

Under 20 USC 1099b(h) and (i) and § 600.11(a) and (b), institutions must submit materials to the Department demonstrating reasonable cause for changing their accrediting agency or for having multiple accrediting agencies. This requirement provides critical protections for students and taxpayers by ensuring that institutions do not switch accrediting agencies simply to evade accountability, avoid open inquiries, or seek approval from an agency with less rigorous standards. In a Dear Colleague Letter (DCL) published today, the Department has clarified that institutions must submit to the Department such materials and receive Departmental approval prior to submitting their application to a new accrediting agency. The Department has further clarified that, as part of its review, it will consider the rationale provided, the institution’s history of compliance, and past accrediting agency actions. Because the Department only recognizes accrediting agencies that have a voluntary membership of institutions of higher education, in reviewing for “reasonable cause” for changing or adding accreditors, the Department will also consider whether the materials provided support a finding that the institution’s membership in the new accrediting agency would be voluntary. Following its review of the materials, the Department will notify the institution whether the Department has determined there is reasonable cause for the change (or multiple accreditation).

As required under § 602.14, the Department will also examine the issue of voluntariness when it conducts its agency recognition review. Even if the Department has found, based on the information available to the Department at the time of review, reasonable cause under § 600.11, agencies should conduct their own independent evaluation of whether an institutional change of accrediting agencies (or multiple accreditation) is voluntary. Because an accrediting agency’s relationships with its member institutions are case- and fact-specific, the agency may come to a different conclusion than the Department. To help avoid a finding of noncompliance with § 602.14, agencies should consider whether accrediting an institution will compromise the voluntary nature of their membership prior to approving a membership application.

Even if the Department has found reasonable cause with respect to an agency’s member institutions pursuant to a review under § 600.11, it will again consider all relevant factors, based on the most recently available information, when conducting a recognition review under § 602.14. If, after having reviewed all the relevant factors, the Department determines that an


accrediting agency does not have a voluntary membership, as required for recognition by the Department under section 1099b(a)(2) of the HEA and § 602.14(a), the Department will be unable to recognize the accrediting agency.

We hope that this letter provides clarification regarding these questions to the accreditation community, and we thank you for your engagement with the Department as we all work to address and participate in a changing landscape consistent with existing law.

Sincerely,

/s/

Herman Bounds Jr., Ed.S
Director, Accreditation Group
Dear Colleague:

Under section 496(h) of the Higher Education Act of 1965, as amended, (HEA) (20 U.S.C. 1099b(h)), an institution seeking to change its accrediting agency must submit to FSA all materials relating to the prior accreditation and materials demonstrating reasonable cause for changing the accrediting agency. This requirement helps prevent an erosion of accrediting agency standards and provides critical protections for students and taxpayers by ensuring that institutions do not switch accrediting agencies simply to evade accountability, avoid open inquiries, or seek approval from an agency with less rigorous or easier-to-meet standards.

The Department has implemented this statutory requirement via 34 CFR § 600.11(a), which requires an institution to provide all materials related to its prior accreditation or preaccreditation, to provide materials demonstrating reasonable cause for changing its accrediting agency, and to receive the Department’s approval prior to switching accrediting agencies. In this announcement, the Department is further detailing its expectations and requirements to ensure that institutions are aware of the standards to which they will be held if they seek to change their accrediting agency-of-record with FSA and/or maintain accreditation with multiple institutional agencies. We remind institutions that, in evaluating an institution’s demonstration of reasonable cause for doing so, the Department will consider the institution’s history of compliance, past accrediting agency actions, open inquiries, and the rationale provided, as described further in this guidance.

Reasonable Cause

To carry out its responsibilities under 34 CFR § 600.11, FSA must make a reasonable cause determination.

Under § 600.11 (a) and (b), except in the circumstances described in the following paragraph, FSA will not determine an institution’s cause to be reasonable if the institution:

- Has had its accreditation withdrawn, revoked, or otherwise terminated for cause during the preceding 24 months, unless such withdrawal, revocation, or termination has been rescinded by the same accrediting agency.
- Has been subject to a probation or equivalent, show cause order, or suspension order during the preceding 24 months.

Notwithstanding the foregoing, under 34 CFR § 600.11, FSA may determine the institution’s cause for changing its accrediting agency to be reasonable under such circumstances if the existing agency did not provide the institution its due process rights as defined in 34 CFR § 602.25, the agency applied its standards and criteria inconsistently, or if the adverse action or show cause or suspension order was the result of an agency’s failure to respect an institution’s stated mission, including religious mission. Further, FSA may determine the institution’s cause for seeking multiple accreditations to be reasonable if the institution’s primary interest in seeking multiple accreditations is based on its geographic area, program area focus, or mission.

In all other cases, in making a reasonable cause determination, FSA must review the specific circumstances of the institution, which may include the institution’s past history of compliance with the requirements of its accrediting agency, the Department, or other oversight agencies; the institution’s financial stability; and other information about the institution available to FSA.
may consider factors such as the following when evaluating a proposed change in accrediting agencies (or an application to have more than one institutional accrediting agency):

1. The institution's stated reason for the proposed change or multiple accreditations.

2. Whether the institution is seeking to change accrediting agencies or multiple accreditations to lessen oversight or rigor, evade inquiries or sanctions, or the risk of inquiries or sanctions by its existing accrediting agency.

3. Whether the proposed change of agencies or multiple accreditations would strengthen institutional quality.

4. Whether the institution is seeking to change agencies or seeking multiple accreditations because the new agency and its standards are more closely aligned with the institution's mission than the current accrediting agency.

5. Whether the proposed change or addition involves an accrediting agency that has been subject to Department action.

6. Whether, if ultimately approved by the Department and the accrediting agency, the institution's membership in the accrediting agency would be voluntary, as required for recognition of the accrediting agency under 34 CFR § 602.14(a) (i).

The Department sent a letter to federally recognized institutional accrediting agencies further detailing the significance of voluntary membership in accrediting decisions as required under 34 CFR § 602.14(a) (i). That letter is available at the Office of Postsecondary Education's website.

As part of its reasonable cause determination, FSA may request records from the institution's current accrediting agency. In all cases, it is incumbent on the institution to provide sufficient evidence to demonstrate the reasonableness of the requested change.

Contact Information

For more information, please contact the Department at CaseTeams@ed.gov.

Sincerely,

Annmarie Weisman
Deputy Assistant Secretary for Policy, Planning, and Innovation
Office of Postsecondary Education
Dear Colleague:

In a previous Electronic Announcement published Aug. 5, 2016, the Department reminded institutions of the requirements for seeking FSA approval of a change of primary accrediting agency, including the documentation an institution must submit to FSA in support of a request to change a primary accrediting agency. The Department also specified the procedures for submitting such documentation. This communication updates the procedures for submitting documentation to change or add an accrediting agency by requiring an institution to submit the required documentation to the Department prior to submitting an application to a new accrediting agency. Accordingly, this communication revokes and supersedes the Aug. 5, 2016, announcement. To the extent institutions have begun the process of changing or adding an accrediting agency and relied on the 2016 EA, they must immediately inform the Department consistent with the procedures described below.

Under 34 CFR § 600.11(a) and (b), respectively, the Secretary does “not recognize the accreditation or preaccreditation” of an institution “that is in the process of changing accrediting agencies” or that is accredited or preaccredited “by more than one accrediting agency” unless the institution provides the Department information demonstrating “reasonable cause” for changing or adding accrediting agencies and receives Department approval. Therefore, to ensure that an institution maintains recognition of its accreditation or preaccreditation under 34 CFR § 600.11, an institution must provide the required information and obtain the Department’s approval prior to submitting an application to a new accrediting agency. We believe that these procedures are in better alignment with the requirements of 34 CFR § 600.11, will provide clarity to institutions and afford them earlier information about Department approval, and will help protect institutions from an inadvertent loss of Title IV eligibility.

Accordingly, an institution must take the following steps to change its primary accrediting agency or add a new accrediting agency:

1. Prior to submitting an application to the new accrediting agency, an institution must notify FSA in writing of its intent to change its primary accrediting agency or add a new accrediting agency. With its notification, the institution must submit to FSA documentation of its current accreditation and materials demonstrating reasonable cause for changing or adding an accrediting agency. Institutions should submit this notification and required documentation via email to CaseTeams@ed.gov with a subject line “Notification Regarding Accreditation.” An institution should include with this notification the materials required by 34 CFR 600.11(g)(1), for a change of primary accrediting agency or 34 CFR 600.11(b)(1) through (3), for multiple accrediting agencies, including a cover letter that includes the following:

   a. The name of the institution's current primary accrediting agency and the name of the institution's proposed new agency.
b. Whether the institution is seeking to change primary accrediting agencies or seeking multiple accreditation;

c. If the institution is seeking multiple accreditation, whether the institution plans to relinquish accreditation by its current primary accrediting agency and, if so, the timeframe for relinquishment;

d. The date that the institution's current accreditation is set to expire;

e. The reason(s) the institution is seeking the change;

f. If applicable, an explanation of how the institution believes the new agency would strengthen institutional quality; and

g. If applicable, how the new agency's standards are more closely aligned with the institution's mission.

The institution must also provide supporting materials demonstrating reasonable cause for the change, including documentation to support the institution's claim that it has reasonable cause to change accrediting agencies (or have multiple accrediting agencies).

The institution must include the following documentation from its current primary accrediting agency:

a. Most recent determination letter;

b. Documentation that the institution remains in good standing since the determination letter; and

c. Any substantive correspondence or other communications with the agency relating to the institution's accreditation status, requests for information, or inquiries since the most recent determination letter.

Finally, the institution must provide any substantive correspondence or other communications with the new accrediting agency, including any substantive correspondence or other communications with the agency relating to the institution's planned application. Note that non-substantive communications—such as routine scheduling—do not need to be provided.

2. Prior to submitting its application to the new accrediting agency, the institution must receive notification from FSA that the institution (a) has provided all the required documentation, (b) has demonstrated reasonable cause for changing its primary accrediting agency or for maintaining accreditation by multiple agencies, and (c) has the Department's approval under 34 CFR 600.11.

3. Once the institution has received the notification from FSA described in Step 2 and has secured new accreditation (or, for nonprofit or public institutions, preaccreditation by an agency that is recognized by the Department to grant preaccreditation status), it must formally notify FSA of the new accreditation in the online electronic application (E-App) and update the "primary accreditor" indicator if it is changing. The institution should include documentation of its accreditation or preaccreditation by the new agency as part of the supporting information it provides to FSA through the E-App process. The institution must also submit a copy of the notification that it received from FSA in response to the first step of these procedures. The institution was required to receive this notification before submitting an application to the new accrediting agency.

An institution should not drop its association with its current accrediting agency until after (a) the Department has approved the institution's request to change its primary accrediting agency or add an accrediting agency, (b) the new agency has granted accreditation to the institution, and (c) the Department has provided written notice that it acknowledges the new accrediting agency as the institution's primary accrediting agency or the multiple accreditations. Failure to comply with these procedures may result in the institution’s accreditation status not being recognized by the Secretary and could result in a loss of Title IV eligibility.

Contact Information

For more information, please contact the Department at CaseTeams@ed.gov.

Sincerely,

Richard Cordray
Chief Operating Officer
Federal Student Aid
Overview

Accreditation is a process of external review used by the higher education community to assure quality & promote ongoing improvement. Accreditors are private, non-profit organizations whose members are colleges & universities.

The primary functions of accreditation agencies include the following.

- Assess the quality of academic programs at institutions of higher education.
- Create a culture of continuous improvement at colleges & universities & stimulate a general raising of standards among universities.
- Involve faculty & staff extensively in university evaluation & planning.

Accreditation relies on a rigorous peer-review process to define & evaluate whether universities meet high standards. While each accreditor establishes standards, the standards must meet basic federal requirements to ensure consistency across accrediting agencies. Accreditors regularly assess member institutions to ensure the institutions continue to meet the standards.

As part of information gathering for this document, Board staff completed the following.

- Review of accreditor websites, bylaws, & accreditation standards
- Regular meetings with accreditation liaisons from all 12 State University System universities
- Meetings with accreditor representatives
- Meetings with Florida College System representatives

This document provides information on the following topics across six identified accreditors.
Board of Governors Staff has identified the following additional accreditors as suitable for the State University System of Florida:

- Higher Learning Commission
- Middle States Commission on Higher Education
- New England Commission of Higher Education
- Northwest Commission on Colleges and Universities
- Senior College and University Commission

**Quality & Governance**
- Each accreditor states it prioritizes academic quality & inclusive governance

**Standards**
- Standards are generally comparable across all accreditors with nuanced differences
- A comprehensive review of each accreditor’s standards is needed by individual universities

**Accreditation Processes**
- Four accreditors have developed streamlined processes for reviewing currently accredited universities in good standing, & the fifth (MSCHE) is in the process of developing a process

**Costs**
- The majority of costs universities incur are expenses required to maintain accreditation
- University expenses will temporarily increase during the transition to a new accreditor

**Accrediting Agency Membership**
- HLC (995) & MSCHE (519) have the largest number of member institutions
- The membership of each accreditor includes universities in the Top 100 public universities ranked by U.S. News & World Report
- Four of the accreditors accredit members of the Association of American Universities (AAU)

**Additional Considerations**
- Each accreditor will differ in its ability & willingness to accommodate new members
- Each accreditor's governing board determines the extent to which the accreditor can expand membership
- Accreditation liaisons from the State University System's 12 universities have noted there is a beneficial synergy to having all universities accredited by the same accreditor

The leadership of each state university will need to review these factors in light of missions, goals, & priorities to determine which accreditor would be the best fit.
Florida public universities are accredited by the Southern Association of Colleges & Schools Commission on Colleges (SACSCOC), established in 1895. This accreditation status allows course credits from Florida public universities to transfer to other accredited universities, enables distribution of federal student aid funds to students, and permits access to federal grant funds.
Accreditors recognized by the U.S. Department of Education (USDOE) must follow certain criteria:
- Ensure its ability to provide a quality education
- Help facilitate the smooth transfer of credits among colleges & universities
- Promote confidence to private sector employers who hire its graduates
- Universities accredited by recognized agencies may distribute federal student aid & are eligible for federal grants

**Requirements for Accréditor Standards**
Accreditors must consider the following information when developing accreditation standards:

- Student achievement
- Curricula
- Faculty
- Facilities, equipment, & supplies
- Fiscal & administrative capacity
- Student support services
- Recruiting & admissions practices
- Academic calendars, catalogs, publications, grading, & advertising
- Student complaints
- Program length
- Degree or credential objectives
- Compliance with program responsibilities under Title IV of the Higher Education Act
- Preaccreditation standards
  - Related to the accreditation standards
  - Five-year limit on preaccreditation status

**Requirements for Accréditor Monitoring & Reevaluation of Member Institutions**
Accreditors must monitor & reevaluate institutions, collect reports, & track institutional growth:

- Reevaluate institutions regularly
- Monitor & evaluate to identify issues
- Collect periodic reports & key indicators of performance
  - Fiscal
  - Student achievement
  - Additional reports
- Monitor institutional growth
- Collect annual head-count enrollment data
- Monitor program growth at institutions experiencing significant enrollment growth

**Requirements for Accréditor Internal Review of Standards**
Accreditors must internally review accreditation standards:

- Comprehensive
- Occur at regular intervals or on an ongoing basis
- Examine standards separately & as a whole
- Involve all constituencies
- Allow meaningful input from constituents
- Before finalizing changes:
  - Provide notice to relevant constituencies
  - Allow constituencies to comment
  - Review & respond to any comments

*This does not apply if none of the institutions the agency accredits participate in any Title IV Higher Education Act programs or if the agency only accredits programs within institutions accredited by a recognized institutional accrediting agency.

**This does not apply if the institution does not participate in any Title IV Higher Education Act programs.
The USDOE currently recognizes both regional & national accrediting agencies as "institutional" accreditors. Regional accreditors accredit institutions comparable to those in the State University System of Florida.

### Formerly Regional Accreditors
- **Scope**: Majority are public & non-profit private
- **Member Institutions**: Focus on comprehensive degree-granting institutions including all AAU & US News & World Report Top 100 public institutions
- **Credit Transfers**: Credits widely accepted
- **# of Accreditors Recognized by the USDOE**: 6

### Formerly National Accreditors
- **Scope**: Majority are for-profit
- **Member Institutions**: Focus on trade & vocational schools, career programs, faith-based institutions, & online colleges
- **Credit Transfers**: Credits not widely accepted
- **# of Accreditors Recognized by the USDOE**: 20

### Accrediting Agencies Recognized by the USDOE
- **SIX REGIONAL ACCREDITORS**
  - Higher Learning Commission (HLC)
  - Middle States Commission on Higher Education (MSCHE)
  - New England Commission of Higher Education (NECHE)
  - Northwest Commission on Colleges & Universities (NWCCU)
  - Southern Association of Colleges & Schools Commission on Colleges (SACSCOC)
  - WASC Senior Colleges & Universities Commission (WSCUC)

### EXAMPLES OF NATIONAL ACCREDITORS
- Accrediting Commission of Career Schools & Colleges
- Accrediting Council for Continuing Education & Training
- Council on Occupational Education
- Association for Biblical Higher Education, Commission on Accreditation
- Association of Institutions of Jewish Studies
- National Association of Schools of Dance, Commission on Accreditation
- National Association of Schools of Music, Commission on Accreditation
- Distance Education Accrediting Commission
Accrediting Agency Types
Regional Accrediting Agencies

- Regional accreditors historically served specific regions of the country
- As of July 2020, accreditors are allowed to accredit institutions outside traditional regional boundaries
- All regional accreditors require a reaffirmation review every 6-10 years

Traditional Regional Accreditor Boundaries (Pre-2020)

<table>
<thead>
<tr>
<th>Accreditor Processes</th>
<th>SACSCOC</th>
<th>HLC</th>
<th>MSCHE</th>
<th>NECHE</th>
<th>NWCCU</th>
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<td>6, 8, or 10 Years**</td>
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*HLC offers two pathways to accreditation: Standard Pathway & Open Pathway. The Standard Pathway includes a comprehensive evaluation in year 4. The Open Pathway includes an assurance review in year 4 & a quality initiative in years 5-9.
**WSCUC noted that most institutions initially accredited will be put on a 6 year cycle; however, the cycle may vary based on the readiness of the institution.
Source: Map from the Council of Higher Education Accreditation
• All public universities on the U.S. News & World Report Top 100 Public Universities list are accredited by regional accreditors
• All public universities within the Association of American Universities (AAU) are accredited by regional accreditors

Number of Member Universities in the U.S. News & World Report Top 100 Public Universities*

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Number of Public Member Universities in the AAU

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<td>NECHE</td>
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**The SUS universities in the U.S. News & World Report Top 100 Public Universities list are University of Florida (5th), Florida State University (19th), University of South Florida (46th), University of Central Florida (67th), & Florida International University (78th). The only SUS university in the AAU is University of Florida.

*Total adds to 103 institutions because of ties in the rankings.
### Background

**Member Institutions by Type**

- SACSCOC & HLC have the largest number of member institutions
- HLC has the most similar institutional makeup compared to SACSCOC
- NWCCU has the highest proportion of public institution membership

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<th>Institution Type</th>
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<td><img src="image" alt="Building" /></td>
<td><img src="image" alt="Building" /></td>
<td><img src="image" alt="Building" /></td>
</tr>
<tr>
<td>Total: 235</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WSCUC</td>
<td><img src="image" alt="Building" /></td>
<td><img src="image" alt="Building" /></td>
<td><img src="image" alt="Building" /></td>
<td><img src="image" alt="Building" /></td>
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<tr>
<td>Total: 228</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NWCCU</td>
<td><img src="image" alt="Building" /></td>
<td><img src="image" alt="Building" /></td>
<td><img src="image" alt="Building" /></td>
<td><img src="image" alt="Building" /></td>
</tr>
<tr>
<td>Total: 163</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Each building represents 100 member institutions.
### Federal Requirements for Board Membership

**Accreditors**
- Academic & administrative personnel
- Public representatives

### Public University Representation

- WSCUC & NWCCU have the highest percentage of board representatives from public universities

<table>
<thead>
<tr>
<th>Key</th>
<th>Public Universities</th>
<th>Public Colleges</th>
<th>Community &amp; Technical Colleges</th>
<th>Private Institutions</th>
<th>Public Members</th>
<th>Other Representatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>SACSCOC* (79)</td>
<td>22%</td>
<td>8%</td>
<td>23%</td>
<td>30%</td>
<td>14%</td>
<td>4%</td>
</tr>
<tr>
<td>HLC (16)</td>
<td>19%</td>
<td>6%</td>
<td>25%</td>
<td>25%</td>
<td>19%</td>
<td>6%</td>
</tr>
<tr>
<td>MSCHE (28)</td>
<td>14%</td>
<td>4%</td>
<td>18%</td>
<td>36%</td>
<td>21%</td>
<td>7%</td>
</tr>
<tr>
<td>NECHE (30)</td>
<td>20%</td>
<td>3%</td>
<td>7%</td>
<td>43%</td>
<td>20%</td>
<td>7%</td>
</tr>
<tr>
<td>NWCCU (21)</td>
<td>33%</td>
<td>10%</td>
<td>24%</td>
<td>19%</td>
<td>15%</td>
<td>14%</td>
</tr>
<tr>
<td>WSCUC (33)</td>
<td>39%</td>
<td>33%</td>
<td>15%</td>
<td>12%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Information obtained from the SACSCOC website. According to SACSCOC Standing Rules, the board must consist of 33 individuals connected with institutions offering undergraduate & graduate programs or only graduate programs (2 from each state), 22 individuals connected with institutions offering only undergraduate programs (1 from each state), 10 academics connected or employed by a member institution in the geographical territory of SACSCOC, 1 individual representing international member institutions, & 11 individuals representing the public.*
SACSCOC Florida Delegation

SACSCOC Delegations
- Each of the 11 states accredited by SACSCOC has a delegation of representatives on the board
- One SUS representative is a member of the Florida delegation

### SACSCOC Florida Delegation

<table>
<thead>
<tr>
<th>Representative</th>
<th>Count</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Universities</td>
<td>1</td>
<td>University of Central Florida</td>
</tr>
<tr>
<td>Gateway College</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Colleges</td>
<td>3</td>
<td>Gateway College, North Florida College, Northwest Florida State College</td>
</tr>
<tr>
<td>Private Institutions</td>
<td>2</td>
<td>St. Thomas University, Webber International University*</td>
</tr>
<tr>
<td>Public Members</td>
<td>1</td>
<td>Florida State Senator Anitere Flores</td>
</tr>
</tbody>
</table>

*Chair of state delegation
Executive Councils

Governance

Executive Councils of Accreditors
- Executive councils are a subset of board members that act on behalf of the board between meetings

<table>
<thead>
<tr>
<th>Accreditor</th>
<th>Public Universities</th>
<th>Public Colleges</th>
<th>Community &amp; Technical Colleges</th>
<th>Private Institutions</th>
<th>Public Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>SACSCOC</td>
<td>15%</td>
<td>31%</td>
<td>46%</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>HLC</td>
<td>50%</td>
<td></td>
<td>33%</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>MSCHE</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>13%</td>
<td>13%</td>
</tr>
<tr>
<td>NECHE</td>
<td>33%</td>
<td></td>
<td>50%</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>NWCCU</td>
<td>14%</td>
<td>29%</td>
<td>43%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>WSCUC</td>
<td>44%</td>
<td></td>
<td>33%</td>
<td>22%</td>
<td></td>
</tr>
</tbody>
</table>
## Leadership Selection

- The president is selected & evaluated by either a board or the executive committee

<table>
<thead>
<tr>
<th>Presidential Processes</th>
<th>SACSCOC</th>
<th>HLC</th>
<th>MSCHE</th>
<th>NECHENWCCU</th>
<th>WSCUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection Body</td>
<td>Executive Council</td>
<td>Board of Trustees</td>
<td>Executive Committee</td>
<td>Executive Committee</td>
<td>Board of Commissioners</td>
</tr>
<tr>
<td>Annual Evaluation Conducted by</td>
<td>Executive Council</td>
<td>Board of Trustees</td>
<td>Executive Committee</td>
<td>Executive Committee</td>
<td>Board Chair</td>
</tr>
<tr>
<td>Presidential Termination Authority</td>
<td>Unknown</td>
<td>Board of Trustees</td>
<td>Executive Committee</td>
<td>Executive Committee</td>
<td>Board of Commissioners</td>
</tr>
</tbody>
</table>
| Presidential Powers   | • Supervise & direct management & operation of the corporation  
 • Make all policy decisions between board meetings  
 • Supervise employees between board meetings  
 • Manage activities  
 • Employ & terminate staff  
 • Provide leadership  
 • Execute documents on behalf of the board that are consistent with board direction  
 • Day-to-day managerial responsibility  
 • Employ & terminate staff  
 • Execute documents or other instruments authorized by the Commission  
 • Perform other duties, as necessary  
 • Employ & terminate staff  
 • Manage activities  
 • Provide leadership  
 • Execute documents on behalf of the board  
 • Supervise, direct, & control affairs, property, & staff  
 • General powers, duties, & authorities vested in the chief executive office  
 • Manage operations consistent with financial plan or operating budget from board | Board of Trustees | Executive Committee | Executive Committee | Board of Commissioners | Unknown |

*President & chief executive officer are used interchangeably.*
Accreditation Standards

Key Findings

Accreditation standards for all accreditors must comply with USDOE requirements

- Standards from all six regional accreditors were reviewed
- Standards among accreditors are generally comparable
- All accreditors are focused on quality & student success; however, distinctive approaches for the review & approval of compliance may be employed by each accreditor

Review of Accréditor Standards

1. Accreditation emphasizes quality & student success
The goal of accreditation is to ensure that the education provided by institutions of higher education meets levels of quality that ultimately leads to student success. Accreditation ensures that universities are focused on providing a quality education to their students. Universities distinguish themselves by going above & beyond the accreditation standards to achieve a higher level of quality.

2. Standards are generally comparable across all accreditors with nuanced differences
All accreditors have standards relative to the following: integrity; mission; eligibility; governance; administration & organization; faculty; planning & effectiveness; student achievement; academic programs; academic & student support services; financial & physical resources; library & learning/information resources; transparency & university representation; & educational policies, procedures, & practices. However, there are some differences between each accréditeur’s definitions & approaches to evaluating standards which could impact university policies & processes. Universities may be challenged upholding current standards while meeting the standards of the new accréditeur.

3. An in-depth collaborative review with accreditating agency staff is required
This preliminary review of standards was focused on the suitability of each accréditeur for State University System universities. As each university prepares to change its accreditor, an in-depth review of each accréditeur’s standards & policies will need to occur. This in-depth review will be an extensive process, including ongoing consultation with the chosen accreditor & accreditation consultants.
Accreditation Process

Steps Required

Changing accreditors is a multi-step process
- State University System universities has been bound to SACSCOC since 1913
- Rules regarding institutional change of accreditors can be found in Title 34 Code of Federal Regulations, 600.11
- The Federal rule change in 2020 allows institutions to switch accreditors & increases national competitiveness among accreditors
- This change allows universities to choose an accreditor based on quality & fit

Prior to applying to a new accreditor, each university must receive approval from the USDOE

1. University provides the following to the USDOE
   - Accreditation & preaccreditation materials
   - Reasonable cause
2. University applies for membership with the different accreditor while maintaining SACSCOC accreditation
3. University receives membership from different accreditor & notifies the USDOE
4. University must maintain SACSCOC accreditation until the USDOE provides written acknowledgment of accreditation change

Per Code of Federal Regulations Title 34 Part 602.14, the Secretary will only recognize an accrediting agency with voluntary membership of higher education institutions
**Accreditation Process**

### Initial Application Timeline

**Universities must maintain accreditation with SACSCOC until granted accreditation with a different accreditor**

<table>
<thead>
<tr>
<th></th>
<th>HLC</th>
<th>MSCHE</th>
<th>NECHE</th>
<th>NWCCU</th>
<th>WSCUC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transition Timeframe</strong></td>
<td><strong>Within 18 months</strong></td>
<td><strong>23-30 Months</strong></td>
<td><strong>8 Months</strong></td>
<td><strong>A few months-years</strong></td>
<td><strong>Not provided</strong></td>
</tr>
</tbody>
</table>

### Key

- **University Trigger** (Reaffirmation or Fifth Year Review)
- **Begin process of applying for accreditation**
- **Relinquish SACSCOC accreditation**

#### NECHE

- **Application Process**
- **Maintain New Accreditation**
- **SACSCOC Accreditation**

#### NWCCU

- **Application Process**
- **Maintain New Accreditation**
- **SACSCOC Accreditation**

#### HLC

- **Application Process**
- **Maintain New Accreditation**
- **SACSCOC Accreditation**

#### MSCHE

- **Application Process**
- **Maintain New Accreditation**
- **SACSCOC Accreditation**

### Month Table

| Month | 1 | 6 | 12 | 15 | 18 | 21 | 24 | 27 | 30 |

*All agencies indicated that the duration of the application process is institution specific. For WSCUC, we assume a 1.5-year application process. For NWCCU we assume a 1-year application process.*
Accreditation Process
Midpoint Review & Reaffirmation Timeline

| Accreditation is fundamentally iterative, timelines are approximated |
|----------------------|------------------|------------------|------------------|------------------|------------------|
|                       | HLC              | MSCHE            | NECHE            | NWCCU            | WSCUC            |
| **Midpoint review**   | Year 4           | Not applicable*  | Year 5           | Year 3           | Not applicable** |
| **Reaffirmation**     | Year 10          | Year 8           | Year 10          | Year 7           | Year 6, 8 or 10*** |

*MSCHE includes an interim report on its website, but suggested we exclude this report from our estimates as it is under review. Member institutions must undergo a self-study as part of reaffirmation. Therefore, this review is included in the cost estimates, but not the timeline overview.

**No standard interim report is required by WSCUC; however 90% of member institutions undergo some type of interim review at various points of time determined on a case-by-case basis.

***WSCUC noted that most institutions initially accredited will be put on a 6 year cycle; however, the cycle may vary based on the readiness of the institution.
## Accreditation Process

### Mid-point Reviews

Most accreditors include a mid-point review halfway through the course of the accreditation cycle.

<table>
<thead>
<tr>
<th>Institution</th>
<th>SACSCOC</th>
<th>HLC</th>
<th>MSCHE</th>
<th>NECHE</th>
<th>NWCCU</th>
<th>WSCUC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institutional Report</strong></td>
<td>✔️</td>
<td>✔️</td>
<td>✗ **</td>
<td>✔️</td>
<td>✔️</td>
<td>✗ ****</td>
</tr>
<tr>
<td><strong>Peer Review Visit</strong></td>
<td>✔️ *</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✔️</td>
<td>✗</td>
</tr>
</tbody>
</table>

### Reviews may include

<table>
<thead>
<tr>
<th>A report</th>
<th>A visit</th>
<th>Both</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Description</strong></th>
<th><strong>Fifth Year Interim Report</strong></th>
<th><strong>Assurance Review</strong></th>
<th><strong>No mid-cycle report</strong></th>
<th><strong>Interim (Fifth-Year) Report</strong></th>
<th><strong>Mid-Cycle Review</strong></th>
<th><strong>No mid-cycle report</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Committee members review submitted materials &amp; QEP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

*SACSCOC requires a visit if institution has established five (5) or more approved off-campus instructional sites that have not hosted a visit since the last reaffirmation.

**MSCHE includes an interim report on its website, but suggested we exclude this report from our estimates as it is under review. Member institutions must undergo a self-study as part of reaffirmation. Therefore, this review is included in the cost estimates, but not the timeline overview.

***The Policies, Regulations, & Finances review by NWCCU occurs at year 6 of the accreditation process. The review is included in the above table to capture standard reviews throughout the accreditation cycle.

****No standard interim report is required by WSCUC; however 90% of member institutions undergo some type of interim review at various points of time determined on a case-by-case basis. Therefore, this review is included in the cost estimates, but not the timeline overview.
While all accreditors require institutions to adhere to certain standards to ensure quality & self-reflection, SACSCOC & HLC also require institutions to demonstrate continuous improvement for specific issues or initiatives.

**SACSCOC: Quality Enhancement Plan**
- The Quality Enhancement Plan (QEP) is part of the SACSCOC reaffirmation process whereby each institution focuses on an issue important for student learning outcomes and/or student success.
- Institutions develop a document for review outlining their QEP.
- Institutions develop a report describing outcomes after five years of QEP implementation.

**HLC: Quality Initiative Proposal**
- Institutions designate one major improvement effort undertaken during its 10-year accreditation cycle.
- Each institution submits a Quality Initiative Proposal for peer review.
- At the conclusion of the quality initiative, each institution submits a report reflecting on the process.

**QEP examples**
- "Writing Around the Curriculum" program, which is an institutional initiative focused on improving student writing skills.
- "Artificial Intelligence (AI), Data, & Emotional Intelligence (EI): Critical Skills for the 21st Century," a program meant to close the gap between career readiness & employer expectations in AI, data, & EI.

**Quality Improvement Initiative Examples**
- A four-year institution joins with community colleges to create a program of dual admission, joint recruitment, & coordinated curriculum & student support.
- The institution pursues a strategic initiative to improve its financial position.
Accreditation costs include both university expenses & fees paid to the accreditor

- The vast majority of accreditation costs are university expenses necessary to comply with requirements (e.g., personnel, software, & consultants)
- Some university expenses & accreditation fees will likely increase during the transition to a new accreditor

**Accreditation Fees**

- Start-up fees
- Monitoring/Reaffirmation fees
- Annual dues

**Year Over Year Average**

$220K - $250K

- Over the next six years, institutions estimated they will pay $1.5 million in required fees to SACSCOC
- Most of the fees provided to SACSCOC over the next six years are associated with annual dues

**University Expenses**

- Personnel
- Consultants
- Software
- Reporting requirements
- Accreditation cycle
- Site visits

**Year Over Year Average**

$11M - $13M

- These expenses vary year-to-year based on where each university is in the accreditation process
- Expenses & workload will temporarily increase during the transition to a new accreditor

*Estimates are based on fees & university expenses reported by State University System of Florida universities.*
Estimated Accreditation Cycle Costs
Total Fees -- System-wide Snapshot

Cost Estimate Methodology
- Costs are specific to each institution
- Estimates provided are based on information available on each accreditor's website & were reviewed by accrediting agency staff

Accreditation Fees*

<table>
<thead>
<tr>
<th>Accreditor</th>
<th>MONITORING/</th>
<th>TOTAL</th>
<th>DUES</th>
<th>University Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>SACSCOC</td>
<td>REAFFIRMATION***</td>
<td>$2.3M</td>
<td>$132K</td>
<td>$2.1M</td>
</tr>
<tr>
<td>HLC</td>
<td>$2.7M</td>
<td>$32K</td>
<td>$2.7M</td>
<td>$32K</td>
</tr>
<tr>
<td>MSCHE</td>
<td>$2.4M</td>
<td>$228K</td>
<td>$2.7M</td>
<td>$256K</td>
</tr>
<tr>
<td>NECHE</td>
<td>$5M</td>
<td>$840K</td>
<td>$4.2M</td>
<td>$6.2M</td>
</tr>
<tr>
<td>NWCCU</td>
<td>$2.7M</td>
<td>$228K</td>
<td>$2.1M</td>
<td>$2.4M</td>
</tr>
<tr>
<td>WSCUC***</td>
<td>$6.6M</td>
<td>$364K</td>
<td></td>
<td>$6.6M</td>
</tr>
</tbody>
</table>

*Accreditation Cycle Length
**For more details on monitoring/reaffirmation costs, see Appendix B.
***Universities may be on a 6, 8, or 10 year cycle depending on institutional readiness.

Changing accreditors likely will not significantly change annual university expenses.
Accreditation Fees
Florida Poly Estimates

- Once triggered in 2023, FLPOLY will pay both new accreditor application fees & any required SACSCOC fees to maintain accreditation until they are accredited by the new agency.
- Over time, HLC fees will be the lowest followed by MSCHE.

**NECHE does not charge monitoring costs; however, reaffirmation costs are twice the annual dues (occurs every 10 years).**

**Note:** The above estimates assume the application process for WSCUC will take 1.5 years & that the application process for NWCCU will take 1 year. The above estimates show accreditation fees, not university expenses. University expenses will increase during the period of time that universities are maintaining accreditation with SACSCOC & applying for new accreditation.

*MSCHE includes an interim report on its website, but suggested we exclude this report from our estimates as it is under review. Member institutions must undergo a self-study as part of reaffirmation. Therefore, this review is included in the cost estimates, but not the timeline overview.

**No standard interim report is required by WSCUC; however 90% of member institutions undergo some type of interim review at various points of time determined on a case-by-case basis. Therefore, this review is included in the cost estimates, but not the timeline overview.
Accreditation Fees

UCF Estimates

- Once triggered in 2024, UCF will pay both new accredits application fees & any required SACSCOC fees to maintain accreditation until they are accredited by the new agency.
- Over time, MSCHE fees will be the lowest followed by NWCCU.

Note: The above estimates assume the application process for WSCUC will take 1.5 years & that the application process for NWCCU will take 1 year. The above estimates show accreditation fees, not university expenses. University expenses will increase during the period of time that universities are maintaining accreditation with SACSCOC & applying for new accreditation.

*MSCHE includes an interim report on its website, but suggested we exclude this report from our estimates as it is under review. Member institutions must undergo a self-study as part of reaffirmation. Therefore, this review is included in the cost estimates, but not the timeline overview.

**No standard interim report is required by WSCUC; however 90% of member institutions undergo some type of interim review at various points of time determined on a case-by-case basis. Therefore, this review is included in the cost estimates, but not the timeline overview.
Accreditation Fees
Start-Up Fees -- System-wide

Start-Up Fees for Accreditation
- Start-up costs are non-recurring
- Overall, HLC & NWCCU offer the lowest start-up fees
- Most accreditors reduce costs for currently accredited institutions, such as those in the State University System
- Most accreditors have an accelerated pathway to accreditation for currently accredited institutions in good standing
- MSCHE is in the process of developing an accelerated pathway for currently accredited institutions

What are start-up costs?
Start-up costs include
- Application fees
- Eligibility fees
- Site visits
- Required training

<table>
<thead>
<tr>
<th>Accreditor</th>
<th>Reduced Fees for Currently Accredited Institutions</th>
<th>Accelerated Pathway for Accreditation</th>
<th>Cost Range Across Universities</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLC</td>
<td>✓</td>
<td>✓</td>
<td>$23,000 - $276,000</td>
</tr>
<tr>
<td>MSCHE</td>
<td>✗</td>
<td>✓</td>
<td>$35,000 - $551,000</td>
</tr>
<tr>
<td>NECHE</td>
<td>✓</td>
<td>✓</td>
<td>$19,000 - $480,000</td>
</tr>
<tr>
<td>NWCCU</td>
<td>✓</td>
<td>✓</td>
<td>$21,000 - $292,000</td>
</tr>
<tr>
<td>WSCUC</td>
<td>✓</td>
<td>✓</td>
<td>$32,000 - $435,000</td>
</tr>
</tbody>
</table>
## Accreditation Fees

### Annual Dues -- System-wide

### Annual Dues for Accreditation
- The chart below shows one year of dues across all universities.
- Overall, HLC & MSCHE offer the lowest annual dues.
- Several accreditors use expenditure data to determine annual dues for member institutions.

---

### What are annual dues?
- Annual dues are required by all accreditors.
- These dues are a recurring expense for each university.
- Annual dues may include:
  - Base dues
  - FTE calculation
  - Expenditure calculations
  - Campus activity fees

---

### Cost Range Across Institutions

<table>
<thead>
<tr>
<th>Region</th>
<th>Cost Range Across Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SACSCOC</td>
<td>$9,000 - $29,000</td>
</tr>
<tr>
<td>HLC</td>
<td>$5,000 - $52,000</td>
</tr>
<tr>
<td>MSCHE</td>
<td>$13,000 - $44,000</td>
</tr>
<tr>
<td>NECHE</td>
<td>$14,000 - $47,000</td>
</tr>
<tr>
<td>NWCCU</td>
<td>$19,000 - $30,000</td>
</tr>
<tr>
<td>WSCUC</td>
<td>$13,000 - $109,000</td>
</tr>
</tbody>
</table>
University Expenses
Additional Costs -- Site Visits

Estimates in this document consider base costs for other accreditors; however, universities will incur additional costs not included in the estimates provided.

<table>
<thead>
<tr>
<th>Cost Type</th>
<th>SACSCOC</th>
<th>HLC</th>
<th>MSCHE</th>
<th>NECHE</th>
<th>NWCCU</th>
<th>WSCUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluators for Review</td>
<td>8-10</td>
<td>5-7</td>
<td>7-9</td>
<td>7-10</td>
<td>3-5</td>
<td>5</td>
</tr>
<tr>
<td>Review Time Period</td>
<td>4 Days</td>
<td>3 Days</td>
<td>3 Days</td>
<td>3 Days</td>
<td>2.5 Days</td>
<td>3 Days</td>
</tr>
<tr>
<td>Honoraria</td>
<td>✓ *</td>
<td>✓ **</td>
<td>✓ ***</td>
<td>✗</td>
<td>✗</td>
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</table>

Note: All estimates provided are from accreditor websites & conversations with accrediting agency staff.

*Committee chairs receive $300 & committee members receive $150 for incidental expenses.

**Honoraria varies based on review type ranging from $125 for a Contractual Arrangement Substantive Change Review to $1,000 for a Year 4 Assurance Review. Honoraria for peer reviewers involved in comprehensive evaluations, initial accreditation visits, & reaffirmation is $700.

***Honoraria varies based on visit type ranging from $50 for team members during Self-study Evaluations & Application for Candidate Status to $800 for a Complex Substantive Change Review.
## Appendix A: Accréditante Information

<table>
<thead>
<tr>
<th>Page</th>
<th>Accreditation Body</th>
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<tbody>
<tr>
<td>02</td>
<td>Higher Learning Commission</td>
</tr>
<tr>
<td>04</td>
<td>Middle States Commission on Higher Education</td>
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<tr>
<td>06</td>
<td>New England Commission on Higher Education</td>
</tr>
<tr>
<td>08</td>
<td>Northwest Commission on Colleges &amp; Universities</td>
</tr>
<tr>
<td>10</td>
<td>Southern Association of Colleges &amp; Schools Commission on Colleges</td>
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<tr>
<td>12</td>
<td>WASC Senior College &amp; University Commission</td>
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## Appendix B: Cost Estimates

<table>
<thead>
<tr>
<th>Page</th>
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<tbody>
<tr>
<td>14</td>
<td>Monitoring/Reaffirmation Fees</td>
</tr>
<tr>
<td>15</td>
<td>Accreditation Cycle Fees by University</td>
</tr>
<tr>
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</tr>
<tr>
<td>17</td>
<td>Accreditation Annual Dues by University</td>
</tr>
<tr>
<td>18</td>
<td>Accreditation Monitoring/Reaffirmation Fees by University</td>
</tr>
</tbody>
</table>
Overview

The Higher Learning Commission (HLC) is an independent corporation founded in 1895 as one of six regional institutional accreditors in the United States. HLC accredits degree-granting post-secondary educational institutions in the United States. In its institution directory, HLC lists members in 19 states: Arizona, Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, New Mexico, North Dakota, Ohio, Oklahoma, South Dakota, West Virginia, Wisconsin, & Wyoming. HLC is governed by a 16-member board of trustees elected by the membership & administered by a president selected by & accountable to that board.

Accelerated Process for Initial Accreditation

An institution may be eligible to seek accreditation with HLC through the Accelerated Process for Initial Accreditation if it meets certain requirements, including being currently accredited by a historically regional accreditor or a state entity recognized by the U.S. Department of Education. The institution must also have no history of being placed on sanction, show-cause order, or other similar negative action by its accreditor for at least the past 10 years, & must meet other requirements. The process allows the institution to apply for initial accreditation with HLC on an accelerated timeline, without serving a period of candidacy.

*Board members have the option to extend subsequent terms by two years
HLC accredits the following AAU Universities

PUBLIC
- Indiana University
- Iowa State University
- Michigan State University
- Ohio State University
- Purdue University
- University of Arizona
- University of Colorado
- University of Illinois
- University of Iowa
- University of Kansas
- University of Michigan
- University of Minnesota
- University of Missouri
- University of Wisconsin

PRIVATE
- Case Western Reserve University
- Northwestern University
- University of Chicago
- Washington University-St. Louis

HLC accredits 5 of the U.S. News & World Report Top 20 public universities
- University of Michigan
- University of Wisconsin
- University of Illinois
- Ohio State University
- Purdue University

HLC President - Dr. Barbara Gellman-Danley
bgdanley@hlcommission.org
800-621-7440 Ext. 102
HLC Website
Main Office: Chicago, Illinois
Overview
The Mid-Atlantic Region Commission on Higher Education, doing business as the Middle States Commission on Higher Education (MSCHE), was formally incorporated under Pennsylvania Commonwealth law in 2013. MSCHE conducts accreditation activities for institutions of higher education in Delaware, the District of Columbia, Maryland, New Jersey, New York, Pennsylvania, Puerto Rico, the U.S. Virgin Islands, & any other geographic areas in which the Commission elects to conduct accrediting activities, including the evaluation of distance education & correspondence education programs offered at those institutions. MSCHE accredits institutions across the United States as well as globally.

The board (also known as the commission) consists of 28 members that conduct business in all states, except North Dakota, South Dakota, Kentucky, Puerto Rico, the U.S. Virgin Islands, & the District of Columbia.

Currently, MSCHE accredits Ana G. Mendez University (AGMU), the largest private university in Puerto Rico, which has three Florida locations in Orlando, Miami, & Tampa.
MSCHE accredits the following AAU Universities

PUBLIC
- Penn State University
- Rutgers University
- Stony Brook University
- University of Buffalo
- University of Maryland
- University of Pittsburgh

PRIVATE
- Carnegie Mellon University
- Columbia University
- Colgate University
- The John Hopkins University
- New York University
- Princeton University
- University of Pennsylvania
- University of Rochester

MSCHE accredits 2 of the U.S. News & World Report Top 20 public universities
- University of Pittsburgh
- University of Maryland

MSCHE President - Dr. Heather Perfetti

hperfetti@msche.org  267-284-5026  www.MSCHE.org
Main Office: Wilmington, Delaware
New England Commission on Higher Education

Accréditeur Highlights

**Member Institutions**
- Public AAU Institutions: 0
- U.S. News & World Report Top 100 Public Universities: 6

**Board Member Composition**
- 30 total members serving 3-year terms
  - 6 Public Universities
  - 1 Public College
  - 2 Community & Technical Colleges
  - 13 Private Institutions
  - 6 Public Members
  - 2 Other Members (2 system-level members)

**Accreditation Processes**
- Accreditation Cycle: 10 years; mid-cycle review in year 5
- Includes Accelerated Accreditation Process: Yes
- Frequency Accreditor Reviews Standards: Not identified

**Overview**
New England Commission on Higher Education (NECHE) accredits public & private community colleges, colleges, & universities. NECHE members include over 200 degree-granting postsecondary educational institutions offering higher education & located inside or outside the United States, including, but not limited to, the states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, & Vermont.

The board (known as the commission) comprises at least 27 persons elected by the member colleges & universities for no more than two consecutive three-year terms. At least one in seven members is a representative of the public interest, with the remainder being faculty, senior administrators, & trustees from member institutions.
NECHE accredits the following AAU universities. ALL are private institutions

PRIVATE

- Boston University
- Brandeis University
- Brown University
- Dartmouth College
- Harvard University
- Massachusetts Institute of Technology
- Tufts University
- Yale University

NECHE does not accredit any of the US News & World Report Top 20 public universities
Overview

The Northwest Commission on Colleges & Universities (NWCCU) is a private 501(c)(3) non-profit corporation & accredits over 160 public & private institutions of higher education in Alaska, Idaho, Montana, Nevada, Oregon, Utah, Washington, & British Columbia, along with other domestic & international geographic areas.

The board (known as the commission) as a decision-making body consists of up to 26 commissioners. Commissioners are elected for staggered three-year terms & serve without compensation. A majority of the commissioners represent institutions accredited by the commission with consideration given to diversity of institutions & geographical distribution, including at least one person from the region’s tribal colleges. One-seventh of the commissioners must be persons representing the general public.
NWCCU accredits the following AAU Universities

PUBLIC
- University of Oregon
- University of Utah
- University of Washington

NWCCU accredits one of the U.S. News & World Report Top 20 public universities
- University of Washington
Accreditor Highlights

Member Institutions

- Public AAU Institutions: 6
- U.S. News & World Report Top 100 Public Universities: 30

Board Member Composition

- 79 total members serving 3-year terms*
  - 17 Public Universities
  - 6 Public Colleges
  - 18 Community & Technical Colleges
  - 24 Private Institutions
  - 11 Public Members
  - 3 Other Members (Catholic seminary, research institute, Higher education commission)

Accreditation Processes

- Accreditation Cycle: 10 years thereafter; mid-point review in year 5
- Includes Accelerated Accreditation Process: Not identified
- Frequency Accrerditor Reviews Standards: Every 5 years

Overview

The Southern Association of Colleges & Schools Commission on Colleges (SACSCOC) accredits degree-granting institutions of higher education. SACSCOC serves as the regional body for accreditation in eleven southern states: Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, & Virginia. SACSCOC also accredits international institutions.

SACSCOC is comprised of four primary units with representatives from each state who perform certain functions for the agency: the College Delegate Assembly, the SACSCOC Board of Trustees, the Executive Council, the Committees on Compliance & Reports, & the Appeals Committee. The Board of Trustees has 79 members elected by the College Delegate Assembly, consisting primarily of administrators & faculty from member institutions & 11 public members from outside the academe.* The Board of Trustees implements the accreditation process. The Executive Council is the executive arm of the Board of Trustees, with 13 members, including one representative from each state, a public member, & the Chair. The Executive Council is primarily responsible for interpreting commission policies & procedures.

*Information obtained from the SACSCOC website. According to SACSCOC Standing Rules, the Board must consist of 33 individuals connected with institutions offering undergraduate & graduate programs or only graduate programs (2 from each state), 22 individuals connected with institutions offering only undergraduate programs (1 from each state), 10 academics connected or employed by a member institution in the geographical territory of SACSCOC, 1 individual representing international member institutions, & 11 individuals representing the public.
SACSCOC accredits the following AAU universities

PUBLIC
- Georgia Institute of Technology
- Texas A&M University
- The University of North Carolina at Chapel Hill
- The University of Texas at Austin
- University of Florida
- University of Virginia

PRIVATE
- Duke University
- Rice University
- Tulane University
- Vanderbilt University

SACSCOC accredits 8 of the U.S. News & World Report Top 20 public universities

- University of Virginia
- University of Florida
- The University of North Carolina at Chapel Hill
- Georgia Institute of Technology
- The University of Texas at Austin
- The College of William & Mary
- University of Georgia
- Florida State University
Overview

The WASC Senior College & University Commission is a non-profit corporation that accredits over 200 public & private institutions & serves as the institutional accrediting agency for institutions that award the bachelor’s or higher degrees.* A separate agency which also uses the WASC acronym, the Accrediting Commission for Community & Junior Colleges (ACCJC), accredits institutions with the main mission of offering an associate degrees. The commission’s historic region has consisted of the States of California & Hawaii, the territory of Guam, American Samoa, Federated States of Micronesia, the Republic of the Marshall Islands, Republic of Palau, the Commonwealth of the Northern Marianas Islands, & other areas of the Pacific as may apply to it for service.

The board (also known as the commission) consists of 33 members serving 3-year terms. These members include institutional representatives such as presidents, provosts, deans, & faculty. In addition, the commission include public members such as educational effectiveness experts, former public officials, & people experienced in K-12 education. At large members of the commission allow for individuals who are not institutional representatives or public members to serve.

*Until 2012, the Western Association of Schools & Colleges (WASC) was a single organization with three units. In 2012, the different units separated into three separate organizations that continue to share the WASC acronym as part of their name: the Accrediting Commission for Schools, Western Association of Schools & Colleges (ACS, WASC), the Accrediting Commission for Community & Junior Colleges, Western Association of Schools & Colleges (ACCJC, WASC), & the WASC Senior College & University Commission (WSCUC). These entities now use the same “WASC” acronym but are three separate 501(c)(3) organizations with independent scopes & governance structures.
WSCUC accredits the following AAU Universities

<table>
<thead>
<tr>
<th>PUBLIC</th>
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</tr>
</thead>
<tbody>
<tr>
<td>University of California, Davis</td>
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<tr>
<td>University of California, Berkeley</td>
<td>Stanford University</td>
</tr>
<tr>
<td>University of California, Irvine</td>
<td>University of Southern California</td>
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<td>University of California, Los Angeles</td>
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</tr>
<tr>
<td>University of California, San Diego</td>
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<tr>
<td>University of California, Santa Barbara</td>
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</tr>
<tr>
<td>University of California, Santa Cruz</td>
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</table>

WSCUC accredits six of the U.S. News & World Report Top 20 public universities

- University of California, Los Angeles
- University of California, Berkeley
- University of California, Santa Barbara
- University of California, San Diego
- University of California, Irvine
- University of California, Davis
Accreditation Fees

Monitoring / Reaffirmation Fees

What are monitoring / reaffirmation fees?

- These fees include
  - Interim reports
  - Mid-cycle reviews
  - Reaffirmation fees

- All accreditors may require more visits or self-studies if issues arise at a university

SACSCOC & HLC have quality initiative requirements, but no associated fees

NECHE uses annual dues to determine reaffirmation fees instead of a separate fee model

Nearly all reaffirmation & monitoring fees for HLC are covered by annual dues

Cost Range Across Universities

<table>
<thead>
<tr>
<th>SACSCOC</th>
<th>HLC</th>
<th>MSCHE</th>
<th>NECHE</th>
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<th>WSCUC</th>
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<th>WSCUC</th>
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Reaffirmation Fees

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Cost Range Across Universities

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<tr>
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<td>$94,000</td>
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*MSCHE includes an interim report on its website, but suggested we exclude this report from our estimates as it is under review. Member institutions must undergo a self-study as part of reaffirmation. Therefore, this review is included in the cost estimates, but not the timeline overview.

**No standard interim report is required by WSCUC; however 90% of member institutions undergo some type of interim review at various points of time determined on a case-by-case basis. Therefore, this review is included in the cost estimates, but not the timeline overview.
## Total Accrediting Fees

- Fees shown include:
  - One accreditation cycle of annual dues per university
  - One start-up cost estimate per university
  - One cycle of monitoring/reaffirmation per university

### SACSCOC*

<table>
<thead>
<tr>
<th></th>
<th>10-Year Cycle</th>
<th>10-Year Cycle</th>
<th>8-Year Cycle</th>
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<td><strong>Total</strong></td>
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<td><strong>$854,000</strong></td>
<td><strong>$1,420,000</strong></td>
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</tbody>
</table>

*SACSCOC estimates include $156,000 in approximated start-up fees for comparison purposes. However, SUS universities are current members and would not pay start-up fees.

**WSCUC noted that most institutions initially accredited will be put on a 6 year cycle; however, the cycle may vary based on the readiness of the institution.
## Start-Up Fees for Accreditation*

- Start-up fees vary and can include:
  - Application fees
  - Eligibility fees
  - Site visits
  - Required training

<table>
<thead>
<tr>
<th>University</th>
<th>SACSCOC</th>
<th>HLC</th>
<th>MSCHE</th>
<th>NECHE</th>
<th>NWCCU</th>
<th>WSCUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAMU</td>
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**Total** $156,000 $276,000 $551,000 $480,000 $292,000 $434,500

*SACSOC start-up estimates are excluded because they are SUS current members and would not pay start-up fees.
Accreditation Fees

One-Year Annual Dues -- By University

### Estimates show one year of dues based on current universities' FTE, expenditures, & number of campuses/sites

<table>
<thead>
<tr>
<th>University</th>
<th>SACSCOC</th>
<th>HLC</th>
<th>MSCHE</th>
<th>NECHE</th>
<th>NWCCU</th>
<th>WSCUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAMU</td>
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## Accreditation Fees

### Monitoring / Reaffirmation Costs -- By University

These fees include:
- Interim reports
- Mid-cycle reviews
- Reaffirmation fees

All accreditors may require more visits or self-studies if issues arise at an institution.

<table>
<thead>
<tr>
<th>Institution</th>
<th>SACSCOC</th>
<th>HLC</th>
<th>MSCHE</th>
<th>NECHE</th>
<th>NWCCU</th>
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Accelerated Process for Initial Accreditation
Process Overview

BASIC INFORMATION
In July 2019, following a period of negotiated rule-making, the U.S. Department of Education (USDE) issued new regulations that removed the notion of “geographic scope” from accrediting agencies’ scope of recognition. This change allowed for historically regional accreditors, such as the Higher Learning Commission (HLC), to choose to expand their individual jurisdictions to operate on a larger geographic scale.

Following the changes in federal regulations, the HLC Board of Trustees redefined HLC’s jurisdiction for accrediting institutions of higher education as those that are incorporated in, or operating under federal authority in, the United States and that have a substantial presence, as defined in HLC policy, in the United States.

Relatively, HLC’s Board approved changes to its policies to allow for an accelerated process for achieving accreditation for institutions with a proven history of quality assurance from a historically regional accreditor or a state entity that is recognized by the USDE as an institutional accreditor, and being in good standing with that accreditor. Institutions that do not meet the qualifications for the Accelerated Process for Initial Accreditation may pursue accreditation through HLC’s traditional Eligibility Process.

An institution undertaking the Accelerated Process for Initial Accreditation must complete all of the steps in the process within the time frames prescribed; must adhere to HLC guidelines related to each step, including guidelines related to the submission of documents; and must receive a positive decision by HLC before moving to each next step.

Institutions participating in the Accelerated Process for Initial Accreditation do not hold any status with HLC until awarded initial accreditation. An institution may not make any public statement about seeking status until just prior to the comprehensive evaluation visit for initial accreditation is scheduled.

During the process, the institution must not undertake any significant changes that would alter the information as described in the application. Significant changes could include, but are not limited to: changes in mission, ownership or governance; the implementation of new programs that represent significant departures from the institution’s current program inventory; new delivery methods requiring substantial planning and implementation; new
contractual or consortial relationships; or the initiation of additional locations or branch campuses. Significant change may result in cancellation of any scheduled aspect of the process and may require that the institution restart the accelerated process for initial accreditation.

Fees apply at a number of steps throughout the Accelerated Process for Initial Accreditation. A complete list of these fees can be found in the current HLC Dues and Fees Schedule. Where applicable, fees must accompany the submission of materials or are due at the start of a step in the process. An institution will not be permitted to proceed in the process until the required fees are received.

If at any point in the process the institution misses a required deadline, voluntarily withdraws from the process, or fails to achieve the next step in the process, the institution must start from the beginning of the Accelerated Process for Initial Accreditation. As detailed in HLC policy, an institution that completes the process but is denied initial accreditation by the HLC Board of Trustees may reapply to participate in the accelerated process after taking steps to remedy the circumstances that led to the denial of initial accreditation, or may elect to pursue membership through HLC’s traditional Eligibility Process. The institution must generally wait one year before pursuing either process, unless the HLC Board has provided otherwise.

At various steps in the process, the institution will be asked to provide an institutional response to recommendations, as provided in HLC policy. Additionally, certain determinations within the process are subject to appeal, as provided in HLC policy.

As applicable, the institution maintains responsibility for keeping entities such as state higher education agencies, USDE and, if applicable, other accreditors informed throughout the process.

The content in this document is supplemental to HLC policy. Institutions should familiarize themselves with applicable HLC policies as they proceed through the process (see page 11 for a list of related policies).

Institutions should also familiarize themselves with the HLC Glossary. HLC will maintain all documents submitted by institutions in accordance with applicable HLC policies.

**QUESTIONS**

Questions about the process may be directed to seekingaccreditation@hlcommission.org. Institutions are encouraged to attend applicable programming, for example at HLC’s annual conference, before beginning the Accelerated Process for Initial Accreditation.
ACCELERATED PROCESS FOR INITIAL ACCREDITATION: AT A GLANCE

The following chart summarizes the three main steps involved in the Accelerated Process for Initial Accreditation. Additional information regarding each of the tasks immediately follows the chart.

<table>
<thead>
<tr>
<th>STEP AND ASSOCIATED ACTIVITIES</th>
<th>TIME FRAME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Application</strong></td>
<td>HLC staff will review the application and respond to the institution, typically within one month.</td>
</tr>
<tr>
<td>An institution begins the accelerated process for initial accreditation by submitting an application along with required Accelerated Process Application Evidence to demonstrate that it meets the qualifications for the process and that it meets other specific HLC requirements. HLC staff assess the institution’s application to determine whether the institution meets the qualifications for the Accelerated Process for Initial Accreditation and whether it can demonstrate that it has certain essential characteristics that would make it eligible for HLC membership. This includes the opportunity for interaction with HLC staff through a combination of email, phone, or video-enabled conversations as needed. This step culminates in a decision regarding whether the institution may proceed to the preliminary peer review.</td>
<td></td>
</tr>
<tr>
<td><strong>2. Preliminary Peer Review</strong></td>
<td>HLC anticipates that institutions will prepare and submit the required narrative and evidence within approximately three months following HLC’s response to the institution’s application (step 1). Institutions must submit these materials within no more than one year following HLC’s response to the institution’s application. Upon submission of materials required for the preliminary peer review, the peer review panel takes approximately one month to evaluate the materials and determine the institution’s ability to continue with the process.</td>
</tr>
</tbody>
</table>
| The preliminary peer review includes the following components:  
  • Abbreviated Assurance Filing demonstrating that the institution has provided sufficient narrative and evidence regarding each of HLC’s Criteria for Accreditation to proceed  
  • Institutional Data Form  
  • Compliance With Eligibility Requirements Form  
  • Compliance With Assumed Practices Form  
  Peer reviewers preliminarily evaluate the narrative and evidence provided by the institution. There is no in-person visit or other interaction between the institution and peer reviewers. This step culminates in a decision regarding whether the institution may proceed to a comprehensive evaluation for initial accreditation. If the institution continues, it is assigned an HLC staff liaison at the conclusion of this step. |
STEP AND ASSOCIATED ACTIVITIES

3. Comprehensive Evaluation for Initial Accreditation
The institution submits its comprehensive evaluation materials and hosts an on-site visit by a peer review team. The evaluation includes the following components:

- Full Assurance Filing demonstrating the institution’s compliance with the Criteria for Accreditation and all Core Components
- Institutional Data Form
- Compliance With Eligibility Requirements Form
- Compliance With Assumed Practices Form
- Federal Compliance Filing
- On-site visit, including if applicable, a Multi-Campus Visit
- Student Opinion Survey
- Institutional Actions Council (IAC) Hearing
- HLC Board decision

TIME FRAME
Institutions should prepare for a comprehensive evaluation within approximately nine months after being informed by HLC that the institution may do so and must undergo the comprehensive evaluation within no more than one year from that time.

Visit timing will be coordinated with the institution to proceed on as accelerated a timeline as the institution desires, and as is practical, inclusive of the timing for the necessary IAC Hearing and Board meeting where the Board will consider the institution for initial accreditation.

1. APPLICATION
The Accelerated Process for Initial Accreditation begins with an institution submitting an application and providing the required application fee. An institution’s application will not be considered complete until the application fee is received. For institutions successful in proceeding through the preliminary peer review, this fee will be credited toward the institution’s fee for the comprehensive evaluation for initial accreditation. See HLC’s Dues and Fees Schedule and the payment information on page 8 of this document for more information.

Accelerated Process Application Evidence
The institution’s application will include documentation demonstrating that the institution meets the qualifications to participate in the accelerated process, as well as other specific HLC requirements. The Accelerated Process Application Evidence must be submitted through the application form as a single PDF file labeled with the file name: (name of institution) ApplicationEvidence.pdf. It should include the following:

1. All official communications between the institution and its current accreditor for the previous 12 months. This includes, but is not limited to: action letters, other official correspondence, reports submitted by the institution, evaluations and other analyses from the accreditor, etc.

2. To the extent not already provided in item 1, documentation showing that the institution, in its current form, is currently institutionally accredited by an accrediting agency that is recognized by the USDE and that is historically known as a regional accreditor, or by a state entity that is recognized by the USDE as an institutional accreditor of degree-granting institutions of higher education.

3. To the extent not already provided in item 1, documentation showing that the institution, in its current form, (a) has been accredited by its current institutional accreditor for at least the past 10 years or (b) has undergone a reaffirmation of accreditation review with its current institutional accreditor in the past two years that did not result in a sanction or other similar negative action.

4. To the extent not already provided in item 1, documentation showing that the institution, in its
current form, has not been placed on a sanction, show-cause order, or other similar negative action with its current institutional accreditor for at least the past 10 years.

5. Documentation from Federal Student Aid indicating that the institution has demonstrated reasonable cause for changing its primary accrediting agency or for maintaining accreditation by multiple agencies and has the approval of FSA under federal regulations to seek accreditation with HLC.

6. A description explaining how the institution’s decision to change its primary accrediting agency or for maintain accreditation by multiple agencies is voluntary. Information to be included as part of this explanation could include, but is not limited to, the institution’s rationale for seeking accreditation with HLC, an analysis of any external factors that are affecting the institution’s decision to seek accreditation with HLC, and a description of the institution’s decision-making process for choosing to seek accreditation with HLC.

7. Completed Substantial Presence Worksheet.

8. Documentation showing the incorporation of the institution within HLC’s jurisdiction in accordance with HLC policy.

9. Documentation showing legal status to operate as an institution offering higher learning in at least one state, sovereign nation or jurisdiction within HLC’s jurisdiction in accordance with HLC policy and, if applicable, evidence of state authorization in good standing to offer higher learning in any other location in which it is required by state law or regulation to be authorized. Disclosure of any state action to suspend, limit or terminate the corporate status or higher education authorization of the institution or any related entity within the previous five years.

10. List of all degree and certificate programs offered, including noting which programs are offered by distance or correspondence education.

11. Information about specific current enrollments in all degree and certificate programs shown by program, location and mode of delivery.

12. Letter from the institution’s governing board confirming its intention to seek accreditation with HLC and a copy of the minutes from the Board meeting in which the Board approved seeking accreditation. The institution must make clear whether it is seeking system accreditation for a multi-corporate structure involving multiple institutions or seeking accreditation for a single corporate structure involving only one institution. HLC will make the final decision on whether the requested scope of accreditation is appropriate.

13. List of other current accreditation relationships, including status, and information regarding any other official interactions with other accreditors in the past five years.

After the institution submits the application and the application fee, HLC staff evaluate the institution’s application and evidence to determine whether the institution meets the qualifications for the accelerated process and can demonstrate that it has certain essential characteristics that would make it eligible for HLC membership, as noted in HLC policy. Throughout this period, the institution has access to HLC staff for consultation through a combination of email, phone or video-enabled conversations as needed.

This step concludes with a decision on whether or not the institution may move to the next step, preliminary peer review. This decision is final.

2. PRELIMINARY PEER REVIEW

HLC anticipates that institutions will prepare and submit the required narrative and evidence for the preliminary peer review within approximately three months following HLC’s response to the institution’s application (step 1). An institution must submit these materials within no more than one year following HLC’s response to the institution’s application.

During the preliminary peer review, the institution is provided a site in HLC’s online Assurance System, which is where the institution will provide:

- Institutional Data Form
- Compliance With Eligibility Requirements Form
- Compliance With Assumed Practices Form
- Assurance Argument with narrative focused only at the Criteria “summary” level (not the Core Component level, which occurs later) and evidentiary documents linked to the narrative for the Criteria

August 2022 | Official HLC Procedure | Contact: seekingaccreditation@hlcommission.org
Details on submission requirements for the preliminary peer review can be found in the Required Materials and Submission Procedures on page 7.

A peer review panel evaluates the narrative and evidence provided by the institution. There is no in-person visit or other interaction among the institution and peer reviewers at this step. A fee applies at the beginning of this step; see HLC’s Dues and Fees Schedule for more information.

Once the institution has submitted the materials required for the preliminary peer review, the peer review panel takes approximately four weeks to evaluate the materials and determine the institution’s ability to continue with the process.

The preliminary peer review is focused on whether there is sufficient evidence such that the institution appears likely to meet HLC requirements and is sufficiently prepared to host a comprehensive evaluation for initial accreditation. In some cases, peer reviewers may request additional information for relatively small issues or when an obviously missing item of information is needed.

The preliminary peer review concludes with a determination that either (1) authorizes the institution to move to the comprehensive evaluation for initial accreditation; or (2) indicates that the institution may not move forward with the accelerated process for initial accreditation. This is a final decision.

If the institution proceeds with the accelerated process for initial accreditation, HLC will assign the institution an HLC staff liaison at the conclusion of this step. The staff liaison serves as the primary contact for the institution henceforward and as a resource regarding HLC policies and procedures. In addition, the staff liaison also assists the institution through various logistical aspects of reviews, HLC’s decision-making process and other HLC processes.

If it is determined that the institution may not move forward with the accelerated process, the institution may choose to proceed by initiating HLC’s traditional Eligibility Process.

3. COMPREHENSIVE EVALUATION FOR INITIAL ACCREDITATION

Institutions should prepare for and undergo a comprehensive evaluation within approximately nine months after being informed by HLC that the institution may do so, and must undergo the comprehensive evaluation within no more than one year from that time. Timing for the on-site evaluation will be coordinated with the institution to proceed on as accelerated a timeline as the institution desires, and as is practical, inclusive of the timing for the necessary IAC Hearing and the Board meeting where the Board will consider the institution for initial accreditation.

In a comprehensive evaluation for initial accreditation, an institution must demonstrate evidence that it meets all of the Criteria for Accreditation, including all Core Components. An institution must also demonstrate evidence that it meets the Eligibility Requirements, Assumed Practices and Federal Compliance Requirements. Initial accreditation is achieved through submission of comprehensive evaluation materials, participating in HLC’s Student Opinion Survey process, hosting an on-site evaluation by a peer review team to the institution’s main campus and, if applicable, a selection of its branch campuses, participating in a hearing by the IAC and action by the HLC Board of Trustees. Each of these steps of the process is conducted in accordance with HLC policy. Regular fees, for example those related to comprehensive evaluations, apply throughout this step. See HLC’s HLC Dues and Fees Schedule for more information.

During the comprehensive evaluation for initial accreditation, the institution will provide:

- Institutional Data Form
- Compliance With Eligibility Requirements Form
- Compliance With Assumed Practices Form
- Assurance Argument with narrative focused at Core Component level, and evidentiary documents linked to the narrative
- Federal Compliance Filing
- Multi-Campus Visit Report (if applicable)
Details on submission requirements for the comprehensive evaluation for initial accreditation can be found in the Required Materials and Submission Procedures on this page. Additional information about the comprehensive evaluation process is available on HLC’s website.

Once the comprehensive evaluation for initial accreditation is scheduled, the institution may make public that it is seeking status with HLC. The institution must use HLC’s prescribed language in making this announcement:

(Name of institution) currently holds no status with the Higher Learning Commission. (Name of institution) has initiated the process of seeking accreditation with the Higher Learning Commission. HLC will conduct a comprehensive evaluation on (date) to determine whether (name of institution) should be awarded initial accreditation. The team’s recommendation is subject to additional levels of HLC review and decision-making. Therefore, no further information will be provided until HLC’s Board of Trustees makes a final decision on the award of initial accreditation.

After the comprehensive evaluation, the peer review team’s report and recommendation, along with the entire record, will be routed through HLC’s decision-making process. This includes review by an IAC Hearing, where team and institutional representatives participate, and action by HLC’s Board. As provided in HLC policy, the institution is afforded the opportunity to submit an institutional response following both the team report and the IAC Hearing.

Institutions participating in the Accelerated Process for Initial Accreditation must meet all HLC requirements in order to be granted initial accreditation; this may include findings of “met” or “met with concerns” with respect to the Criteria for Accreditation.

If the Board grants initial accreditation, the institution becomes accredited by HLC. Such accreditation may, in the Board’s discretion, be subject to interim monitoring, restrictions on institutional growth or substantive change, or other contingencies.

If the Board denies initial accreditation, the institution may reapply to participate in the accelerated process after taking steps to remedy the circumstances that led to the denial of initial accreditation, or may elect to pursue membership through HLC’s traditional Eligibility Process. The institution must generally wait one year before pursuing either process, unless the Board has provided otherwise. Denial of accreditation by the Board is an adverse action that is subject to appeal as detailed in HLC’s policies.

REQUIRED MATERIALS & SUBMISSION PROCEDURES

GENERAL REQUIREMENTS AND INFORMATION

- Except for the Assurance Argument and associated evidence file materials, HLC requires that all institutional materials be submitted electronically as PDF documents. Ensure that electronic documents are paginated, bookmarked and searchable with internal document links that allow for ease of movement across chapters, sections and subsections. Do not scan printed documents to create a PDF document, as this will result in a document that is large in file size and not text searchable. Electronic documents should be prepared by an individual with expertise in using appropriate PDF software, such as Adobe Acrobat.

- Include internal document organizational strategies (such as headings or lists of linked documents) that make it easy for the reader to navigate within the electronic document.

- Unless instructed otherwise, avoid links to websites or other materials. Links to external materials should offer only supplemental information. Reviewers are not required to pursue external links.

- Only use graphics and pictures if they provide specific evidence. Optimize graphics and pictures to reduce the size of the document.

- Ensure that software settings are set to create clear text and graphics, yet not make the file size too large.

- Please review HLC’s guidelines regarding personally identifiable information (PII) prior to submitting any materials to HLC.

- Submit only the requested documents. If documents are applicable to more than one item...
in a filing, submit them once and cross-reference appropriately.

• Do not apply password protection to PDF documents.

• It is the institution’s responsibility to ensure that HLC has those documents necessary to provide a complete and accurate understanding of the institution’s compliance with HLC’s requirements. If the institution has relevant information that has not been specifically requested, it should contact HLC staff for instructions about the appropriateness of submitting the information.

• Documents will be submitted via HLC’s website, a file-sharing link or through the Assurance System. Do not send any documents by email to HLC.

• The application fee should be submitted as detailed below. HLC will issue invoices for all other payments. Contact finance@hlcommission.org or 312.881.8119 for instructions on submitting a wire/ACH payment or with other financial inquiries.

The application fee may be submitted by wire/ACH or mailed to HLC’s office:

    Higher Learning Commission
    230 South LaSalle Street, Suite 7-500
    Chicago, IL 60604-1411

General Notes On The Assurance System
HLC’s online Assurance System allows institutions to assemble an Assurance Filing and provide any other required forms and materials. The Assurance Filing includes a narrative (Assurance Argument) and supporting evidentiary documents (Evidence File) in a framework built around the Criteria for Accreditation. Institutions use this system to demonstrate their compliance with the Criteria for Accreditation and other HLC requirements. Narrative in the Assurance System should be evaluative in nature and substantiated with clear, specific evidence (versus general references to documents that may contain evidence).

Extensive training is available on HLC’s website about using the Assurance System effectively, and HLC staff are available to assist institutions.

All materials for the preliminary peer review and the comprehensive evaluation for initial accreditation are submitted through the Assurance System. All materials must be submitted to the Assurance System before the institution’s lock date. For the preliminary peer review, the lock date will be the start date of the peer review panel’s online review. For the comprehensive evaluation for initial accreditation, the lock date will be four weeks in advance of the peer review team’s on-site visit. After the lock date, the institution will may view, but will no longer be able to edit its Assurance Filing at that step of the process.

Peer reviewers will access all materials from the Assurance System.

The Assurance System allows for the institution to upload additional material requested by peer reviewers through an Addendum feature that is activated by the peer reviewers when needed.

The institution should not otherwise provide materials to peer reviewers, as peer reviewers are expected to work from the Assurance System in preparation for and throughout an evaluation.

Additional information about the Assurance System can be found in the Assurance System Manual.

REQUIRED MATERIALS FOR PRELIMINARY PEER REVIEW
The materials submitted for the preliminary peer review are as follows.

1. Institutional Data Form
   • This form is completed by the institution to provide basic institutional data.
   • Download the Institutional Data Form from the Forms Tab of the Assurance System.
   • Complete and upload the form to the Forms Tab of the Assurance System. If including other materials to respond to the data requested by the form, combine all documents (including the form) into a single PDF file before uploading it to the Forms Tab. (Peer reviewers will be able to access the form through the Forms Tab. There is no need to provide a link to this document in the narrative of the Assurance Argument.)

2. Compliance With Eligibility Requirements Form
   • This form is completed by the institution to provide information on its compliance with the Eligibility Requirements.
• Download the Compliance With Eligibility Requirements Form from the Forms Tab of the Assurance System.
• Complete and upload the form and supporting evidence to the Forms Tab of the Assurance System. (Peer reviewers will be able to access the form through the Forms Tab. There is no need to provide a link to this document in the narrative of the Assurance Argument.)

3. Compliance With Assumed Practices Form
• This form is completed by the institution to provide information on its compliance with the Assumed Practices.
• Download the Compliance With Assumed Practices Form from the Forms Tab of the Assurance System.
• Complete and upload the form and any supporting documentation to the Forms Tab of the Assurance System. (Peer reviewers will be able to access the form through the Forms Tab. There is no need to provide a link to this document in the narrative of the Assurance Argument.)

4. Assurance Filing (Introduction, Assurance Argument at the Summary Criteria level and associated Evidence File)
• An overview of institutional history and context is entered in the Introduction Tab of the Assurance System.
• For the preliminary peer review, institutions will provide narrative focused at the Criteria “summary” level (not the Core Component level, which occurs later).
• The word limit for the narrative for the preliminary peer review should be approximately 1,500 words or fewer per Criterion summary.
• Other than specific forms provided by HLC, documents in the Assurance System related to the Assurance Argument are managed through the Evidence File. Materials in the Evidence File must be linked to at least one section of the institutional narrative. Peer reviewers cannot view documents in the Evidence File that are not linked to the narrative.

Access to HLC’s Assurance System during the preliminary peer review not only provides an opportunity for the institution to demonstrate its readiness to host a comprehensive evaluation for initial accreditation, but also allows the institution to become acquainted with the Assurance System and to start assembling narrative and evidentiary files for deeper evaluation to occur during the comprehensive evaluation for initial accreditation, during which the institution will write fully to each Criterion’s Core Components. In this way, the institution may choose to simultaneously complete requirements for the preliminary peer review and begin drafting its fuller narrative as required for the comprehensive evaluation for initial accreditation.

Although the institution may begin drafting narrative at the Core Component level during the preliminary peer review, peer reviewers will refrain from reviewing anything in the Assurance System at the Core Component level. Reviewers will only review and evaluate the institution’s responses to the five Criteria summaries at this stage.

REQUIRED MATERIALS FOR COMPREHENSIVE EVALUATION FOR INITIAL ACCREDITATION
The materials submitted for the comprehensive evaluation for initial accreditation are as follows.

1. Institutional Data Form
• This form is completed by the institution to provide basic institutional data.
• Download the Institutional Data Form from the Forms Tab of the Assurance System.
• If the institution chooses to use a previously completed Institutional Data Form, ensure that it is updated appropriately regarding any information that has changed since the original submission, as well as the time frames for which data is requested.
• Complete and upload the form to the Forms Tab of the Assurance System. If including other materials to respond to the data requested by the form, combine all documents (including the form) into a single PDF file before uploading it to the Forms Tab. (Peer reviewers will be able to access the form through the Forms
2. Compliance With Eligibility Requirements Form
   • This form is completed by the institution to provide information on its compliance with the Eligibility Requirements.
   • Download the Compliance With Eligibility Requirements Form from the Forms Tab of the Assurance System.
   • When updating the Compliance With Eligibility Requirements Form, institutions should clearly identify for peer reviewers any items that have been updated since the preliminary peer review and, as needed, include information explaining how the institution continues to meet the Eligibility Requirements despite the noted changes.
   • Upload the form in the Forms Tab of the Assurance System. (Peer reviewers will be able to access the form through the Forms Tab. There is no need to provide a link to this document in the narrative of the Assurance Argument.)

3. Compliance With Assumed Practices Form
   • This form is completed by the institution to provide information on its compliance with the Assumed Practices.
   • Download the Compliance With Assumed Practices Form from the Forms Tab of the Assurance System.
   • When updating the Compliance With Assumed Practices Form, institutions should clearly identify for peer reviewers any items that have been updated in the document since the preliminary peer review and, as needed, include information explaining how the institution continues to meet the Assumed Practices despite the noted changes.
   • Upload the form and any supporting documentation to the Forms Tab of the Assurance System. (Peer reviewers will be able to access the form through the Forms Tab. There is no need to provide a link to this document in the narrative of the Assurance Argument.)

4. Assurance Filing (Introduction, Assurance Argument at the Core Component level and associated Evidence File)
   • When the preliminary peer review step is complete and HLC notifies the institution that it may proceed, the institution regains full access to its site in the Assurance System and any work it has already completed toward satisfying the requirements of the comprehensive evaluation for initial accreditation.
   • An overview of institutional history and context is entered (or updated) in the Introduction Tab of the Assurance System.
   • At this step of the process, institutions will provide a full Assurance Filing, including detailed narrative—complete with linked evidence—regarding all Core Components.
   • Because institutions write in detail to every Core Component for the comprehensive evaluation for initial accreditation, institutions should focus their efforts on narrative and evidence in those sections, rather than the Criterion summaries. To this end, institutions are encouraged to revise the Criteria summaries that were written for the preliminary peer review so that they are brief and concise (often just a paragraph). This helps ensure that the focus shifts to the Core Components, which are the areas of focus during this step.
   • The word limit for the entire Assurance Argument for the comprehensive evaluation is 40,000 words.
   • Other than specific forms provided by HLC, documents in the Assurance System related to the Assurance Argument are managed through the Evidence File. Materials in the Evidence File must be linked to at least one section of the institutional narrative. Peer reviewers cannot view documents in the Evidence File that are not linked to the narrative.
5. **Supplemental Materials:**
   - Include the following Supplemental Materials as hyperlinks in the Assurance Argument, as described in the *Assurance System Manual*:
     i. All current faculty and staff handbook(s)
     ii. All current student handbook(s)
     iii. All current institutional catalog(s) or course bulletin(s)
   - Further, include audited financial statements for the two most recent fiscal periods as PDFs in the Evidence File and provide a link within the Assurance Argument in the applicable Core Component section.

6. **Federal Compliance Requirements**
   - Download the Federal Compliance Filing Form from HLC’s website.
   - Upload the completed Filing Form and related appendix, if required, to the Federal Compliance Tab of the Assurance System. (There is no need to provide a link to this document in the narrative of the Assurance Argument.)

7. **Multi-Campus Report (if applicable)**
   - If the comprehensive evaluation includes a multi-campus visit, prepare a report that addresses each campus being reviewed. See the *Multi-Campus Visit procedure* for details on preparing the report.
   - Upload the report to the Forms tab of the Assurance System. (There is no need to provide a link to the report in the narrative of the Assurance Argument.)

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**RELATED POLICIES AND DOCUMENTS**

**POLICIES**
- Eligibility Requirements (CRRT.A.10.010)
- Criteria for Accreditation (CRRT.B.10.010)
- Assumed Practices (CRRT.B.10.020)
- Federal Compliance Requirements
  - Jurisdiction (INST.B.10.010)
  - Eligibility Process (INST.B.20.010)
  - Candidacy and Initial Accreditation (INST.B.20.020)
  - Accelerated Process for Initial Accreditation (INST.B.20.032)
  - Obligations of Membership (INST.B.30.020)
  - Dues and Fees (INST.B.30.030)
  - Denial or Withdrawal of Status (INST.E.60.010)
  - Reapplication Following a Denial or Withdrawal of Status (INST.E.80.010)
  - Appeals (INST.E.90.010)

**DOCUMENTS**
- Substantial Presence Form
- Institutional Data Form
- Compliance With Eligibility Requirements Form
- Compliance With Assumed Practices Form
- Federal Compliance Overview and Filing Form
- Dues and Fees Schedule