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Review of Engineering Programs in
the State University System of
Florida Institutions

FLORIDA POLYTECHNIC
UNIVERSITY



March 12, 2013

Presentation Overview

This presentation provides an overview of the engineering schools/colleges at the following State University System of Florida institutions:

- Florida A&M University / Florida State University
- Florida Atlantic University
- Florida Gulf Coast University
- Florida International University
- University of Central Florida
- University of Florida
- University of North Florida
- University of South Florida
- University West Florida

Data provided in this presentation include the following:

- Degree programs offered
- Concentrations, tracks, or specializations
- Certificate programs
- Online course offerings
- Research centers

Overview of Engineering Schools in the SUS

There are nine engineering schools/colleges in SUS institutions, including the joint FAMU/FSU program.

A number of engineering programs may be found at the majority of schools, for example:

- Civil Engineering
- Computer Engineering
- Computer Science
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering

The schools with the broadest array of engineering programs offer concentrations or specialization tracks and/or certificate programs within some of their programs. Examples, to name a few, include:

- Environmental Engineering
- Transportation Systems
- Materials
- Geotechnical Engineering
- Electromagnetics
- Robotics

Details for each school were compiled from institutional websites and are displayed on the following pages.

Summary of Engineering Degree Programs

Degree Program	USF			UCF			FAMU/FSU			FAU			FGCU			FIU			UF			UNF			UWF			
	BS	MS	PHD	BS	MS	PHD	BS	MS	PHD	BS	MS	PHD	BS	MS	PHD	BS	MS	PHD	BS	MS	PHD	BS	MS	PHD	BS	MS	PHD	
Aerospace Engineering				X	X														X	X	X							
Agricultural and Biological Engineering																			X	X	X							
Bioengineering										X			X												X			
Biomedical Engineering		X	X													X	X	X		X	X							
Building Construction																												
Chemical Engineering	X	X	X				X	X	X										X	X	X							
Civil Engineering	X	X	X	X	X	X	X	X	X	X	X		X			X	X	X	X	X	X	X	X	X	X	X	X	
Coastal and Oceanographic Engineering																					X							
Computer Engineering	X	X		X	X	X	X			X	X	X				X	X		X	X	X						X	
Computer Information System																											X	
Computer Science	X	X		X	X	X				X	X	X				X	X	X	X							X	X	
Computer Science & Engineering			X																									
Computing and Information Sciences																									X	X		
Construction Engineering				X																								
Construction Management																X	X											
Database Systems																											X	
Digital Arts and Sciences																			X									
Digital Forensics				X	X	X																						
Electrical and Computer Engineering																					X	X						
Electrical Engineering	X	X	X				X	X	X	X	X	X				X	X	X	X	X	X	X	X	X	X	X	X	
Engineering Management		X															X											
Engineering Technology																											X	
Environmental Engineering		X		X	X	X							X			X	X											
Geomatics Engineering									X																			
Industrial and Systems Engineering																			X	X	X							
Industrial Engineering	X	X	X	X	X	X	X	X	X										X	X	X							
Information Engineering Technology										X																		
Information Technology	X	X		X												X	X										X	
Materials Science and Engineering					X	X		X	X								X	X	X	X	X	X						
Mechanical Engineering	X	X	X	X	X	X	X	X	X	X	X	X				X	X	X	X	X	X	X	X	X	X	X		
Mechanical Engineering / Aerospace																X												
Nuclear and Radiological Sciences																			X		X							
Nuclear Engineering																			X	X	X							
Ocean Engineering									X	X	X																	
Professional Construction Management																				X								
Professional Engineering Management																				X								
Software Engineering												X														X	X	
Telecommunications & Networking																	X											

Summary of Engineering Program Concentrations/Specializations

CONCENTRATIONS/SPECIALIZATIONS				
USF	UCF	FAMU/FSU	FAU	FGCU
<u>Civil Engineering</u>	<u>Aerospace Engineering</u>	<u>Civil Engineering (Graduate concentrations)</u>	<u>Civil Engineering (Graduate concentration)</u>	None found
Environmental Engineering	Space Systems Design and Engineering	Structural Engineering	Environmental engineering	
Geotechnical	Thermofluid Aerodynamic Systems Design and Engineering	Environmental Engineering		
Interdisciplinary Transportation	<u>Civil Engineering</u>	Geotechnical Engineering		
Materials	Structural and Geotechnical Engineering	Transportation Engineering		
Structures	Transportation Systems Engineering	Construction Engineering		
Transportation	Water Resources Engineering	Water Resources Engineering		
Water Resources	<u>Electrical Engineering</u>	<u>Chemical Engineering</u>		
<u>Chemical Engineering</u>	Engineering Management	Chemical-Materials Engineering		
Biomedical and Biotechnology	Professional Engineering Management	Biomedical Engineering		
Manufacturing	<u>Mechanical Engineering</u>	<u>Electrical & Computer Engineering (Graduate concentrations)</u>		
<u>Industrial Engineering</u>	Mechanical Systems	Computer engineering		
Engineering Management	Thermofluids	VLSI		
Manufacturing Systems	<u>Environmental Engineering</u>	Computer security		
Quantitative Analysis	Environmental Engineering Sciences	Electromagnetics		
<u>Mechanical Engineering</u>	<u>Industrial Engineering</u>	Communications		
Manufacturing	Human Systems Engineering/Ergonomics	Digital signal processing and controls		
	Interactive Simulation and Training Systems	Power systems		
	Quality Systems Engineering	Robotics		
	Systems Engineering	Microelectronic engineering		
	Systems Operations and Modeling	<u>Industrial Engineering (graduate concentrations)</u>		
		Engineering Management		
		Engineering Management of Orthotics and Prosthetics		
		<u>Mechanical Engineering (graduate concentrations)</u>		
		Sustainable Energy		
		Materials Science and Engineering		
		<u>Mechanical Engineering (undergraduate concentrations)</u>		
		Dynamic Systems		
		Mechanics and Materials		
		Thermal Fluids		
		Magnet Science and Technology		
		Aeronautics		

Summary of Engineering Program Concentrations/Specializations, Cont.

CONCENTRATIONS/SPECIALIZATIONS			
FIU	UF	UNF	UWF
<i>None found</i>	<u>Environmental Engineering Sciences</u>	<u>Computing and Information Sciences</u>	<u>Engineering Technology</u>
	Systems Ecology and Ecological Engineering	Computer Science	Building Construction
	Water Resources Planning and Management	Information Science	Information Engineering Technology
	Water, Wastewater, and Stormwater Engineering	Information Systems	<u>Information Technology</u>
	<u>Materials Science and Engineering</u>	Information Technology	Digital Enterprise
	Metals		Networking and Telecommunication Technologies
	Polymers		
	Structural Materials		
	Electronic Materials		
	<u>Mechanical and Aerospace Engineering</u>		
	Solid Mechanics and Design		
	Dynamics and Control		
	Fundamentals of Thermal Fluids Transport		

Summary of Engineering Certificate Programs

CERTIFICATE PROGRAMS		
FIU	USF	UCF
Construction Engineering & Management	Biomedical Engineering	Applied Operations Research
Electrical Power Engineering & Management	Technology Management	Construction Engineering
Information Technology in Civil Engineering	Total Quality Management	Design for Usability
Design, Mechanics and Robotics	Materials Science and Engineering	Industrial Ergonomics and Safety
Thermo-Fluids	Wireless Engineering	Project Engineering
	Enhancement	Quality Assurance
	Water, Health, Sustainability	Structural Engineering
	Systems Engineering	Systems Engineering
		Systems Simulation for Engineers
		Training Simulation
		Transportation Engineering
FAMU/FSU	UWF	FAU
Dynamic Systems	Information Technology	Geomatics Engineering
Mechanics and Materials	Database Systems	Bioengineering
Thermal Fluids	Web Development	
Magnet Science and Technology	Electrical Engineering	
Aeronautics		
FGCU	UNF	UF
<i>None found</i>	<i>None found</i>	Control Systems
		Systems Engineering
		Sustainable Engineering
		Advanced Manufacturing
		Materials Characterization
		Engineering Entrepreneurship
		Environmental Policy and Management
		Energy

Note: FIU offers Professional Certificates in the following: Engineer to Manager, ISO 9001:2008, IT Academy, Lean Green, Lean Systems, Six Sigma Black Belt, Six Sigma Green Belt, and Supply Chain Management.

Summary of Engineering Programs, Cont.

	SUS INSTITUTION								
	USF	UCF	FAMU/FSU	FAU	FGCU	FIU	UF	UNF	UWF
<i>Online course offerings?</i>	X	X	-	X	-	X	X	X	X
<i>Number of Research Centers</i>	13	9	10	11	-	12	21	-	-

Note: X indicates institutions with online course options in engineering.

Florida A&M University/Florida State University Joint Engineering Program

Degree Program	Bachelor's Degree	Master's Degree	Doctorate
Chemical Engineering	X	X	X
Civil Engineering	X	X	X
Computer Engineering	X		
Electrical Engineering	X	X	X
Industrial Engineering	X	X	X
Materials Science and Engineering		X	X
Mechanical Engineering	X	X	X

CERTIFICATE PROGRAMS

Mechanical Engineering:

Dynamic Systems

Mechanics and Materials

Thermal Fluids

Magnet Science and Technology

Aeronautics

Note: Completion of three courses in one of the above areas will gain a student a certificate of specialization in that area on their University transcript.

Concentrations/Tracks/Specializations

<u>Civil Engineering (Graduate concentrations)</u>	<u>Electrical & Computer Engineering (Graduate concentrations)</u>	<u>Industrial Engineering (Graduate concentrations)</u>
Structural Engineering	Computer engineering	Engineering Management
Environmental Engineering	VLSI	Engineering Management of Orthotics and Prosthetics
Geotechnical Engineering	Computer security	<u>Mechanical Engineering (Graduate concentrations)</u>
Transportation Engineering	Electromagnetics	Sustainable Energy
Construction Engineering	Communications	Materials Science and Engineering
Water Resources Engineering	Digital signal processing and controls	<u>Mechanical Engineering (undergraduate concentrations)</u>
<u>Chemical Engineering</u>	Power systems	Dynamic Systems
Chemical-Materials Engineering	Robotics	Mechanics and Materials
Biomedical Engineering	Microelectronic engineering	Thermal Fluids
		Magnet Science and Technology
		Aeronautics

Florida A&M University/Florida State University Joint Engineering Program, Cont.

Online Course Offering Examples

None found

Research Centers:

Aero-Propulsion, Mechatronics and Energy Center	Energy and Sustainability Center
Applied Superconductivity Center	Florida Center for Advanced Aero-Propulsion
Center for Advanced Power Systems	Future Renewable Electric Energy Delivery and Management Systems Center
Center for Intelligent Systems, Control, and Robotics	High-Performance Materials Institute
Energy Research at College of Engineering	Institute for Energy systems, Economics and Sustainability

Florida A&M University/Florida State University Joint Engineering Program, Cont.

- Spring 2013 - Florida State University's High-Performance Materials Institute (HPMI) leads a major partnership to develop the next generation of prosthetic limbs for military-veteran amputee patients, thanks to a new contract with the U.S. Department of Veterans Affairs.
- Spring 2013- Florida State University (FSU) and Tallahassee, Florida-based General Capacitor signed an agreement to develop a new supercapacitor technology that the two organizations say will play a "major role" in future energy usage and storage needs.
- Spring 2013 - Amy Chan Hilton, associate professor in civil and environmental engineering at the FAMU-FSU College of Engineering, was appointed by the National Science Foundation (NSF) as the Education & Human Resources (EHR)/Division of Undergraduate Education (DUE) program director.

Florida Atlantic University

Degree Program	Bachelor's Degree	Master's Degree	Doctorate
Bioengineering		X	
Civil Engineering	X	X	
Computer Engineering	X	X	X
Computer Science	X	X	X
Electrical Engineering	X	X	X
Geomatics Engineering	X		
Information Engineering Technology	X		
Mechanical Engineering	X	X	X
Ocean Engineering	X	X	X

CERTIFICATE PROGRAMS

Geomatics Engineering

Bioengineering

Concentrations/Tracks/Specializations

Civil Engineering (Graduate concentration)

Environmental Engineering

Florida Atlantic University, Cont.

Online Course Offering Examples

<u>Electrical Engineering Undergraduate</u>	<u>Computer Science and Engineering Undergraduate</u>	<u>Geomatics</u>	<u>Mechanical Engineering Undergraduate</u>
Intro to Digital Signal Proces	Computer Applications 1	Plane Surveying	Dynamics
Control Systems 1	Computer Applications 2	Engrg Construction Surveying	Engineering Materials 1
Analysis Linear Systems	Intro to Database Structures	Land Subdivision and Platting	<u>Mechanical Engineering Graduate</u>
<u>Electrical Engineering Graduate</u>	<u>Computer Science and Engineering Graduate</u>	Land Subdivsn and Platting Lab	Nanotechnology
Intro to Bioengineering	Software Engineering	Introduction to Geodesy	Mechanical Vibrations
Mobile Computing	Software Maintenance and Evolution	Geomatics Engrg Design 2	Adv Computatnl Fluid Dynamics
Digital Communications Systems	Mobile Computing	<u>Ocean Engineering Undergraduate & Graduate</u>	Controls
Fiber Optic Communication	Cloud Computing	Introduction to Oceanography	Wind Turbines
Computer Vision	Data Mining for Bioinformatics	Mathematical Methods in OE 1	
Local Access Internet Telecomm	Analysis of Algorithms	Advanced Frctr & Flr Process 1	
	Video Communication	Mathematical Methods In OE 2	
	Machne Learngng for Comp Vision	Ocean and Seabed Acoustics	
		Offshore Structures	
		Signal Processing	
		Intelligent Underwater Vehicles 1	

Research Centers:

Center for Acoustics and Vibrations	Center for Marine Structures and Geotechnique
Center for Advancement of Distance Education Technologies	Center for Systems Integration
Center for Hydrodynamics and Physical Oceanography	Institute of Ocean and Systems Engineering
Center for Infrastructure and Constructed Facilities	NSF Industry/University Cooperative Research Center for Advanced Knowledge Enablement
Center for Intermodal Transportation Safety and Security	Southeast National Marine Renewable Energy Center
Center for Marine Materials	

Florida Atlantic University, Cont.

- Feb 2013 - Civil, environmental and geomatics engineering undergraduate student Fernando Martinez is a finalist for an American Concrete Institute (ACI) Foundation Fellowship, the winner of the national competition will be announced in Minneapolis, Minnesota on April 14.
- Nov 2012 - FAU's department of computer and electrical engineering and computer science associate professor Ankur Agarwal, Ph.D., has received a one-year National Science Foundation (NSF) Collaborative Research: Data Correlation and Fusion for Medical Monitoring grant of \$200,000 through the NSF Industry/University Cooperative Research Center (I/UCRC), Center for Advanced Knowledge Enablement (CAKE) in conjunction with Florida International University (FIU) and a matching grant from Soren Technology of an additional \$200,000 to address the challenges of telemedicine and home healthcare. This research is in response to the rising healthcare costs in the United States associated with hospitalization.
- Sept 2012 - FAU's College of Engineering and Computer Science's Bachelor of Science in Geomatics Engineering (BSGE) program has received accreditation from the Accreditation Board for Engineering and Technology (ABET).
- Aug 2012 - FAU Awarded Collaborative National Science Foundation Grant to Study Teamwork Effectiveness in Software Engineering Education
- Apr 2012 - FAU department of Ocean and Mechanical Engineering professor, Dr. Hassan Mahfuz, and graduate student, Charles Davis are members of a "collaborative project involving Tennessee State University and Florida Atlantic University where NEEC investigators and students are looking at ways to detect explosives using nano-sensor technology while protecting troops, saving lives and building the future of our engineering workforce."

Florida Gulf Coast University

Degree Program	Bachelor's Degree	Master's Degree	Doctorate
Bioengineering	X		
Civil Engineering	X		
Environmental Engineering	X		
Software Engineering	X		

Note: BS in Computer Science is being phased out with the last students expected to graduate by 2014.

CERTIFICATE PROGRAMS

None found

Concentrations/Tracks/Specializations

None found

Florida Gulf Coast University, Cont.

Online Course Offering Examples

None found

Research Centers:

None found

Florida Gulf Coast University, Cont.

- The U.A. Whitaker College of Engineering hosted its first engineering camp for high school students this past June 2012. The Engineering Extravaganza Summer Challenge was developed and delivered by Drs. Csavina, Kunberger and Zidek with funding from the Heartland Educational Consortium, a partner in the FloridaLearns STEM Scholars program.

Florida International University

Degree Program	Bachelor's Degree	Master's Degree	Doctorate
Biomedical Engineering	X	X	X
Civil Engineering	X	X	X
Computer Engineering	X	X	
Computer Science	X	X	X
Construction Management	X	X	
Electrical Engineering	X	X	X
Engineering Management		X	
Environmental Engineering	X	X	
Information Technology	X	X	
Material Science & Engineering		X	X
Mechanical Engineering	X	X	X
Mechanical Engineering / Aerospace	X		
Professional Construction Management		X	
Professional Engineering Management		X	
Telecommunications & Networking		X	

CERTIFICATE PROGRAMS

Graduate Certificates

Construction Engineering & Management

Electrical Power Engineering & Management

Information Technology in Civil Engineering

Mechanical Engineering – Design, Mechanics and Robotics

Mechanical Engineering – Thermo-Fluids

Professional Certificates

Engineer to Manager

ISO 9001:2008

IT Academy

Lean Green

Lean Manager

Lean Systems

Six Sigma Black Belt

Six Sigma Green Belt

Supply Chain Management

Concentrations/Tracks/Specializations

None found

Florida International University, Cont.

Online Course Offering Examples

<u>Civil and Environmental Engineering</u>	<u>Civil and Environmental Engineering (continued)</u>	<u>Electrical and Computer Engineering</u>	<u>School of Computing and Information Science</u>
Heavy Construction	Special Topics: Transportation Sys.	Engineering Software Technology	Principles of Data Mining
Project Planning for Civil Engineers	Civil Engineering Seminar (FE Review)	<u>Engineering Management</u>	Systems Fundamentals
Construction Engineering Management	Sp. Top: Sustainable Building Eng	Total Quality Management	Operating Systems
Adv Heavy Cons Tech	Engineering Drawing	Industrial Financial Decisions	Database Management
Geotechnical Engineering I	Engineering Economy	<u>Mechanical and Materials Engineering</u>	Advanced Database Systems
Determinate Structural Analysis	Solid Hazardous Waste	Statics	Introduction to Algorithms
Intro to Prestressed Concrete Structures	Chemistry for Environmental Eng	Dynamics	Secure Telecome Tran
Advanced Structural Analysis	Sewer and Wastewater Treatment	<u>OHL School of Construction</u>	Wireless Comm and Multimedia Applications
Advanced Steel Design	Solid Hazardous Waste	Construction Sitework	Information Theory
Prestressed Concrete Design	Chemistry for Environmental Eng	Building Codes and Quality Control	Telecomm Network Analysis Design
Timber Design	Transportation Traffic Engineering	Construction Safety Management	Internetworking
Computer Tools for Engineers	Traffic Engineering	Topics in International Construction	
Sustainable Building Engineering	Adv Highway Capacity Analysis	Value Engineering	
Special Topics: Transportation Sys.	Fundamentals of Traffic Engineering		
Sustainable Building Engineering			

Research Centers:

ARC : Applied Research Center

EMC: Engineering Manufacturing Center

CADSE: Center for Advanced Distributed System Engineering

HPDRC: High Performance Database Research Center

CATE: Center for Advanced Technology and Education

IT2: Telecommunication and Information Technology Institute

CeSMEC: Center for the Study of Matter at Extreme Conditions

LA GRID: IBM Latin American Supercomputing Consortium

CREST: Center of Emerging Technologies for Advanced Information Processing and High-Confidence Systems

LCTR: Lehman Center For Transportation Research

EIC: Engineering Information Center

Motorola Nano-fabrication research facility

Florida International University, Cont.

- Feb 2013 - FIU professor Sakhrat Khizroev, a world-renowned inventor in the area of nanotechnology, is one of 98 innovators recently named a Charter Fellow by the National Academy of Inventors (NAI).
- Feb 2013 - Ranu Jung, professor and chair of FIU's Department of Biomedical Engineering, has been named a fellow of the American Institute for Medical and Biological Engineering (AIMBE).
- 1st Annual Personalized NanoMedicine Symposium at FIU, Miami, Florida, February 18, 2013
- Aug 2012 - FIU students are awarded prestigious NSF Research Fellowships - Pamela Pimentel is interested in juveniles in the justice system, tracking this potentially vulnerable group's path from questioning to incarceration. Mario Consuegra is focused on advancing the field of power efficient, or "green," computing in a world that shows no signs of slaking its need for technological advances. Both FIU graduate students are pursuing their doctorates this fall as National Science Foundation Graduate Research Fellowship (NSFGRF) awardees, a distinction shared by numerous Nobel Prize winners, government and public policy leaders, and private industry trailblazers.

University of Central Florida

Degree Program	Bachelor's Degree	Master's Degree	Doctorate
Aerospace Engineering	X	X	
Civil Engineering	X	X	X
Computer Engineering	X	X	X
Computer Science	X	X	X
Construction Engineering	X		
Digital Forensics	X	X	X
Environmental Engineering	X	X	X
Industrial Engineering	X	X	X
Information Technology	X		
Materials Science and Engineering		X	X
Mechanical Engineering	X	X	X

CERTIFICATE PROGRAMS
Applied Operations Research
Construction Engineering
Design for Usability
Industrial Ergonomics and Safety
Project Engineering
Quality Assurance
Structural Engineering
Systems Engineering
Systems Simulation for Engineers
Training Simulation
Transportation Engineering

Concentrations/Tracks/Specializations

Aerospace Engineering

Space Systems Design and Engineering
 Thermofluid Aerodynamic Systems Design and Engineering

Civil Engineering

Structural and Geotechnical Engineering
 Transportation Systems Engineering

Water Resources Engineering

Electrical Engineering

Engineering Management
 Professional Engineering Management

Mechanical Engineering

Mechanical Systems
 Thermofluids

Environmental Engineering

Environmental Engineering Sciences

Industrial Engineering

Human Systems Engineering/Ergonomics
 Interactive Simulation and Training Systems
 Quality Systems Engineering
 Systems Engineering
 Systems Operations and Modeling

Note: Online courses listed are those projected to be offered for the Fall 2013 semester.

University of Central Florida, Cont.

Online Course Offering Examples

<u>Civil, Environmental and Construction Engineering</u>	<u>Electrical Engineering and Computer Science</u>		
Infrastructure Systems Management	Computer Communication Networks Architecture	Engineering Management	Physical Metallurgy
Decision Support for Infrastructure Projects	Thin Film Technology	Operations Engineering	Optoelectronics Materials Processing
Cost Analysis of Sustainable Infrastructure Systems	CMOS Analog and Digital Circuit Design	Advanced Engineering Economic Analysis	<u>Mechanical and Aerospace Engineering</u>
Soil Dynamics	Biomedical Sensors	Innovation in Engineering Design	Mechatronic Systems
Advanced Geotechnical Engineering	Antenna Analysis and Design	Engineering Statistics	Mathematical Methods
Matrix Methods for Structural Analysis	Random Processes I	Reliability Engineering	Intermediate Mechanics of Materials
Advanced Structural Mechanics	Digital Control Systems	Operations Research	Introduction to MEMS and Micromachining
Hydraulic Engineering	Autonomous Robotic Systems	Discrete Systems Simulation	Turbines for Sustainable Power
Water Resources in a Changing Environment	Advanced Topics in Power Engineering	Quality Design and Control	Intermediate Fluid Mechanics
River Engineering and Sediment Transport	Electromagnetic Theory I	Decision Analysis	Biofluid Mechanics
Engineering Chemical and Biological Processes	Communications Systems Design	Systems Engineering	Finite Elements
Physical/Chemical Treatment Systems	Data Intensive Computing	IEMS Research Methods	Combustion Phenomena
Industrial Waste Treatment	<u>Industrial Engineering and Management Systems</u>	Probability and Statistics for Engineers	Boiling and Condensation Heat Transfer
Traffic Operations	The Environment of Technical Organizations	<u>Materials Science and Engineering</u>	Radiation Heat Transfer
Geometric Design of Transportation Systems	Project Engineering	Intermediate Structure and Properties of Materials	Advanced Vibrational Systems
	Ergonomics	Metallurgical Thermodynamics	Fundamentals of Fatigue Analysis
		Introduction to Ceramic Materials	Mechanics of Viscous Flow

Note: Online courses listed are those projected to be offered for the Fall 2013 semester.

Research Centers:

Center for E-Design and Realization	Environmental Systems Engineering Institute
Stormwater Management Academy	Consortium for Applied Acoustoelectronics Technology
Florida Power Electronics Center	Center for Advanced Transportation Systems Simulation
Center for Advanced Turbines and Energy Research	Transportation Systems Institute
Institute for Advanced Systems Engineering	

Note: Research expenditures: Fiscal Year 2009–10: \$ 19,636,599.

University of Central Florida, Cont.

- Ranked 40th best public engineering college nationwide by U.S. News & World Report (2011)
- Ranked 3rd best graduate engineering school for Hispanics (*Hispanic Business Magazine*, 2010)
- Ranked among the top 100 colleges of engineering and computer science in the world
- (*Academic Ranking of World Universities*, 2010)
- Numerous Faculty Awards and Recognition:
 - One Member of the National Academy of Engineering (NAE)
 - Seven Fellows of the American Association for the Advancement of Science (AAAS)
 - One Fellow of the American Society for Engineering Education (ASEE)
 - Thirteen Fellows of the Institute of Electrical and Electronics Engineers (IEEE)
 - Four Fellows of the American Society of Civil Engineers (ASCE)
 - Three Fellows of the American Society of Mechanical Engineers (ASME)
 - Three Fellows of the Institute of Industrial Engineers (IIE)
 - One Fellow of the Association of Computing Machinery (ACM)

University of Florida

Degree Program	Bachelor's Degree	Master's Degree	Doctorate
Aerospace Engineering	X	X	X
Agricultural and Biological Engineering	X	X	X
Biomedical Engineering		X	X
Chemical Engineering	X	X	X
Civil Engineering	X	X	X
Coastal and Oceanographic Engineering		X	
Computer Engineering	X	X	X
Computer Science	X		
Digital Arts and Sciences	X		
Electrical Engineering	X		X
Electrical and Computer Engineering		X	X
Environmental Engineering	X	X	X
Industrial and Systems Engineering	X	X	X
Materials Science and Engineering	X	X	X
Mechanical Engineering	X	X	X
Nuclear Engineering	X	X	X
Nuclear and Radiological Sciences	X		X

CERTIFICATE PROGRAMS

Engineering:

- Control Systems
- Systems Engineering
- Sustainable Engineering
- Advanced Manufacturing
- Materials Characterization
- Engineering Entrepreneurship
- Environmental Policy and Management
- Energy

Concentrations/Tracks/Specializations

Environmental Engineering Sciences:

- Systems Ecology and Ecological Engineering
- Water Resources Planning and Management
- Water, Wastewater, and Stormwater Engineering

Materials Science and Engineering:

- Metals
- Polymers
- Structural Materials
- Electronic Materials

Mechanical and Aerospace Engineering:

- Solid Mechanics and Design
- Dynamics and Control
- Fundamentals of Thermal Fluids Transport

University of Florida, Cont.

Online Course Offering Examples

<u>Biomedical Engineering</u>	<u>Computer & Information Sciences & Engineering</u>	<u>Environmental Engineering Sciences</u>
Radiation Biology	Human-Computer Interaction	Ecological Engineering
Medical Radiation Shielding and Protection	Computer Architecture Principles	Advanced Water Treatment Processes
<u>Civil & Coastal Engineering</u>	Software Testing & Verification	Wetland Hydrology
Earth Retaining Systems and Slope Stability	Mobile Platforms and Development Environments	<u>Industrial & Systems Engineering</u>
Public Works Planning	Database Management Systems	Reliability Engineering
Construction Engineering II	Analysis of Algorithms	Model Supply Chain Management
Materials & Sustainability	<u>Electrical & Computer Engineering</u>	<u>Materials Science & Engineering</u>
Traffic Engineering	MOS Analog IC Design	High Temperature Alloys
<u>Engineering - General</u>	Radio Frequency Circuits/Technology	Diffusion, Kinetics, and Transport Phenomena
Engineering Leadership	Wireless Communications	Science of Biomaterials 1
Entrepreneurship for Engineers	Digital Communication	<u>Mechanical & Aerospace Engineering</u>
Engineering Innovation	Parallel Computer Architecture	Continuum Mechanics
Engineering Ethics	Pattern Recognition	Classical & Statistical Thermodynamics

Research Centers:

Institute for Computational Engineering	Florida Institute for Sustainable Energy
Engineering Leadership Institute	Machine Tool Research Center
Engineering Innovation Institute	Major Analytical Instrumentation Center
Center for Nano-Bio Sensors	Mineral Resources Research Center
Center for Environmental Policy	Transportation Research Center
Howard T. Odum Center for Wetlands	Bridge Software Institute
Water Resources Research Center	Supply Chain & Logistics Engineering Center
Center for Applied Optimization	Center for Pavements and Infrastructure Materials
Center for Intelligent Machines and Robotics	Hinkley Center for Solid and Hazardous Waste Management
Center for Surface Science and Engineering	Nanoscience Institute for Medical and Engineering Technology
Database Systems Research and Development Center	

University of Florida, Cont.

- Rankings:

UNDERGRADUATE PROGRAMS

U.S. News & World Report — 18th public / 32nd overall

Four undergraduate engineering programs are ranked:

Agricultural (7), Chemical (19), Environmental (13), and Materials (8).

GRADUATE PROGRAMS

U.S. News & World Report — 18th public / 30th overall

10 engineering specialties are ranked:

Aerospace (13), Agricultural (6), Chemical (15), Civil (20), Electrical (20),
Environmental (17), Industrial (10), Materials (5), Mechanical (15), and Nuclear (8).

Hispanic Business Magazine — 8th

- March 2013 - Four UF College of Engineering faculty members have been inducted as Fellows of the American Association for the Advancement of Science, an honor bestowed upon AAAS members by their peers because of their distinguished efforts to advance science or its applications.

University of North Florida

Degree Program	Bachelor's Degree	Master's Degree	Doctorate
Building Construction	X		
Civil Engineering	X	X	
Computing and Information Sciences	X	X	
Electrical Engineering	X	X	
Mechanical Engineering	X	X	

Note: The University of North Florida also offers a MBA program with a concentration in Construction Management.

CERTIFICATE PROGRAMS

None found

Concentrations/Tracks/Specializations

Computing and Information Sciences

Computer Science

Information Science

Information Systems

Information Technology

University of North Florida, Cont.

Online Course Offering Examples

Advanced Engineering Analysis

Advanced Strategic Management

Construction Techniques

Special Topics: Numerical Modeling of Coastal & Estuarine Systems

Special Topics: Risk Assessment

Construction Techniques

Research Centers:

None found

University of North Florida, Cont.

- UNF Computing Student Fred Wehle was the first intern ever to be presented the High Altitude Award by ICS, Inc. The High Altitude Award is designed to recognize employees who exhibit a high level of performance and whose unique contributions and accomplishments reflect ICS's core values relating to customer service, excellence, innovation, and teamwork.

University of South Florida

Degree Program	Bachelor's Degree	Master's Degree	Doctorate
Biomedical Engineering		X	X
Chemical Engineering	X	X	X
Civil Engineering	X	X	X
Computer Engineering	X	X	
Computer Science	X	X	
Computer Science & Engineering			X
Electrical Engineering	X	X	X
Engineering Management		X	
Environmental Engineering		X	
Industrial Engineering	X	X	X
Information Technology	X	X	
Mechanical Engineering	X	X	X

CERTIFICATE PROGRAMS
Biomedical Engineering
Technology Management
Total Quality Management
Materials Science and Engineering
Wireless Engineering
Enhancement
Water, Health, Sustainability
Systems Engineering

Note: The USF bachelor of science degree programs in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering are accredited by the Engineering Accreditation Commission of ABET. The bachelor of science degree program in Computer Science is accredited by the Computing Accreditation Commission of ABET.

Concentrations/Tracks/Specializations

Civil Engineering

Environmental Engineering
 Geotechnical
 Interdisciplinary Transportation
 Materials
 Structures
 Transportation
 Water Resources

Chemical Engineering

Biomedical and Biotechnology

Manufacturing

Industrial Engineering

Engineering Management

Manufacturing Systems

Quantitative Analysis

Mechanical Engineering

Manufacturing

University of South Florida, Cont.

Online Course Offering Examples

Advanced Lean Six Sigma	Math for Comm	Principles of Engineering Management
Computers & Impact on Society	MMIC Design	Probability & Statistics for Engineers
Digital Signal Processing II	New Product Development	Probabilistic Systems Analysis
Electromechanical Systems	Occupational Safety Engineering	Production Control
Engineering Apps of Partial Diff Eq	Oper Res for Engineering Management	Public Transportation
Engineering Manage Policy & Strategy	Operating Systems	Random Process in Electrical Engineering
Engineering Analytics I	Pavement Management Systems	Tech & Finance
Engineering Econ Social/Global Implementation	Power Electronics	Transportation Safety
Globalization & Technology	Power Qual AC/DC Sys	Wireless Net
Intro to Communication Systems	Power Systems II	Work Design, Motivation Prod

Research Centers:

Center for Urban Transportation Research (CUTR)	Center for Applied Research in Medical Devices (CareMed)
Clean Energy Research Center (CERC)	Global Center for Hearing & Speech Research (GCHSR)
Center for Assistive, Rehabilitation Robotics Technologies (CARRT)	USF Center for Entrepreneurship
Nanotechnology Research and Education Center (NREC)	National Bus Rapid Transit Institute
Center for Wireless and Microwave Information Systems (WAMI)	National Center For Transit Research
Center for Communications & Signal Processing (CCSP)	Center for Modeling Hydrologic and Aquatic Systems
Center for digital and computational Video (CDCV)	

Note: Research expenditures: \$25.2 million (2010-2011)

University of South Florida, Cont.

- Member of Florida's Energy Systems Consortium
- Seventeen engineering faculty are recipients of the prestigious National Science Foundation CAREER award, including one PFF/PECASE recipient
- The College of Engineering graduate program is ranked #75 among public institutions by U.S. News & World Report
- How the College of Engineering at the University of South Florida ranks among other engineering programs in the United States: (source ASEE Profiles 2010)
 - Top 50 for awarding bachelor's degrees
 - Top 50 in undergraduate enrollment
 - Top 30 for awarding bachelor's degrees in chemical, computer and electrical engineering
 - Top 50 for awarding bachelor's degrees in computer science
 - Top 50 for awarding bachelor's degrees in civil, electrical, industrial and mechanical engineering
- USF offers students the opportunity to participate in the Engineering Living & Learning Community (ELLC), which is an on-campus residential learning community designed for students majoring in Engineering. The ELLC is an academic program that emphasizes scholarship, community, involvement, and leadership. Residents of the ELLC are expected to perform academically while enjoying the many opportunities for social engagement made possible by the program.
- Computer Science & Engineering Professor Named Outstanding Research Achievement Award - Tampa, Fla (February 4, 2013) – Miguel Labrador, associate professor in the Department of Computer Science and Engineering is the recipient of the College of Engineering's 2012 Outstanding Research Achievement Award.

University West Florida

Degree Program	Bachelor's Degree	Master's Degree	Doctorate
Computer Engineering	X		
Computer Information System	X		
Computer Science	X	X	
Database Systems		X	
Electrical Engineering	X		
Information Technology	X		
Software Engineering	X	X	
Engineering Technology	X		

CERTIFICATE PROGRAMS
Information Technology
Database Systems
Web Development
Electrical Engineering

Concentrations/Tracks/Specializations

Engineering Technology:

Building Construction

Information Engineering Technology

Information Technology:

Digital Enterprise

Networking and Telecommunication Technologies

University West Florida, Cont.

Online Course Offering Examples

Directed Study	Data Viz
Supervised Field Pro	Dig Med Svcs Ops
Intro Car Tech Spe	Tech Sys Ops 2
Seminar	Internship/Practica
Cur/Staff Dev	Eval Hpt Inter
Adv Inst Design	Emerging Tech
Intro to Educ Tech	IT Imp Case Studies

Research Centers:

None found

University West Florida, Cont.

- The Gulf Power Foundation has approved a \$200,000 grant to UWF to help equip its Electrical Engineering "Power Lab" as well as fund the curriculum. Gulf Power Company also provided consultation and direction for the design of the state-of-the-art Power Lab which will include three phase circuits, transformers, motors and generators, transmission line models, unbalanced system operations, fault analysis, system protection and metering.
- The University of West Florida hosts the Emerald Coast BEST Robotics hub, the only BEST hub in the State of Florida. Emerald Coast BEST held its sixth annual competition in the Field House at the UWF Pensacola campus on October 20, 2012. The mission of BEST Inc. is to inspire middle and high school students to pursue careers in engineering, science, and technology through participation in a sports-like, science and engineering-based robotics competition each fall.