FLORIDA POLYTECHNIC UNIVERSITY

EAS4200 – Introduction to AeroStructures

Spring 2026

Course Information

- **Course Number and Title**: EAS4200 – Introduction to AeroStructures
- **Credit Hours:** 3 Credit Hours
- **Academic Term:** Spring 2026

Instructor Information

- **Instructor:** Dr. Kais Jribi
- **Office Location:** BARC 1171
- **Office Hours**: TR 9:30 am – 10:30 am, W 2:00 pm – 3:00 pm
- **Email address**: Kjribi@floridapoly.edu

Course Delivery and Course Description

- **Delivery Mode**: In-Person
  - **Lecture Time:** 4:00 pm – 5:15 pm
  - **Lecture Location:** IST - 1067
- **Official Catalog Course Description**: This course introduces the fundamental principles of aerospace structural analysis. Topics include a review of basic mechanics, analysis of flight and ground loads on aircraft, and the structural analysis of primary components like wings and fuselages. Emphasis is placed on the analysis of thin-walled beams under bending, shear, and torsion, including the idealization of cross-sections and an introduction to thermal stresses.
  - **Course Pre-Requisites**: EGN 3331 Strength of Materials
  - **Communication/Computation Skills Requirement (6A-10.030)**: No
- **Course Notes:**
  - Incomplete notes are provided by the faculty
- **Software:**
  - Femap NASTRAN (Windows Computers Only).

Course Objectives and Outcomes

- **Course Objectives**: The primary objective is to equip students with the ability to analyze the stresses and deflections in common aerospace structural components. Students will learn to calculate external loads acting on an aircraft and then determine the internal stress distributions in wings and fuselages using both idealized and non-idealized beam theories.

Course Learning Outcomes:

By the end of this course, student will be able to…

CLO 1. Determine the flight and landing loads acting on an aircraft.

CLO 2. Analyze thin-walled beams to calculate shear flow and stress distributions under transverse and torsional loading.

CLO 3. Idealize complex beam cross-sections for simplified structural analysis.

CLO 4. Analyze the stresses in wings and fuselages with both structurally significant and insignificant skin.

CLO 5. Calculate thermal stresses in structural components.

CLO 6. Perform basic finite element analysis of an aerospace structure using FEM software.

Alignment with Program Outcomes:

Course Learning Outcome	Program Learning Outcome (ABET 1-7)
Determine the flight and landing loads acting on an aircraft.	An ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science, and math. (ABET 1)
Idealize complex beam cross-sections for simplified structural analysis.	An ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science, and math. (ABET 1)
Analyze thin-walled beams to calculate shear flow and stress distributions under transverse and torsional loading.	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. (ABET 2)
Analyze the stresses in wings and fuselages with both structurally significant and insignificant skin.	An ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science, and math. (ABET 1)
Calculate thermal stresses in structural components.	An ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science, and math. (ABET 1)
Perform basic finite element analysis of an aerospace structure using FEM software.	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies. (ABET 7)

COURSE POLICIES

Attendance

Students are expected “to attend all of their scheduled University classes and to satisfy all academic objectives as defined by the instructor” (University Policy, FPU-5.0010AP). It is the student's responsibility to give the instructor notice prior to any anticipated absence and within a reasonable period after an unanticipated absence, ordinarily by the next scheduled class meeting.

Email Policy

Emails must be sent from your Florida Poly email account. Please start the subject line with [INTRO-AEROSTRUCT] for a quicker response time and allow up to 36 hours for a reply on weekdays.

Assignment/Evaluation Methods

The instructor reserves the right to adjust grading at the end of the semester. The following list provides more detail about assignments for the course:

Homework Assignments (20%): Homework will be assigned to reinforce the analytical methods and concepts covered in lectures. Assignments will typically be submitted to Canvas as a PDF.

Exams (60%): There will be three exams, each worth 20% of the final grade.

NASTRAN Project (20%): An individual project requiring the modeling and analysis of a structural component (e.g., wing spar or truss) using MSC NASTRAN software.

Grading Scale

Grading Scale (%)	
93-100	A
90-92	A-
86-89	B+
83-85	B
80-82	B-
76-79	C+
70-75	C
60	D
0-59	F

Grade Breakdown	
Homework Assignments	20%
Exams	60%
NASTRAN Project	20%
Total	100 %

Note: Grades for each assignment will be posted to Canvas, and students should make sure they are recorded correctly.

Late Work/Make-up work

Late work will not be accepted. Make-up opportunities will only be granted for exams in exceptional, documented circumstances and at the discretion of the professor.

University Policies

Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The Office of Disability Services (ODS), facilitates reasonable accommodations for students with disabilities and documented eligibility. It is the student's responsibility to self-identify as a student with disabilities and register with ODS to request accommodations. If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course through the ODS student portal, and communicate with your instructor about your approved accommodations as soon as possible. Arrangements for testing accommodations must be made in advance. Accommodations are not retroactive. If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible: DisabilityServices@floridapoly.edu; (863) 874-8770; www.floridapoly.edy/disability.

Accommodations for Religious Observances, Practices and Beliefs

The University will reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. (See University Policy.)

Title IX

Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. Resources are available if you or someone you know needs assistance. Any faculty or staff member you speak to is required to report the incident to the Title IX Coordinator. Please know, however, that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University Ombuds Office, BayCare's Student Assistance Program, 1-800-878-5470 and locally within the community at Peace River Center, 863-413-2707 (24-hour hotline) or 863-413-2708 to schedule an appointment. The Title IX Coordinator is available for any questions to discuss resources and options available.

Academic Integrity

Violations of academic integrity regulation include actions such as cheating, plagiarism, use of unauthorized resources (including but not limited to use of Artificial Intelligence tools), illegal use of intellectual property, and inappropriately aiding other students. Such actions undermine the central mission of the university and negatively

impact the value of your Florida Poly degree. Suspected violations will be fully investigated, possibly resulting in sanctions up to and including expulsion from the university.

Recording Lectures
Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. Recordings may not be used as a substitute for class participation or class attendance. Recordings may not be published or shared in any way, either intentionally or accidentally, without the written consent of the faculty member. Failure to adhere to these requirements is a violation of state law (subject to civil penalty) and the student code of conduct (subject to disciplinary action). *Recording class activities including, but not limited to, lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), and invited guest speakers is* ***prohibited****.*

Academic Support Resources

- **Library**: Students can access the Florida Polytechnic University Library through the University website and Canvas, on and off campus. Students may direct questions to library@floridapoly.edu.
- **Tutoring and Learning Center**: The Tutoring and Learning Center (The TLC) provides tutoring to all Florida Poly students who may need additional academic support. The TLC is staffed by students who have excelled in the courses they tutor. They offer support by reviewing concepts and materials from class, clarifying points of confusion and providing assistance with learning strategies. While the focus of TLC is to provide support to students in freshman-level courses, upper-level courses are also tutored at the Center. The TLC is located in the IST Commons (second floor).
    - **Knack Tutoring**: Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Florida Polytechnic University has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit floridapoly.joinknack.com and sign in with your student account.
- **Academic Success Coaches**: All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
- **Writing Center**: Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more detail, visit floridapoly.edu/writing center.

Tentative Course Schedule

Week	Date (MW)	Topic	Assigned
1	Jan 12 / 14	Chapter 1: Review of Basic Concepts Chapter 2: Loads on Aircraft	Homework 1
2	Jan 19 / 21	**Mon: NO CLASS (MLK Day)** Chapter 2 (cont.): Loads on Aircraft	Homework 2
3	Jan 26 / 28	Chapter 2 (cont.): Loads on Aircraft	Homework 3
4	Feb 2 / 4	Chapter 2 (cont.): Loads on Aircraft	Homework 4
5	Feb 9 / 11	Introduction to Femap Nastran Exam 1	Project 1
6	Feb 16 / 18	Chapter 3: Analysis of Wings, Fuselages & Landing Gear	Homework 5
7	Feb 23 / 25	Chapter 3 (cont.): Analysis of Wings, Fuselages & Landing Gear	Homework 6
8	Mar 2 / 4	Chapter 4 (cont.): General Non-Idealized Beams	Homework 7
9	Mar 9 / 11	Chapter 4 (cont.): General Non-Idealized Beams	Homework 8
10	Mar 16 - 20	SPRING BREAK	
11	Mar 23 / 25	Femap Nastran Exam 2	Project 2
12	Mar 30 / Apr 1	Chapter 5: Wings & Fuselages (Structurally Significant Skin)	Homework 9
13	Apr 6 / 8	Chapter 5 (cont.): Wings & Fuselages (Structurally Significant Skin)	Homework 10
14	Apr 13 / 15	Chapter 5 (cont.): Wings & Fuselages (Structurally Significant Skin) Chapter 6: Thermal Stresses	Homework 11
15	Apr 20 / 22	Chapter 6 (cont.): Thermal Stresses	Homework 12
16	Apr 27	Exam 3	