FCMEH FA2026

Florida College B.S.M.E in Mechanical Engineering Handbook

FLORIDA COLLEGE

FOLLOWING CHRIST.

Fall 2026

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Changelog FA25 – FA26:

- *Updated header*
- *Adjusted DM suffix*
- *Added C1 Necessity of Admission*
- *Added EML 4XXX Advanced Aerospace and Manufacturing Applications*
- *Updated Program Flow Chart*
- *Added E2 GPA Requirement Appeal Process*
- *Added Changelog Section*
- *Policy C5 adjusted to 120 hours total.*
- *Policy C5 minimum Bible hours removed.*
- *Policy D1 Bible Courses (16 credit hours) removed.*
- *Policy D1 Added Bible Requirement section.*

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A: Sources of Information

This Handbook (FCMEH) is intended to assist the Mechanical Engineering (ME) students at Florida College (FC) and is a supplement to the material contained in the Florida College Catalog (FCC) and Florida College Student Handbook (FCSH). All students declaring Mechanical Engineering must carefully read the FCSH and the FCMEH. The purpose of this Handbook is to outline the departmental requirements, policies and procedures applicable to all students in the Mechanical Engineering Program.

B: Program Information

B1 Program Mission Statement

The aim of this Mechanical Engineering program is to prepare students for careers and leadership in Mechanical Engineering and related disciplines as well as lives of service to their Creator and humanity by providing an educational experience which develops them spiritually, mentally, physically, and socially. This education integrates biblical concepts that encourage further study of the nature and will of God while providing another perspective on the natural world as Creation. Graduates of this program will be high quality; bright, interactive people capable of succeeding in any environment while preserving the ability to think creatively and with moral clarity. These people will understand deeply the gravity of their actions both as Christians and engineers.

B2 Program Description

Engineering is aptly described as “solving problems using rules of thumb that cause the best change in a poorly understood situation using available resources.” More broadly speaking, engineering involves the knowledge of the mathematical and natural sciences (biological and physical) gained by study, experience, and practice that are applied with judgment and creativity to develop ways to utilize the materials and forces of nature for the benefit of mankind. The Mechanical Engineering program at Florida College is taught from a biblical perspective, offering a broad and versatile education of engineering principles, particularly the principles of design & analysis of mechanical systems including materials, mechanics of solids, thermodynamics, heat transfer, and fluid mechanics. Professional ethics is a centerpiece of this program, combining godly attitudes and behavior with professional wisdom to produce engineers of the highest moral caliber. The wide range of subject matter provided within this program prepares graduates for successful careers Mechanical Engineering as well as a wide range of engineering disciplines.

B3 Program Educational Objectives

Within a few years of graduation, Mechanical Engineering program alumni are expected to:

1. Attain positions of responsibility in which they:
    1. Apply the concepts of math, science, computation, engineering, experimentation and/or manufacturing.
    2. Participate and communicate effectively in a professional, multi-disciplinary team environment.
    3. Utilize critical thinking, innovation, and problem-solving skills.
    4. Act according to ethical codes of conduct.
2. Obtain sustained employment or further academic education in engineering or a related technical or professional field.
3. Pursue self-development milestones such as learning opportunities, professional licensure, or volunteer work.
4. Engage meaningfully in the practice or education of engineering and/or other fields.
5. Live a life of service to their Creator and humanity.

B4 Student Outcomes

Graduates must have demonstrated the following to earn the B.S.M.E. degree:

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 broad 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.

C: Admissions and Graduation Requirements

C1 Necessity of Admission

With the exception of EGN 1001, EGN 3311, EML 3011, and EGN 3373, students must be admitted to the Florida College Mechanical Engineering Program to enroll in Mechanical Engineering courses with EGN or EML prefixes. In limited circumstances, the Program Chair may grant permission to enroll without admission, provided the student satisfies all applicable prerequisites and corequisites.

C2 Admission Requirements

Students must submit an application (Section F) for admittance into the Mechanical Engineering program and provide transcripts with proof of cumulative GPA of 3.0 or higher on all college work and grades of "C" or higher for the following pre-requisite courses:

MAC 2311 Calculus I
MAC 2312 Calculus II
MAC 2313 Calculus III
PHY2048C General Physics I with Lab
PHY2049C General Physics II with Lab
CHM 1045C Chemistry I with Lab
EML 3011 Mechanics of Solids
SPC 1608 Public Speaking

Students may be admitted conditionally to the Mechanical Engineering program during the semester in which they are registered for EML 3011 but must meet all requirements listed above at the end of the semester for the admission to stand.

Special note: EGN 3311 Engineering Statics is a pre-requisite for EML 3011 Mechanics of Solids. While EGN 3311 does not appear on this list of courses, students may opt to take EGN 3311 as a co-requisite for EML 3011 using Policy E1. Under these circumstances, no student shall be admitted to the program without passing EGN 3311.

C3 Transfer Credit for Mechanical Engineering

Transfer credits for any mechanical engineering credit from a previous program or institution must be approved by the Program Chair and must come from an ABET accredited academic program. The program must have been ABET accredited A) During the time period in which the student obtained credit or B) Up to one academic year prior to the program receiving its first ABET accreditation (and thus being retroactively accredited per ABET policy). Students seeking to transfer credit in this manner may request up to 15 credits with grades of C or better. For each course, the student must provide their academic transcript, the syllabus of the prior course, and proof of the transferring program's ABET accreditation status.

C4 Direct Admit

Students who are transferring credit from another institution may elect for direct admit to the program with approval from the Program Chair and if they meet all criterion to be admitted to the program and have a cumulative 3.0 GPA on a 4.0 scale.

C5 Graduation Requirements

To graduate, candidates must complete a minimum of 120 semester hours of accredited academic college work. Candidates must complete a minimum of 40 hours of their upper-level Mechanical Engineering Core hours at Florida College to receive their B.S.M.E. from Florida College. Students must pass all required engineering program courses with a grade of "D" or better, and a minimum cumulative GPA of 2.50 is required for graduation.

Graduation Requirements Summary

Minimum Total Hours	Minimum Mechanical Engineering Core Hours	Minimum General Education Hours	Minimum Physical Education Hours	Minimum Institutional GPA
120	55	54	2	2.50

C6 Advising

Upon admission to the Mechanical Engineering program, the Chair of Mechanical Engineering shall choose a permanent Major Advisor (the Academic Advisor) for the student from among the Florida College Mechanical Engineering faculty. This Major Advisor will work in tandem with Advising to provide the student with full advising services. As part of this obligation, the Major Advisor will schedule an advising appointment with all the students to which they have been assigned at least once per semester. All students have the right to request an advising appointment with Program Chair.

D: Curriculum

D1 Curriculum Breakdown

Bible Requirement
Students must remain enrolled in at least one Bible course on each day they attend other classes on the Florida College campus. This requirement applies throughout the semester; students may not drop a Bible course if doing so would leave them without a Bible course on any day they attend other on-campus classes.

General Education Requirements (54 hours)

Written Communication Skills (6 hours):

ENC 1101 Freshman Composition I (3)

ENC 1102 Freshman Composition II (3)

Computation/Mathematics (18 hours):

MAC 2311 Calculus I (4)

MAC 2312 Calculus II (4)

MAC 2313 Calculus III (4)

MAP 2302 Differential Equations (3)

STA 2023 – Introductory Statistics (3)

Behavioral and Social Sciences (9 hours)

Oral Communication Skills (3 hours):

SPC 1608 Public Speaking (3)

Humanities (6 hours also counts as Bible)

*LIT 2371 OT Poetry & Wisdom (3)

*REL 3308 World Religions (3)

Natural Sciences(12 hours):

PHY 2048C General Physics I with Calculus/Lab (4)

PHY 2049C General Physics II with Calculus/Lab (4)

CHM 1045C Chemistry I with Lab (4)

Physical Education (2 hours)

Physical Education Electives (2 hours)

Mechanical Engineering Core Course Requirements (46 hours):

EGN 1001C Introduction to the Engineering Profession with Lab (1)
EGN 3311 Statics (3)
EGN 3343 Thermodynamics (3)
EGN 3321 Dynamics (3)
EML 3011 Mechanics of Solids (3)
EGN 3365 Materials (3)
EML 3022 Computer-Aided Design (3)
EML 4312 Mechanical Controls (3)
EML 3701 Fluid Mechanics (3)
EML 4321 Manufacturing (3)
EML 3262 Kinematics & Dynamics of Machinery (3)
EGN 3373 Introduction to Electronics and Programming (3)
EML 4906L Mechanical Laboratory (3)
EML 4500 Machine Design (3)
EML 4140 Heat Transfer (3)
EML 4XXX: Advanced Manufacturing (3)

Engineering Internship (3 hours):

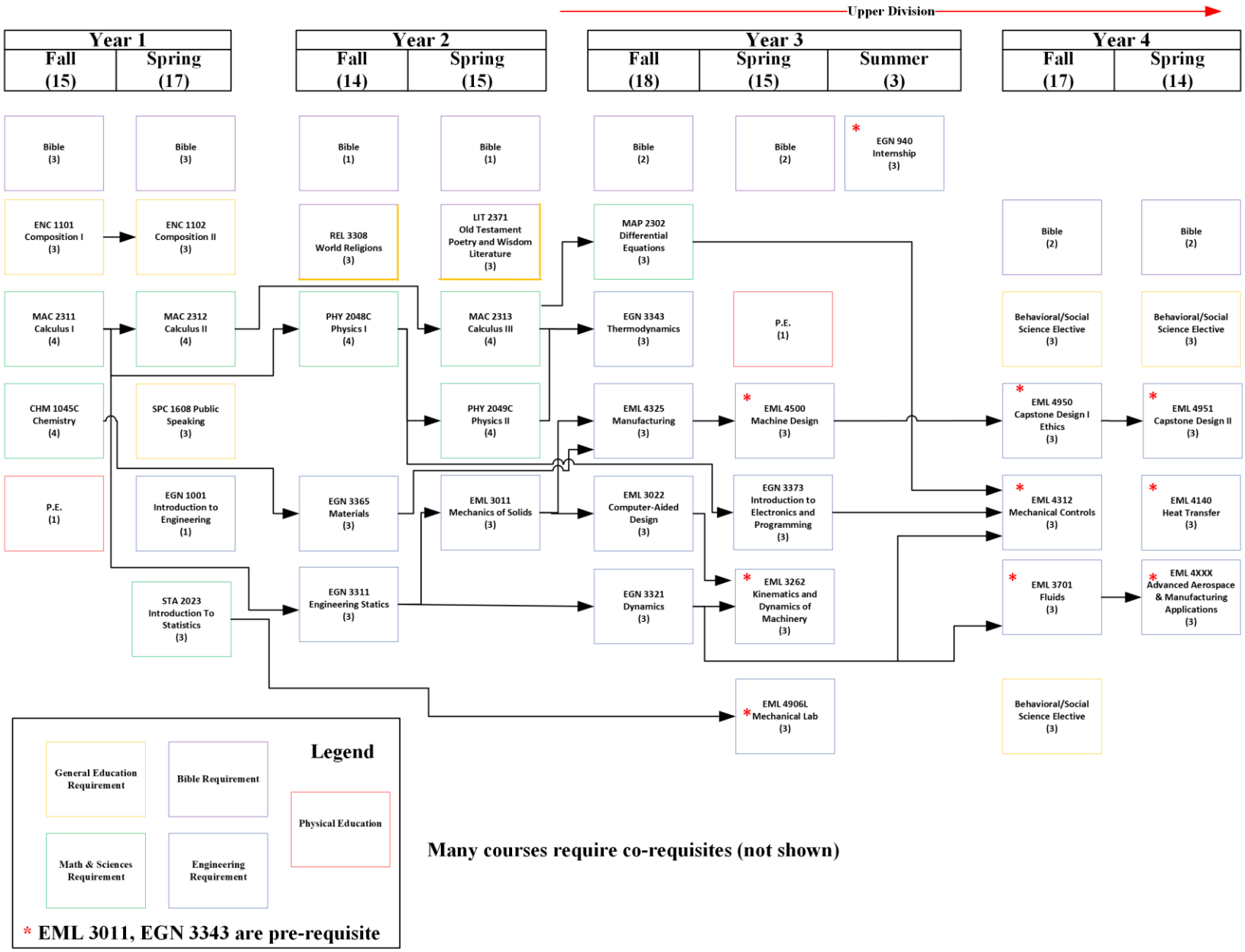
EGN 3940 Internship (3) equivalent to 200 clock hours

Engineering Design Capstone (6 hours):

EML 4950 Capstone Design I(3)
EML 4951C Capstone Design II (3)

*Course is not a requirement but is suggested to streamline general education requirements.

D2 Program Flow Chart



D3 Advising Map

Fall Year One	Hours	Spring Year One	Hours
Bible	3	Bible	3
MAC 2311 Calculus I	4	SPC 1608 Public Speaking	3
CHM 1045C Chemistry	4	MAC 2312 Calculus II	4
Physical Education	1	ENC 1102 Composition II	3
ENC 1101 Composition I	3	EGN 1001 Introduction to Engineering	1
		STA 2023 Introduction to Statistics	3
Total	**15**	**Total**	**17**
Fall Year Two		**Spring Year Two**	
Bible	1	Bible	1
REL 3308 World Religions	3	LIT 2371 Old Testament Poetry and Wisdom Literature	3
PHY 2048C Physics I	4	MAC 2313 Calculus III	4
EGN 3365 Materials	3	EML 3011 Mechanics of Solids	3
EGN 3311 Engineering Statics	3	PHY 2049C Physics II	4
Total	**14**	**Total**	**15**
Fall Year 3		**Spring Year 3**	
Bible	2	Bible	2
MAP 2302 Differential Equations	3	Physical Education	1
EGN 3343 Thermodynamics	3	EML 4500 Machine Design	3
EML 4325 Manufacturing	3	EGN 3373 Introduction to Electronics and Programming	3
EML 3022 Computer-Aided Design	3	EGN 3262 Kinematics and Dynamics of Machinery	3
EGN 3321 Dynamics	3	EML 4906L Mechanical Lab	3
Total	**17**	**Total**	**15**
Fall Year 4		**Spring Year 4**	
Bible	2	Bible	2
Behavioral/Social Science Elective	3	Behavioral/Social Science Elective	3
EML 4950 Capstone Design I	3	EML 4951C Capstone Design II	3
EML 4312 Mechanical Controls	3	EML 4140 Heat Transfer	3
Behavioral/Social Science Elective	3	EML 4XXX Advanced Aerospace & Manufacturing Applications	3
EML 3701 Fluid Mechanics	3		
Total	**17**	**Total**	**14**

*Does not include EGN 3940 Internship (3) recommended Summer Year 3

D4 Course Descriptions, Prerequisites, Corequisites

EGN 1001 Introduction to Engineering (1) [Co-requisite MAC 2311, Declaration of Mechanical Engineering track]
Introduction to Engineering provides students with an overview of the engineering profession. It introduces the fundamental principles and practices of engineering, helping students explore various engineering disciplines. Topics include problem-solving, engineering design, and an understanding of the ethical and professional responsibilities of engineers.
EGN 3311 Engineering Statics (3) [Pre-requisite MAC 2311; Co-requisite: PHY 2048C]
Statics is a fundamental engineering course that focuses on the study of objects at rest or in equilibrium. It delves into the principles of forces, moments, and their effects on rigid bodies. This class equips students with the essential skills to analyze and solve problems related to the equilibrium of structures and systems.
EGN 3321 Dynamics (3) [Pre-requisite EGN 3311]
Dynamics is a branch of engineering that deals with the study of objects in motion. This class examines the behavior of particles and rigid bodies as they move and interact with forces. It provides students with the tools to analyze and predict the dynamic behavior of mechanical systems.
EGN 3343 Thermodynamics (3) [Pre-requisite PHY 2049C, MAC 2313]
Thermodynamics is the study of energy and heat transfer in engineering systems. This course explores the fundamental laws and principles governing energy conversion, emphasizing the analysis of heat engines, refrigeration systems, and their applications in various industries.
EGN 3365 Materials (3) [Pre-requisite CHM 1045C; Co-requisite EGN 3311]
The Materials class explores the properties, selection, and behavior of materials used in engineering applications. Students gain insights into the characteristics of metals, polymers, ceramics, and composites, enabling them to make informed choices in material selection for specific engineering projects.
EGN 3373 Introduction to Electronics and Programming (3) [Pre-requisite PHY 2048C]
This class introduces students to the fundamentals of electronics and programming. It provides a foundational understanding of electronic components, circuits, and programming languages, equipping students with the knowledge to integrate electronics into engineering projects.
EGN 3940 Internship (3) [Pre-requisites EML 3011, EGN 3343]
The Internship class provides students with valuable real-world experience in an engineering-related industry. It offers an opportunity to apply classroom knowledge in a professional setting, fostering practical skills and industry connections.
EML 3022 Computer-Aided Design (3) [Pre-requisites EML 3011]
Computer-Aided Design (CAD) introduces students to the use of computer software to create, modify, and analyze 2D and 3D models. This class equips students with the skills necessary to design and simulate complex engineering systems and components, analyze their performance with Finite Element Analysis (FEA), and design for manufacturing with Geometric Design and Tolerancing (GD&T) in mind.
EML 4312 Mechanical Controls (3) [Pre-requisites MAP 2302; EGN 3373; EGN 3321; and EML 3011]
Mechanical Controls examines the principles and applications of control theory in mechanical and mechatronic systems. Students learn how to model, analyze, and design feedback control loops, using both time-domain and frequency-domain methods. Topics include transfer functions, block diagrams, stability criteria, root-locus methods, and PID control. Emphasis is

placed on real-world scenarios such as robotics, automation, and automotive systems. Laboratory components and simulation tools reinforce theoretical concepts, giving students hands-on experience in implementing and testing various control strategies.

EML 3262 Kinematics & Dynamics of Machinery (3) [Pre-requisites EGN 3321, EML 3022, EGN 3343, and EML 3011] This course delves into the design, analysis, and operation of machinery and mechanical systems. Students learn about the motion, kinematics, and dynamic behavior of machines, gaining the skills to optimize their performance and efficiency.

EML 3011 Mechanics of Solids (3) [Pre-requisite EGN 3311]

This course delves into the mechanics of materials and the behavior of solids under different loading conditions. Students learn how to analyze stress, strain, deformation, and failure in various materials, making it a crucial foundation for structural engineering and material science.

EML 3701 Fluid Mechanics (3) [Pre-requisites EGN 3321 and EML 3011 and EGN 3343]

This class explores the behavior and principles governing the flow of liquids and gases. Students study topics such as fluid properties, fluid dynamics, and fluid machinery, enabling them to understand and analyze various fluid systems, from pipelines to aerodynamics.

EML 4140 Heat Transfer (3) [Pre-requisites EML 3011; and EGN 3343]

Heat Transfer explores the mechanisms and principles of heat exchange in engineering systems. Students study conduction, convection, and radiation, gaining expertise in designing and optimizing heat transfer equipment and processes.

EML 4321 Manufacturing (3) [Pre-requisites EML 3011; EGN 3365]

The Manufacturing class covers the processes and techniques used to transform raw materials into finished products. It introduces students to manufacturing methods, quality control, and automation, preparing them for careers in production and manufacturing industries.

EML 4500 Machine Design (3) [Pre-requisites EML 4325, EML 3011, EGN 3343; Co-req EML 3262]

Machine Design is a class that focuses on the design and analysis of mechanical systems and components. Students learn how to create efficient, reliable, and safe machines, considering factors like stress, materials, and manufacturing processes.

EML 4906L Mechanical Laboratory (3) [Pre-requisites STA 2023, EML 3011, and EGN 3343]

The Mechanical Laboratory offers hands-on experience in conducting experiments and testing mechanical principles. Students gain practical skills in data collection, analysis, and validation of theoretical concepts learned in other engineering courses.

EML 4950 Capstone Design I (3) [Pre-requisites EML 3011, EGN 3343, EML 4500]

This capstone course emphasizes the ethical considerations and social responsibilities of engineers in their design and decision-making processes. Students explore ethical dilemmas, legal regulations, and the broader impact of engineering on society. The engineering design process is discussed at length. Students will work with industry, school, and private partners to develop a design that solves real-world problems.

EML 4951C Capstone Design II (3) [Pre-requisite EML 4950]

This course is a continuation of EML 4950, in which students implement the design generated in that course and iterate until a final product is achieved. The course ends with an engineering expo in which the students will present their work to instructors, industry partners, and peers on campus.

EML 4XXX: Advanced Aerospace & Manufacturing Applications (3) [Pre-requisites EML 4325, EML 3701]

This course bridges core mechanical engineering principles with cutting-edge manufacturing processes and aerospace considerations. Students explore advanced materials (composites, high-temperature alloys, specialty polymers), additive manufacturing, automated production, and quality assurance methods tailored to aerospace standards. The course integrates theory with hands-on or simulation-based projects that address real-world aerospace manufacturing challenges.

E: Additional Program Policies

E1 Entry Examination for Superseding EML 3011 Prerequisite of EGN 3311

Any students wishing to take EML 3011 and EGN 3311 together (thereby treating EGN 3311 as a co-requisite as opposed to a pre-requisite) may opt to take an entrance examination under the following conditions:

A) All pre-requisites for EGN 3311 are otherwise satisfied or will be satisfied by the end of the semester in which the student has made the request.
B) All pre-requisites for EML 3011 are otherwise satisfied or will be satisfied by the end of the semester in which the student has made the request.
C) The student requesting the examination has a GPA of at least 3.0 in the semester in which the student has made the request.

To request the entrance examination, the student must notify the program chair of this request and conditions A, B, and C will be confirmed by a representative from Advising. After making the request, the student may be allowed to register for EML 3011.

Entrance examination: A list of course topics from Statics which are deemed as necessary prerequisites for EML 3011 and a textbook recommendation will be provided to the student prior to the end of the semester in which the student has made the request. The exam will be administered prior to the start of classes in the following semester. The exam will be pass/fail, as determined by a minimum grade of 70.0%. If the student fails the exam, they will be dropped from the course prior to the start of classes.

E2 GPA Requirement Appeal Process

Admission to the program requires a minimum cumulative GPA of 3.0. Applicants with a GPA between 2.50 and 2.99 may request consideration by providing evidence of extenuating circumstances. To be considered, applicants must submit a written statement and supporting documentation demonstrating both the circumstances that contributed to the lower GPA and evidence of recent academic improvement. The program chair will evaluate the full academic record and determine whether the applicant shows clear potential for success.

Students admitted through this process are required to maintain higher standards of academic performance. They must earn at least a 3.00 GPA in their first two semesters in the program, with no Mechanical Engineering course grades (prefixes EGN/EML) of D or F. Failure to meet these requirements will result in probation and may lead to dismissal from the program.

F: Mechanical Engineering Program Application

Applicant Information

Full Name:

Current Address:

Phone Number:

Email Address:

Submission Instructions

1. Complete and sign this application.
2. Include your Statement of Purpose.
3. Submit the application packet **by the Spring or Fall break** of the prior semester to:
    - **Holly Cabina**
    - **Donald McCleeary**

1. Academic History

Previous Colleges or Universities Attended

- Institution Name:
    - Dates Attended:
    - Degree(s) Awarded (if applicable):
- Institution Name:
    - Dates Attended:
    - Degree(s) Awarded (if applicable):
- Institution Name:
    - Dates Attended:
    - Degree(s) Awarded (if applicable):

Transcripts & GPA

- I certify that I have submitted all of my official academic transcripts to the Florida College Office of Admissions.
- My current **cumulative GPA** is: ____

Note: A cumulative GPA of 3.0 or higher on all college work is required.

2. Pre-Requisite Courses

Please list the *grade earned* (or *"in progress"* if currently taking) for each course.

MAC 2311: Calculus I	Grade:
MAC 2312: Calculus II	Grade:
MAC 2313: Calculus III	Grade:
PHY 2048C: General Physics I with Lab	Grade:
PHY 2049C: General Physics II with Lab	Grade:
CHM 1045C: Chemistry I with Lab	Grade:
EML 3011: Mechanics of Solids	Grade:
SPC 1608: Public Speaking	Grade:

*Note: All pre-requisite courses must be completed with a grade of **"C" or higher**.*
Students may be admitted conditionally during the semester in which they are registered for EML 3011 (Mechanics of Solids), but all requirements must be met by the end of that semester.

3. Statics Requirement

- **EGN 3311: Engineering Statics** (if you are taking it as a co-requisite with EML 3011)
  - Grade (if completed) or "In Progress":

Policy E1 allows EGN 3311 to be taken concurrently with EML 3011. However, no student will be fully admitted without passing EGN 3311.

4. Statement of Purpose

In a separate section (or attached page), provide a brief statement (500-750 words) explaining your motivation for pursuing a Mechanical Engineering degree, your relevant academic or work experience, and any notable accomplishments or extracurricular involvement that supports your application.

5. Additional Information

Use this space to provide any clarifications or additional information about your application, such as extenuating circumstances that may have affected your academic history, relevant internships or research projects, honors and awards, or any other details you wish to include.

6. Applicant Certification

I hereby certify that all information provided in this application is accurate and complete to the best of my knowledge. I understand that providing false or misleading information can result in the rescission of my admission. I also acknowledge that I have read and understood the admission requirements and will abide by all program policies.

- **Applicant's Signature**:
- **Date**: