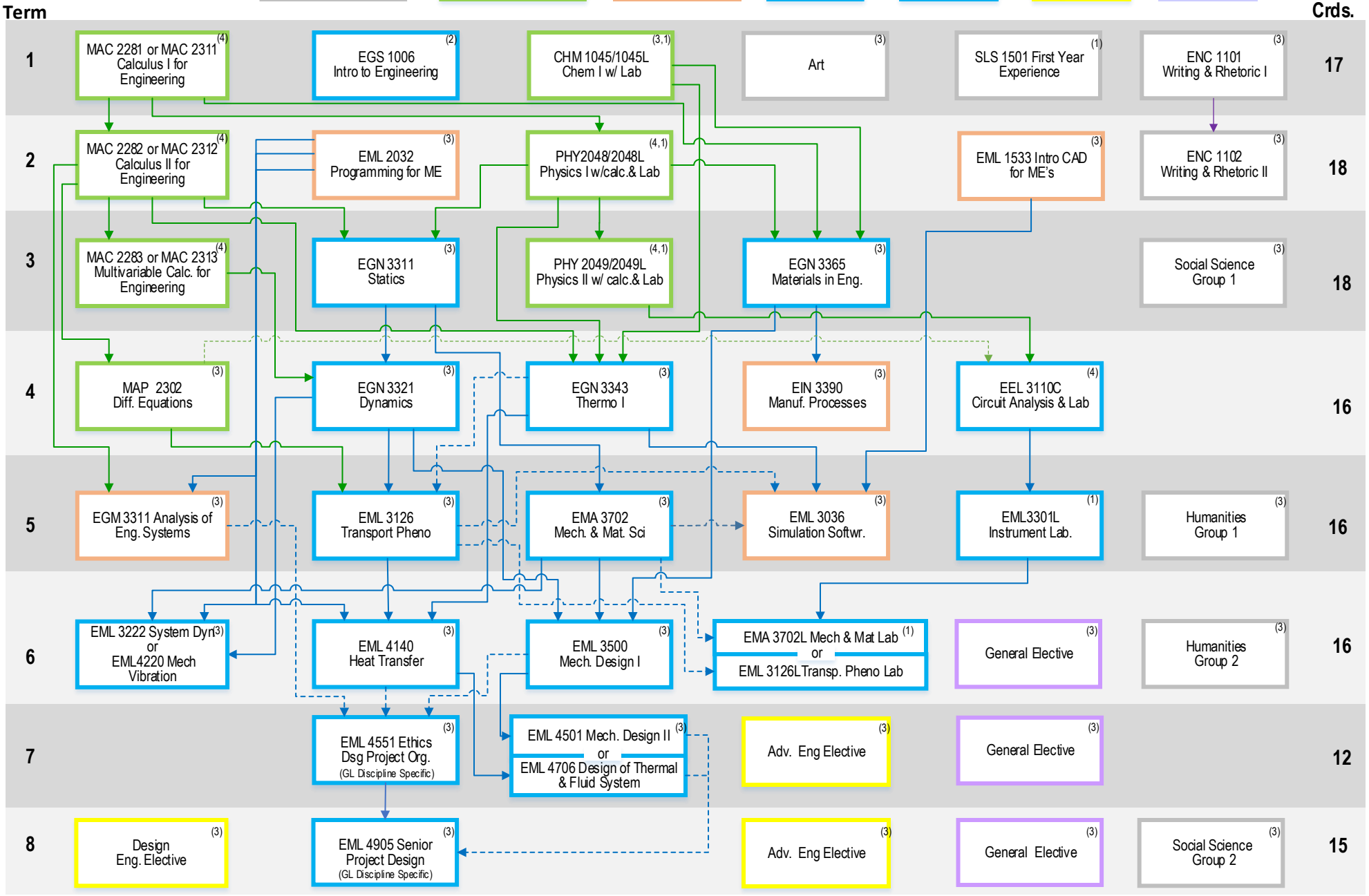
Effective
Fall 2024

FIU Mechanical Engineering Undergraduate Program
Flowchart of BSME Curriculum

Prerequisite
Co-requisite

Hum/ Social Sci/ Comm | Math & Sciences | Modern Tools | Foundation | ME Core | Eng. Electives | Gen. Electives



Total Crds. 128

Other requirements:
GPA>2.0:___ FLENT/FLEX ___ GRW1_____GRW2_____ Summer (9crds)____GL Foundations _____ Civics Lit_____

Admission Requirements: Calculus I ready,
Pre-req: MAC 1105+ (MAC 1114+MAC 1140) or MAC 1147

Students are required to complete one of the Advanced Core Engineering courses: EML 4501 or EML 4706, with one Lab: EMA 3702L or EML 3126L, one Design elective, and two core engineering electives from any of the two areas listed below .

Design, Mechanics, Materials, Robotics and Manufacturing

Advanced Core Engineering Course
EML 4501 Mechanical Design II. Prereq: EML 3500

Group 1: Core Engineering Elective Courses
EAS 4105 Intro to Flight. Prereq: EML 3126
EAS 4200 Intro to Design and Analysis of Aerospace Structures. Prereq: EML 3036, MAP 2302 or EGM 3311, EMA 3702.
EGM 4350 Finite Element Analysis in Mechanical Design. Prereq: EGM 3311 and EMA 3702. Coreq: EML 4140.
EGM 4370 Intro. Meshfree and Alternative Methods in ME. Prereq: EML 3036, (MAP 2302 or EGM 3311), or permission.
EGM 4610 Introduction to Continuum Mechanics. Prereq: EMA 3702.
EGM 5615 Synthesis of Engineering Mechanics. Prereq: EGM 3311, MAP 2302, or instructor permission.
EGN 5367 Industrial Materials and Engineering Design
EMA 3066 Polymer Science and Engineering. Prereq: EGN 3365.
EMA 4121 Physical Metallurgy. Prereq: EGN 3365.
EMA 4121L Materials Laboratory. Prereq: EGN 3365.
EMA 4223 Mechanical Metallurgy. Prereq: EGN 3365 and EMA 3702.
EMA 5295 Principles of Composite Materials. Prereq: EGM 5615 or instructor permission.
EMA 5507C Analytical Techniques of Material Sciences. Prereq: EGN 3365.
EMA 5935 Advanced Topics in Materials Engineering. Prereq: EGN 3343 and EGN 3365.
EML 3301 Instrumentation. Prereq: EEL 3110C.
EML 4220 Mechanical Vibrations. Prereq: EGN 3321, EMA 3702, and EML 2032.
EML 4260 Dynamics of Machinery. Prereq: EML 3262.
EML 4503 Production Machine Modeling and Design. EGN 3365, EMA 3702, EIN 3390
EML 4535 Mechanical Computer-Aided Design. Prereq: EML 2032.
EML 4561 Introduction to Electronic Packaging. Prereq: EEL 3110C.
EML 4576 Design Optimization. Prereq: EML 2032, EML 3126. Corequisite: EML 3036.
EML 4804 Intro to Mechatronics. Prereq: EEL 3110C.
EML 4806 Modeling and Control of Robots. Prereq: EGN 3321 and EGM 3311
EML 4840 Robot Design. Prereq: EML 4806 or permission of the instructor.

Fluids/Thermal Sciences and Energy Systems

Advanced Core Engineering Course
EML 4706 Design of Thermal and Fluid Systems. Prereq: EML 4140

Group 2: Core Engineering Elective Courses
EAS 4712 Aerodynamic Shape Design, Prereq: EML 3126, EML 4140. Coereq.: EML 3036.
EGM 4350 Finite Element Analysis in Mechanical Design. Prereq.: EGM 3311 and EMA 3702. Coereq.: EML 4140.
EGM 4370 Intro. Meshfree and Alternative Methods in ME. Prereq: EML 3036, (MAP 2302 or EGM 3311), or permission.
EML 3450 Energy Systems. Prereq: EGN 3343.
EML 4419 Propulsion Systems. Prereq: EML 3126.
EML 4421 Internal Combustion Engines. Prereq: EGN 3343.
EML 4501 Mechanical Design II. Prereq: EML 3500
EML 4576 Design Optimization. Prereq: EML 2032, EML 3126. Corequisite: EML 3036.
EML 4601 Principles of Refrigerating and Air Conditioning. Prereq: EML 3101 or instructor permission.
EML 4601L Refrigeration and A/C Lab. Coereq: EML 4601.
EML 4603 Air Conditioning Design. Prereq: EML 4140 or instructor permission.
EML 4608C Mechanical Systems in Environmental Control. Prereq: EGN 3343.
EML 4702 Fluid Dynamics. Prereq: EML 3126.
EML 4711 Gas Dynamics. Prereq: EML 3126 and EGN 3343.
EML 4721 Intro to Computational Thermo Fluids. Prereq: EGM 3311. Coereq.: EML 4140.

Design Electives

EAS 4200 Intro to Design and Analysis of Aerospace Structures
EGM 4350 Finite Element Analysis in Mechanical Design
EML 4501 Mechanical Design II
EML 4503 Production Machine Modeling and Design
EML 4535 Mechanical Computer -Aided Design
EML 4561 Introduction to Electronic Packaging
EML 4576 Design Optimization
EML 4603 Air Conditioning Design
EML 4706 Design of Thermal and Fluid Systems.
EML 4840 Robot Design

Important Information for MECHANICAL ENGINEERING Curriculum

- Transfer students with more than 30 credits can substitute EGS1006 Introduction to Engineering with a general elective.
- Grade "C" or better required for Statics and Dynamics courses, see advisor for clarification.
- The courses EML 4930 Special Topics and EML 4911 Undergraduate Research Experience shall be counted as part of the nine credits of general electives. These courses require permission from the instructor or advisor.
- Humanities, Social Science, and Art courses are part of the University Core Curriculum (UCC), to select courses go to: https://dasa.fiu.edu/all-departments/advising/
- **Gordon Rule with Writing (GRW) requirement:** To fulfill this requirement, students can select any two GRW designated courses (six credit hours) chosen from the University Core Curriculum (UCC) courses list.
- **Global Learning (GL) Requirement:**
  - Transfer students who do not meet UCC requirements or have less than 60 credit hours prior to entering FIU must take one Global Learning (GL) Foundation course and one Global Learning Discipline-Specific course.
  - Transfer students who have more than 60 credit hours with or without an "AA" prior to entering FIU will satisfy the Global Learning (GL) requirement by completing two Global Learning Discipline-Specific courses which are Senior Design Project courses (EML 4551 and EML 4905).
- **Postsecondary Civic Literacy (CL) Requirement:**
  Students must demonstrate understanding of American Civics via completed course work or test credit.
  This requirement is applicable to students enrolling for the first time in a Florida State College or University starting Summer 2018 or transfers starting Fall 2018. Students initially entering and SUS or FCS Summer B 2021 and thereafter must now complete both a course and an exam complete both a course and an exam.