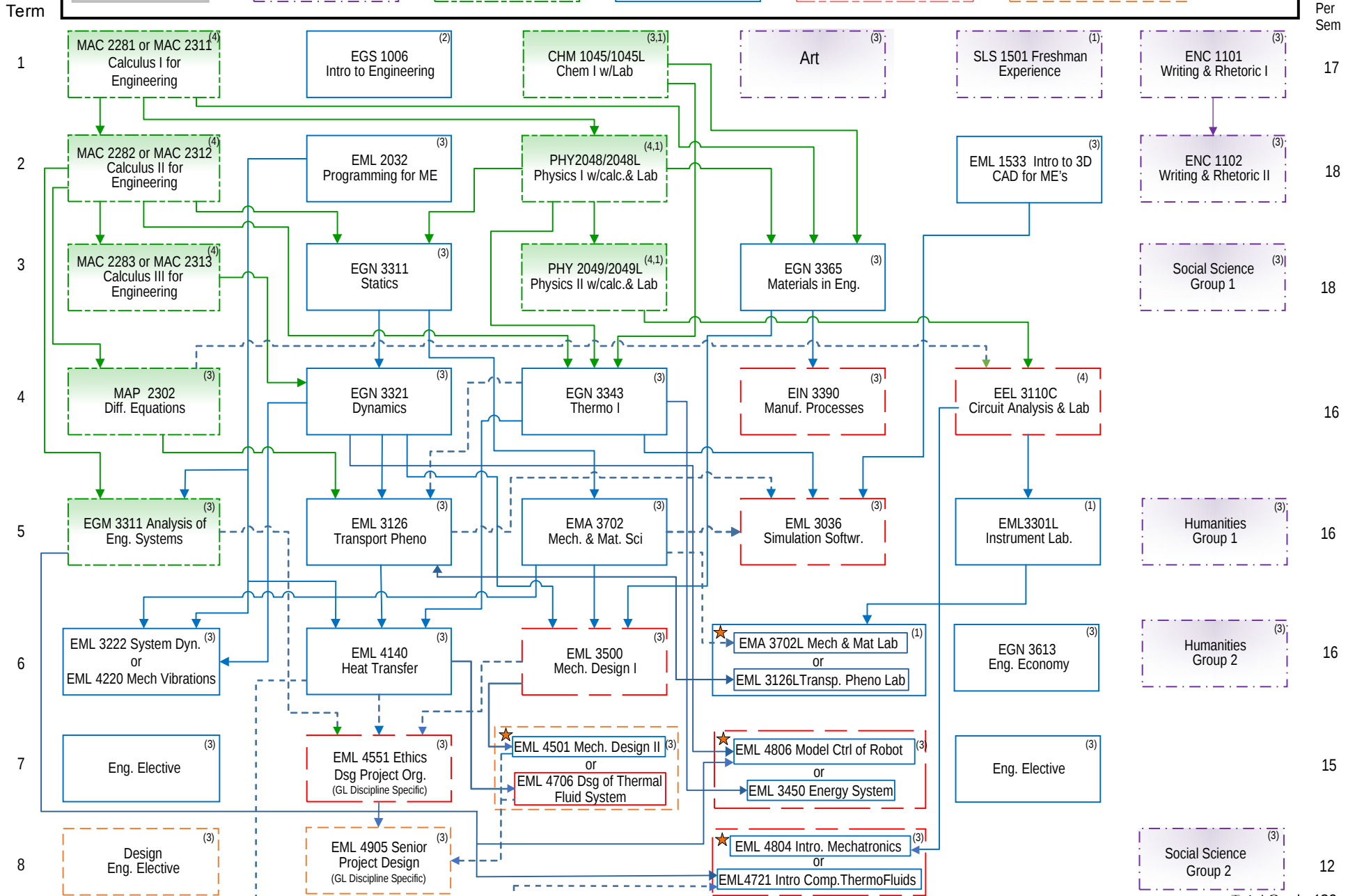
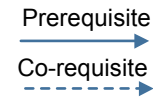


# FIU Mechanical Engineering Undergraduate Program Flowchart of BSME Curriculum

Effective  
Fall 2021



★ Pathways: If Mtls, Mech Sys & Manufacturing area take 1st course listed for each box, if Fluids/Thermal Sci & Energy Sys area take 2nd course listed. Prerequisites on back.

Other requirements: FLENT/FLEX \_\_\_ GRW1 \_\_\_ GRW2 \_\_\_ Summer (9crds) \_\_\_ GL Found. \_\_\_ Civics Literacy \_\_\_ Admission Requirements: Calculus I ready, Pre-req: MAC 1105 + (MAC 1114+MAC 1140) or MAC 1147

*A student must complete all courses from the “Advanced Core Electives” from Group 1 or from Group 2  
The student must also complete two Technical Electives courses and one Design Elective course*

## **Materials, Mechanical Systems and Manufacturing**

### **Group 1 - Advanced Core Electives**

EMA 3702L Mechanics and Materials Science Lab. Prereq: EMA 3702 and EML 3301L. Coreq: EMA 3702

EML 4501 Mechanical Design II. Prereq: EML 3500

EML 4804 Intro to Mechatronics. Prereq: EEL 3110C or (EEL 3110 and EEL 3110L).

EML 4806 Modeling and Control of Robots. Prereq: EGN 3321 and EGM 3311

### **Technical Elective Courses**

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 instructor permission.

EGM 5315 Intermediate Analysis of Mechanical Systems

EGM 5615 Synthesis of Engineering Mechanics. Prereq: EGM 3311, MAP 2302, or instructor permission.

EMA 3066 Polymer Science and Engineering. Prereq: EGN 3365.

EMA 4121 Physical Metallurgy. 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 4220 Mechanical Vibrations. Prereq: EGN 3321, EMA 3702, and EML 2032.

EML 4535 Mechanical Computer-Aided Design. Prereq: EML 2032.

EML 4561 Introduction to Electronic Packaging. Prereq: EEL 3003 or EEL 3110C, and EEL 3110L.

EML 4576 Design Optimization. Prereq: EML 2032, EML 3126. Corequisite: EML 3036.

EML 4804 Intro to Mechatronics. Prereq: EML 3301L (only if stud selects Group 2)

EML 4806 Modeling and Control of Robots. Prereq: EGN 3321 and EGM 3311 (only if stud selects Group 2)

EML 4823 Intro to Electronic Packaging. Prereq: EML 3301L or EEL 3110L

EML 4840 Robot Design. Prereq: EML 4806 or permission of the instructor.

## **Fluids/Thermal Sciences and Energy Systems**

### **Group 2 - Advanced Core Electives**

EML 3126L Transport Phenomena Laboratory. Prereq: EML 3126 and EML 3301L.

EML 3450 Energy Systems. Prereq: EGN 3343.

EML 4706 Design of Thermal and Fluid Systems. Prereq: EML 4140

EML 4721 Intro to Computational Thermo Fluids. Prereq: EGM 3311. Coreq.: EML 4140.

### **Technical 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 instructor 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 & Analysis of Aerospace Structures

EGM 4350 Finite Element Analysis in Mechanical Engineering

EML 4503 Production Machine Modeling and Design

EML 4535 Mechanical Computer Aided Design

EML 4561 Introduction to Electronic Packaging

EML 4603 Air Conditioning Design

EML 4840 Robot Design

EML 4576 Design Optimization

EML 4501 Mechanical Design II (only if the student selects

Group 2 - Advanced Core Electives

EML 4706 Design of Thermal/Fluid Sys (only if the student selects Group 1 - Advanced Core Electives

### **Important Information for the MECHANICAL ENGINEERING Curriculum**

- Grade “D” or better required for all ME courses, see advisor for clarification.
- EGS 1006 Intro to Engineering is required if transferring with less than 30 credit hours; otherwise, students may take an approved Technical/Engineering Elective instead.
- Humanities, Social Science, Art courses mentioned are recommended. For other University Core Curriculum (UCC) Courses, go to: <http://undergrad.fiu.edu/advising/pdfs/ucc-new.pdf>
- **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).