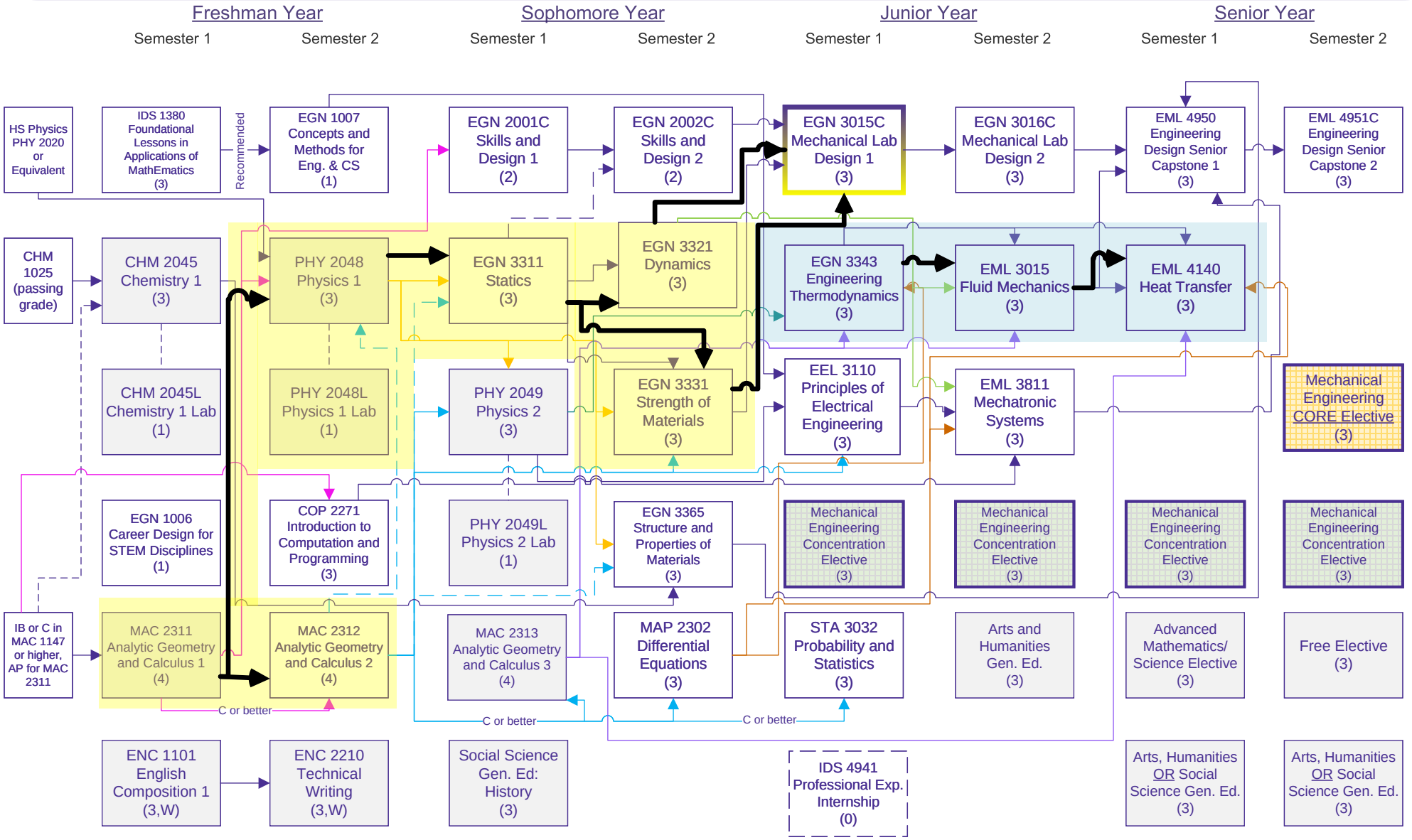
BS in Mechanical Engineering

2022-2023 Catalog



Legend:

Course Number Course Name (credit, requirement met)	Concentration Elective	Program Elective	General Education or Technical Elective	Permission from Dept. Chair, Provost, or Designee Needed

Prerequisite

Co-requisite

Pre-Requisite OR Co-Requisite

Yellow highlight is a CRITICAL PATH for EGN 3015C

Blue courses are to be taken in sequence shown

FLORIDAPOLY

Last Modified 03/2022

BS in Mechanical Engineering
Program/Concentration Electives, General Education, and Other Electives

Program/Concentration Electives

Advanced Topics

Select any four ME elective courses for concentration in Advanced Topics.

Students may select a combination of 12 hours of credit (4 - 3-credits courses) from any Mechanical Engineering concentration courses, ME CORE electives (in addition to required 1 ME CORE elective) or other approved special topics elective.

Aerospace

Select four (4) courses

- EAS 4010 Flight Performance Mechanics (3, EGN 3321 and EGN 3331)
- EAS 3101 Fundamentals of Aerodynamics (3, EAS 4010)
- EAS 4200 Introduction to Aero Structures (3, EGN 3331)
- EAS 4505 Orbital Mechanics (3, EGN 3321 and EGN 3331)
- EGN 4715 Propulsion and Combustion Systems (3, EGN 3343) (*EML 3015 concurrently*)

Materials and Advanced Manufacturing

- EIN 3390 Manufacturing Process (3, EGN 3365)
- EML 4541 Fatigue and Fracture Mechanics (3, EGN 3331, EGN 3365)
- EML 4234 Engineering Failure Analysis (3, EGN 3331, EGN 3365)
- EML 4542 Materials Selection in Design and Manufacturing (3, EGN 3365 and EGN 3331)
- EGN 4334 Mechanics of Composite Materials (3, EGN 3331)

Energy

- EML 4600 Heating, Ventilating, and Air Conditioning (HVAC) (3, MAC 2313 and MAP 2302) *(EGN 3343 concurrently)*
- EML 3535C Computer Manufacturing and Control (3, EGN 2002C and COP 2271C and EGN 3331)
- EML 3452 Energy Conversion and Sustainability (3, MAC 2313 and MAP 2302) *(EGN 3343 concurrently)*
- EML 3401 Principles of Turbomachinery (3, EGN 3343) *(EGN 3015C concurrently)*

Operations Research

Required:

- EGN 3448 Operations Research (3, MAC 2311 and (STA 2023 OR STA 3032)

Select three (3) courses:

- MAN 3504 Introduction to Operations and Supply Chain Management (3)
- EGS 3625 Engineering & Technology Project Mgmt. (3)
- EGN 3466 Discrete Event Simulation OR other Operations Research elective (3)
- MAN 3610 Global Logistics Management (3)
- MAN 4594 Reverse Logistics (3, MAN 2591 and EGN 3448)
- MAN 4522 Planning & Control Sys. For Supply Chain Mgmt. (3, MAN 2591, EGN 3448)
- MAN 3520 Lean Sigma Six (3)

Simulation

- EGN 4350C Finite Element Analysis in Mechanical Engineering (3, EGN 2002C, EGN 3331, EGN 3365)
- EML 4XXX Applications in Computational Fluid Dynamics (3, MAC 2313, MAP 2302, EGN 3343)
- ENV 3049 Life Cycle Assessment and Modeling (3, PHY 2048, CHM 2045, MAC 2312)

Select one (1) course:

- MAA 4402 Complex Variables (3, MAC 2313 and MAP 2302 and MAS 3105)
- MAP4341 Applied Partial Differential Equations (3, MAP 2302)

Mechanical Engineering CORE Electives

- EGN 4350C Finite Element Analysis Mechanical Engineering (EGN 2002C, EGN 3331, EGN 3365)
- EML 4225 Intro. to Vibrations and Controls (EGN 3321, MAP 2302, EEL 3111)
- EML 4500 Design and Analysis of Machine Components (EGN 3331, MAP 2302)

General Education & Technical/Science Electives

Arts & Humanities

Select 3 to 9 from the following. Required one (1) from the following

- ARH 2000 Art Appreciation (3-W)
- HUM 2020 Introduction to the Humanities (3-W, ENC 1101 C or better)
- LIT 2000 Introduction to Literature (3-W, ENC 1101)
- PHI 2010 Introduction to Philosophy (3-W)
- MUL 2010 Music Appreciation (3)

Optional the following or one more from Arts & Humanities required or Social Sciences:

- IDS 2144 Legal, Ethical, and Mgmt. Issues in Tech. (3)
- HUM 2022 Explorations in the Humanities (3-W)

Social Sciences

Select 3 to 9 credits from the following courses. Three (3) credits must be from a history course. Required one (1) from the following:

- AMH 2020 American History Since 1877 (3-W-Civic Literacy)
- PSY 2012 General Psychology (3-W)
- ECO 2013 Principles of Macroeconomics (3-W)

Optional one (1) from the following OR one (1) more from Social Science required or Arts and Humanities:

- AMH 2010 American History to 1877 (3-W)
- AMH 2930 Special Topics (3-W)
- ECO 2023 Principles of Microeconomics (3-W)

Advanced Mathematics/Science Electives

- MAS 3105 Linear Algebra (3, MAC 2313)
- MAS 3114 Computational Linear Algebra (3, MAC 2312)
- MAP 3253 Mathematical Scientific Computation (3, COP 2271 and MAP2302)
- MAP 4341 Applied Partial Differential Equations (3, MAP 2302)
- MAP 4314 Dynamical Systems (3, MAC 2313 and MAP 2302 and MAS 3105)
- MAA 4402 Complex Variables (3, MAC 2313)

Free Elective (3)

Students in Mechanical Engineering have one free elective in the program. To fulfill this course requirement, students choose from any other course in the catalog.

Total Program Credits: 120