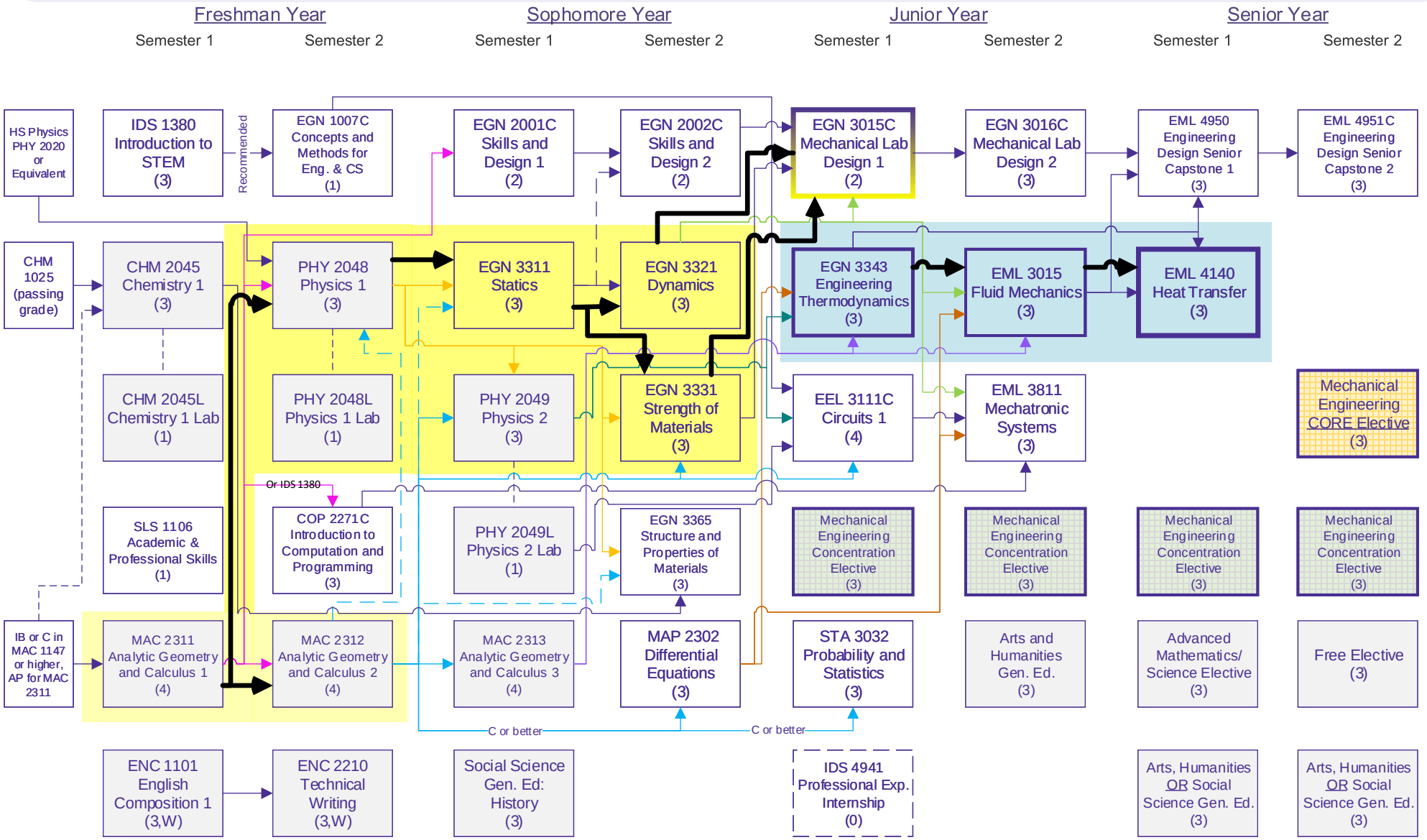
BS in Mechanical Engineering

2019-2020 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

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

2019-2020 Catalog

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*)
- EGN 4334 Mechanics of Composite Materials (3, EGN 3331)

Materials and Advanced Manufacturing

- EIN 3390 Manufacturing Process (3, EGN 3365)
- EMA 3050 Introduction to Inorganic Materials (3, EGN 3365)
- EMA 3066 Introduction to Organic Materials (3, CHM 2045 and PHY 2049 and EGN 3365)
- EML 4542 Materials Selection in Design and Manufacturing (3, EGN 3365 and EGN 3331)

Mechanical and Thermal Systems (MTS)

- EML 4600 Heating, Ventilating, and Air Conditioning (HVAC) (3, MAC 2313 and MAP 2302) *(EGN 3343 concurrently)*
- EML 3535 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)*

Nanotechnology

- EMA 3530C Introduction to Instrumentation and Characterization (3, CHM 2045, CHM 2045L, PHY 2049, PHY 2049L, EGN 3365)
- EML 4532C Advanced Nanoscale and Material Instrumentation (3, EMA 3530C)
- EMA 3084 Fundamentals of Nanomaterials & Nanotechnology (3, EGN 3365, PHY 2049, MAP 2302)
- BME 4575 Nanoscale Interfaces (3, EMA 3084) *(EGN 3343 concurrently)*

Operations Research

Select four (4) courses

- MAN 2591 Introduction to Operations and Supply Chain Management (3)
- EGN 3448 Operations Research (3, MAC 2311 and (STA 2023 OR STA 3032)
- EGS 3625 Engineering & Technology Project Mgmt. (3)
- EGN 3XX5 Discrete Event Simulation OR other Operations Research elective (3)
- MAN 3610 Global Logistics Management (3)
- MAN 4558 Lean operations Management (3, MAN 2591)
- MAN 4594 Reverse Logistics (3, MAN 2591 and EGN 3448)
- MAN 4522 Planning & Control Sys. For Supply Chain Mgmt. (3, MAN 2591, EGN 3448)

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 3111C)
- EML 4500 Design and Analysis of Machine Components (EGN 3331, MAP 2302)

General Education & Technical/Science Electives

Arts & Humanities

Three (3) to six (6) credits 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)

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 or 6 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

- CHM 4411 Survey of Physical Chemistry (3, CHM 2045, CHM 2045L, PHY 2049, PHY 2049L)
- MAD 3401 Numerical Analysis (3, MAS 3105 OR MAS 3114)
- MAS 3105 Linear Algebra (3, MAC 2313)
- MAS 3114 Computational Linear Algebra (3, MAC 2312)
- PHZ 4404 Intro. to Solid State Physics (3, CHM 2045, CHM 2045L, PHY 2049, PHY 2049L)

Total Program Credits: 120

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Legend: *Course name (credits-requirement met, pre-requisites/co-requisites)*

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