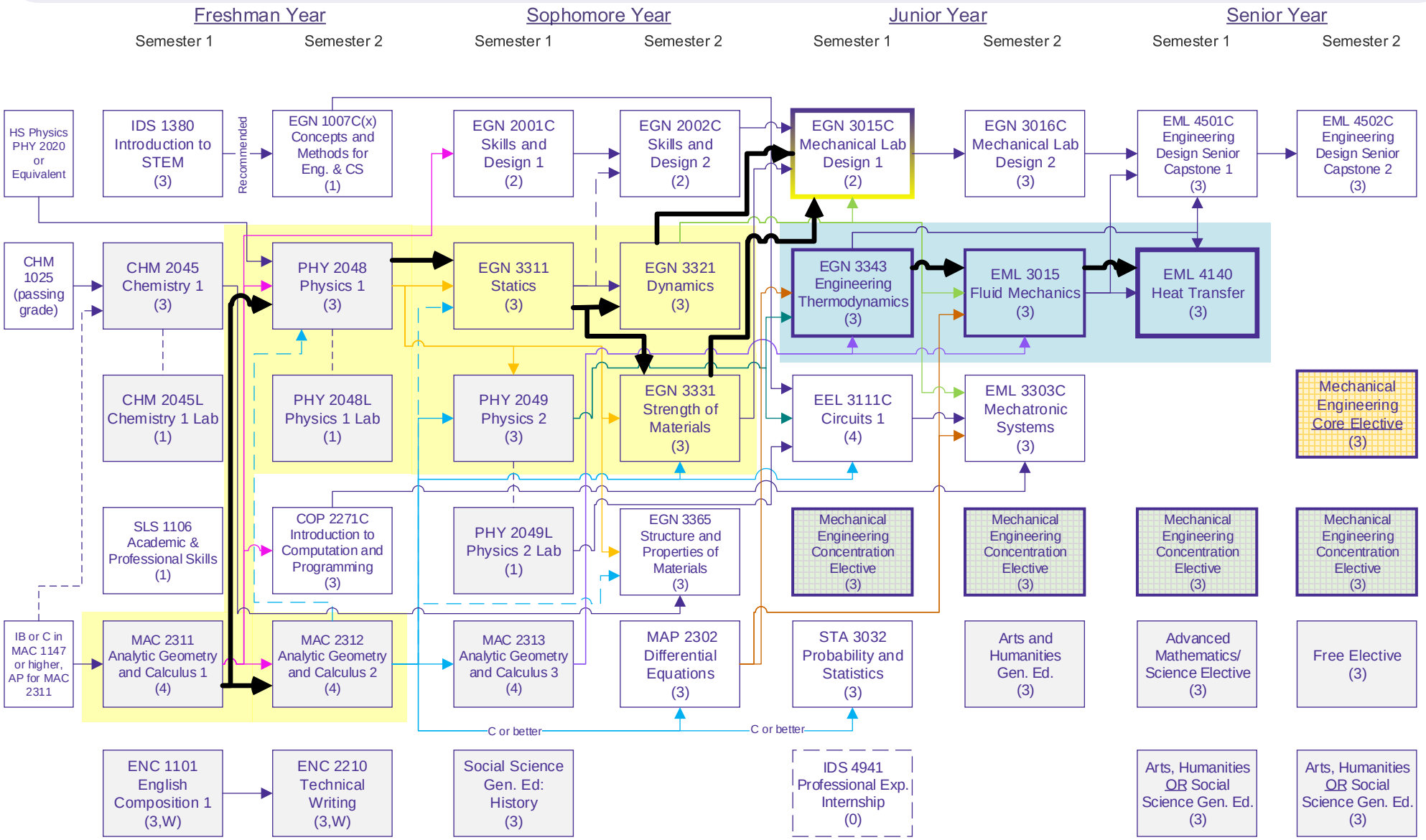
BS in Mechanical Engineering

2018-2019 Catalog



Legend:

Course Number
Course Name
(credit, requirement met)

Concentration Elective

Program Elective

General Education or Technical Elective

Permission from APC, 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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Last Modified 03/2019

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

2018-2019 Catalog

Program/Concentration Electives

Advanced Topics

Select 12 credits from ME concentrations courses, ME core electives, or Advanced Mathematics/Science electives or any of the following electives:

General Mechanical Engineering:
- EMA 3810 Collaborative Simulation (3)
- ENV Infrastructure Sustainability and Renewable Development (3)
- EML 4542 Materials Selection in Design and Manufacturing (3)

Operations Research Electives:
- MAN 3592 Global Supply Chain Mgmt. (3)
- MAN 3610 Global Logistics Mgmt. (3)
- EIN 4243 Human Factor and Society Impact (3)
- MAN 4558 Lean Operations Mgmt. (3, MAN 2591)
- ENV 4610 Sustainable Logistics (3)

Nanotechnology Electives:
- EMA 3811 Multifunctional Materials (3, COP 2272C)
- EMA 4491 Nanotech. and Material for Energy Storage and Gen. (3, Permission from Instructor)
- EMA 4781 Nano EHS Risk Assessment (3, Permission from Instructor)

Materials and Advanced Manufacturing

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

Nanotechnology

Required:
- EMA 3083 Fundamentals of Nanomaterials and Nanotechnology (3, EGN 3365, PHY 2049, MAP 2302)
- EMA 3530C Intro. to Instrumentation and Characterization (3, CHM 2045, CHM 2045L, PHY 2049, PHY 2049L, EGN 3365)

Select two (2) from the following:
- EMA 3413 Electronic, Optical, and Magnetic Properties of Materials (3, PHY 2049, MAC 2313, EGN 3365)
- EML 4532C Advance Nanoscale and Material Instrumentation (3, EMA 3530C)
- BME 4575 Nanoscale Interfaces (3, EMA 3083, EGN 3343)

Operations Research

- MAN 2591 Intro. to Operations and Supply Chain Management (3)
- EGN 3448 Operations Research (3, MAC 2311, STA 2023 OR STA 3032)
- EGS 3625 Engineering & Technology Project Mgmt. (3)
- EGN 3XX5 Discrete Event Simulation OR other Operations Research elective (3)

Mechanical Engineering Core Electives

- EGN 4350C Finite Element Analysis Mechanical Engineering (3-FE Exam, EGN 2002C, EGN 3331, EGN 3365)
- EML 4225 Intro. to Vibrations and Controls (3-FE Exam, EGN 3321, MAP 2302, EEL 3111C)
- EML 4500 Design and Analysis of Machine Components (3-FE Exam, 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)
- 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 Elective

- Any 3XXX-level or above mathematics or basic science in the catalog for which the pre-requisite has been met.
- 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 C or better)
- MAS 3114 Computational Linear Algebra (3, MAC 2312 C or better)
- PHZ 4404 Intro. to Solid State Physics (3, CHM 2045, CHM 2045L, PHY 2049, PHY 2049L)
- OR any 3000 level or above course in the catalog for which pre-requisites have been met.

Total Program Credits: 120

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

Last Modified 10/2018