

Freshman Year

Semester 1 Semester 2

SLS 1106
First Year
Experience
(3)

ENC 1101
English
Composition 1
(3,W)

IDS 1380
Introduction to
STEM
(3)

IB or C in
MAC 1147
or higher,
AP for MAC
2311

MAC 2311
Analytic Geometry
and Calculus 1
(4)

CHM
1025
(passing
grade)

CHM 2045
Chemistry 1
(3)

HS Physics
PHY 2020
or
Equivalent

CHM 2045L
Chemistry 1 Lab
(1)

EGN 1007C(x)
Concepts and
Methods for
Eng. & CS
(1)

ENC 2210
Technical
Writing
(3,W)

COP 2271C
Introduction to
Computation and
Programming
(3)

MAC 2312
Analytic Geometry
and Calculus 2
(4)

PHY 2048
Physics 1
(3)

PHY 2048L
Physics 1 Lab
(1)

Sophomore Year

Semester 1 Semester 2

EGN 2001C
Skills and
Design 1
(2)

Social Science
Gen. Ed:
History
(3)

MAC 2313
Analytic Geometry
and Calculus 3
(4)

EGN 3311
Statics
(3)

PHY 2049
Physics 2
(3)

PHY 2049L
Physics 2 Lab
(1)

EGN 2XX2C
Skills and
Design 2
(2)

MAP 2302
Differential
Equations
(3)

EGN 3321
Dynamics
(3)

EGN 3331C
Strength of
Materials
(3)

EGN 3365
Structure and
Properties of
Materials
(3)

PHY 2049L
Physics 2 Lab
(1)

Junior Year

Semester 1 Semester 2

EGN 3343
Engineering
Thermodynamics
(3)

EGN 3015C
Mechanical Lab
Design 1
(2)

STA 3032
Probability and
Statistics
(3)

Mechanical
Engineering
Concentration
Elective
(3)

EEL 3111C
Circuits 1
(4)

IDS 4941
Professional Exp.
Internship
(0)

EML 3015
Fluid Mechanics
(3)

EGN 3016C
Mechanical Lab
Design 2
(3)

EML 3303C
Mechatronic
Systems
(3)

Mechanical
Engineering
Concentration
Elective
(3)

Arts and
Humanities
Gen. Ed.
(3)

Senior Year

Semester 1 Semester 2

EML 4140
Heat Transfer
(3)

EML 4501C
Engineering
Design Senior
Capstone 1
(3)

Arts, Humanities
OR Social
Science Gen. Ed.
(3)

Mechanical
Engineering
Concentration
Elective
(3)

Technical/
Science
Elective
(3)

EGN 4350C
Finite Element
Analysis in ME
(3)

EML 4502C
Engineering
Design Senior
Capstone 2
(3)

Arts, Humanities
OR Social
Science Gen. Ed.
(3)

Mechanical
Engineering
Concentration
Elective
(3)

Free Elective
(3)

Legend:

Course Number
Course Name
(credit,
requirement met)

Program/
Concentration
Elective

General
Education or
Technical
Elective

Permission from
APC, Provost, or
Designee
Needed

→ Prerequisite

- - - Co-requisite

- - -> Pre-Requisite OR Co-Requisite

BS in Mechanical Engineering

Program/Concentration Electives, General Education, and Other Electives

2017-2018 Catalog

Program/Concentration Electives

Advanced Topics

Choose 4 courses from any Mechanical Engineering concentration, program electives, technical/science elective, or any combination of these.

Materials and Advanced Manufacturing

- EIN 3390 Manufacturing Process (3, EGN 3365)
- EML 4542 Materials Selection in Design and Manufacturing (3)

The following or other ME elective:

- EMA 3050 Introduction to Inorganic Materials (3)
- EMA 3066 Introduction to Organic Materials (3)

Nanotechnology

- EMA 1083C Unique Nanoscale Phenomena and Interfaces (3, CHM 2045, CHM 2045L / PHY2048, PHY 2048L) OR Other Nanotechnology concentration elective
- EMA 3530C Intro. to Instrumentation and Char. (3, CHM 2045, CHM 2045L, PHY 2049, PHY 2049L)
- EML 4532C Adv. Nanoscale and Materials (3, EMA 3530C OR Permission from Program Director)
- BME 4575C Nano Scale Interface with Lab. (3) OR Other Nanotechnology concentration elective

Additional Nanotechnology available:

- 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)

Operations Research

- MAN 2591 Logistics in the Supply Chain (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 (3) OR other Operations Research elective available

Additional Nanotechnology available:

- 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)

Program/Concentration Electives (Continued)

General Mechanical Engineering (Program Electives)

- CEN 4010 Software Engineering (3, COP 3530 OR COP 4415 and COP 4531)
- EMA 3810 Collaborative Simulation (3, MAP 2302)
- EMA 4780 Materials for Sustainability (3, EMA 3811 OR permission from program director)

General Education & Technical/Science Electives

Arts & Humanities

Three (3) to six (6) credits from the following:

- ARH 2000 Art Appreciation (3-W)
- PHI 2010 Introduction to Philosophy (3-W)
- IDS 2144 Legal, Ethical, and Mgmt. Issues in Tech. (3)

Social Sciences

Required one (1) from the following:

- AMH 2010 American History to 1877 (3-W)
- AMH 2020 American History Since 1877 (3-W)
- AMH 2930 Special Topics in American History (3-W)

Recommended one (1) from the following OR another History, Art and Humanities:

- ECO 2013 Principles of Macroeconomics (3-W)
- ECO 2023 Principles of Microeconomics (3-W)
- PSY 2012 General Psychology (3-W)

Technical/Science Elective

Required one (1) from the following:

- BSC 1010 Biology 1 (3 / BSC 1010L)
- BSC 1010 Biology 1 Lab (1 / BSC 1010)
- COP 2272C Computer Programming 1 (3, COP 2271C)
- CHM 4411 Survey of Physical Chemistry (3, CHM 2045, CHM 2045L, PHY 2049, PHY 2049L)
- 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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