BU College of Engineering

Engineering Science Minor

This minor is available to Boston University students who are not enrolled in the College of Engineering, but who want a general introduction to the concepts and applications of Engineering. Track A has a Mechanical Engineering emphasis, Track B has an Electrical and Computer Engineering emphasis and Track C has a Biomedical Engineering emphasis.

- A Minor in Engineering Science is earned through completion of 20 credits. Twelve credits must be unique to the minor and may not count toward the fulfillment of majors or additional minors.
    - CAS MA 226 and ENG EK 125 are required courses.
    - The remaining 12 credits are to be selected from among the courses outlined for each track.
- Students are expected to obtain the necessary background (pre-requisites or equivalents) to complete their chosen minor program.
- A minimum 2.00 GPA is required in the courses used to satisfy the minor, with no grade less than a C–.
- Applications for the Minor in Engineering Science must be approved by the Associate Chair of Undergraduate Programs of the relevant Engineering Department. Students should then return the completed form to their college of major.
- All course substitutions must be approved by the College of Engineering Undergraduate Committee
- Students planning to pursue a minor in Engineering Science should apply as early as possible to facilitate course planning.

Minor Prerequisites

- CAS MA 225 – Calculus 1 (4 cr.)
- CAS PY 211 – Physics 1 (4 cr.)
- CAS PY 212 – Physics 2 (4 cr.) if pursuing Track B or Track C-option 1

Requirements

- CAS MA 226 – Differential Equations (4 cr.)
- ENG EK 125 – Programming for Engineers (4 cr.)
- Track A or Track B or Track C – see below (12 cr.)

Track Emphasis

Select one track below, totaling 12 credits. A higher level (300+) course in the program associated with each track (e.g. ME for Track A) may be petitioned as a substitute for one of the restricted elective below.

Track A (Mechanical Engineering emphasis)

- ENG EK 301 – Engineering Mechanics (4 cr.)
- Select two courses from the list below. (8 cr.)
  - ENG ME 302 – Engineering Mechanics II (4 cr.)
  - ENG ME 303 – Fluid Mechanics (4 cr.)
  - ENG ME 304 – Thermodynamics (4 cr.)
  - ENG ME 305 – Mechanics of Materials (4 cr.)
  - ENG ME 306 – Material Science (4 cr.)
  - ENG ME 360 – Product Design (4 cr.)

Track B (Electrical / Computer Engineering emphasis)

- ENG EK 307 – Electric Circuits (4 cr.)
- ENG EC 300+ – any 300+ level EC course (4 cr., any pre-requisites for courses at this level must be completed prior to enrollment)
- ENG EC 300+ – any 300+ level EC course (4 cr., any pre-requisites for courses at this level must be completed prior to enrollment)

Track C – Option 1 (Biomedical Engineering emphasis)

- ENG BE 209 – Princ. Molecular Cell Biology and Biotechnology (4 cr.) (CAS BI 203 is also accepted)
- ENG EK 307 – Electric Circuits (4 cr.)
- Select one course from the list below. (4 cr.)
  - ENG BE 403 – BME Signals and Controls (4 cr.)
  - ENG EK 424 – Thermodynamics and Statistical Mechanics (4 cr.)

Track C – Option 2 (Biomedical Engineering emphasis)

- ENG BE 209 – Princ. Molecular Cell Biology and Biotechnology (4 cr.) (CAS BI 203 is also accepted)
- ENG EK 301 – Engineering Mechanics (4 cr.)
- Select one course from the list below. (4 cr.)

- ENG BE 436 – Fundamentals of Fluid Mechanics (4 cr.)
- ENG BE 420 – Intro to Solid Biomechanics (4 cr.)
- ENG EK 424 – Thermodynamics and Statistical Mechanics (4 cr.)

For additional information and specifics regarding prerequisites, please consult with the appropriate Undergraduate Associate Chair listed below. The student should be directed back to their primary college after receiving approval from the appropriate associate chair:

Track A (Mechanical) – Professor Caleb Farny (farny@bu.edu)
Track B (Electrical/Computer) – Professor Tali Moreshet (talim@bu.edu)
Track C (Biomedical) – Professor Irving Bigio (bigio@bu.edu)

Track Emphasis:

Select one (1) track below, totaling 12 credits. A higher level (300+) course in the program associated with each track (e.g. ME for Track A) may be petitioned as a substitute for one of the restricted electives below.

Track A
(Mechanical Emphasis)

ENG EK 301
Engineering Mechanics
4 cr.
Pre-Req: CAS PY 211 & ENG EK 125

ENG ME ---
Select two (2) courses from the list below.
8 cr.

ENG ME 302 **(4 cr.)**
Engineering Mechanics II
(*Pre-Req: CAS MA 226, ENG EK 301)*

ENG ME 303 **(4 cr.)**
Fluid Mechanics
(*Pre-Req: CAS MA 226, ENG EK 301)*

ENG ME 304 **(4 cr.)**
Thermodynamics
(*Pre-Req: CAS PY 211)*

ENG ME 305 **(4 cr.)**
Mechanics of Materials
(*Pre-Req: CAS MA 226, ENG EK 103, ENG EK 301)*

ENG ME 306 **(4 cr.)**
Material Science
(*Pre-Req: CAS CH 131, CAS PY 212)*

ENG ME 360 **(4 cr.)**
Product Design
(*Pre-Req: ENG ME 357; Co-Req: ENG ME 358)*

Track B
(Electrical/ Computer Emphasis)

ENG EK 307
Electric Circuits
4 cr.
Co-Req: CAS PY 212

ENG EC 300+
300-level + Course
4 cr.
Any pre-requisites for this course must be completed prior to enrollment.

ENG EC 300+
300-level + Course
4 cr.
Any pre-requisites for this course must be completed prior to enrollment.

Track C – Option 1
(Biomedical Emphasis)

ENG BE 209
Princ. Molecular Cell Biology & Biotechnology
4 cr.

ENG EK 307
Electric Circuits
4 cr.
Co-Req: CAS PY 212

ENG -- ---
Select one (1) course from the list below.
4 cr.

ENG BE 403
BME Signals & Controls
(Pre-Req: CAS MA 226 & ENG EK 307)

ENG EK 424
Thermo & Stat Mech
(Pre-Req: CAS PY 212, CAS MA 226, CAS CH 102 ENG EK 381)

OR

Track C – Option 2
(Biomedical Emphasis)

ENG BE 209
Princ. Molecular Cell Biology & Biotechnology
4 cr.

ENG EK 301
Engineering Mechanics
4 cr.
Pre-Req: CAS PY 211 & ENG EK 125

ENG -- ---
Select one (1) course from the list below.
4 cr.

ENG BE 436
Fundamentals of Fluid Mech
(Pre-Req: CAS MA 226 & ENG EK 301)

ENG BE 420
Intro to Solid Biomechanics
(Pre-Req: CAS MA 226, ENG EK 103, & ENG EK 301)

ENG EK 424
Thermo & Stat Mech
(Pre-Req: CAS PY 212, CAS MA 226, CAS CH 102, ENG EK 381)

3/23/2022