



## Degree Requirements Checklist

### First and Second Year Courses

- ENG Comp
- MATH 124, Calc 1
- MATH 125, Calc 2
- MATH 126, Calc 3
- PHYS 121, Mechanics
- PHYS 122, Electromagnetism
- PHYS 123, Waves
- CHEM 142, Chem 1
- CHEM 152, Chem 2
- A A 210, Statics
- CEE 220, Mechanics of Materials
- ME 230, Dynamics

### 300-Level Course Prerequisites

- ME 123, Visualizations and CAD
- MSE 170, Intro Mechanics of Materials
- EE 215, Intro Circuits
- IND E 315 or STAT 390, Stat for Engr
- MATH 307 or AMATH 351, Dif EQ
- MATH 308 or AMATH 352, Lin Algebra
- AMATH 301, Scientific Computing

### Other Required Courses

- MATH 309 or 324 or AMATH 353
- ENGR 231, Technical Communications
- VLPA (10 cr)  I&S (10 cr)
- Areas of Knowledge (VLPA or I&S) (4 cr)
- Diversity (3 cr/take with VLPA or I&S)

### ME 300-Level (Junior) Courses

- ME 323 Thermo (5)
- ME 331 Heat Transfer (4)
- ME 333 Fluids (5)
- ME 354 Mechanics of Materials (5)
- ME 355 Intro to Manufacturing (4)
- ME 356 Machine Design (4)
- ME 373 Intro System Dyn (5)
- ME 374 Sys Dyn Anal/Des (5)

### ME Design Sequence

- ME 395 Intro Mech Engr Design
- ME 495 Mech Engr Design

### ME Electives/Concentration — 19 Credits

- ME 400-level courses (except 495)
- 6 cr max ME 499, decimally graded
- 3 cr 300/400 other engr courses w/ petition
- 4 cr max internship credits
- 1 cr from a seminar (CR/NC)

## Mechatronics Pathway

### Autumn

- ME 471 Automatic Control
- ME 473 Instrumentation & Sensors
- ME 395 Intro to Mechanical Design

### Electives—6 cr required

- ME 470 Mechanical Vibrations
- ME 480 Computer-Aided Tech
- ME 478 Finite Element Analysis
- PHYS 334 Elec Design Lab I
- AMATH 402 Intro Dyn Syst & Chaos

### Winter

- ME 477 Embedded Computing
- ME 494 Mechatronics Design
- ME 495 Mech Capstone Design (4)

### Spring

- ME 478 Finite Element Analysis
- PHYS 335 Elec Design Lab II
- ME 480 Computer-Aided Tech

## Nanoscience and Molecular Engineering (NME) Pathway

### Autumn Junior Year

### Autumn Senior Year

- ME 410, Nanodevice Design & Manu (3)
- ME 411, Biol Frameworks for Engr (3)

### Electives — 13 cr required (Additional courses approved by petition)

- ME 461: Thin Films (4)
- ME 480: Introduction to Computer Aided Technology (4)
- ME 499: Ind. Research (1 –5, max 6cr)
- ME 568: Active & Sensing Materials (3)

### Winter

- NME 220. Intro Molec & Nanoscale Prin (4)
- NME 221, Nanosci & MoIE Seminar I (1)

\*concurrent registration allowed, see advising

### Spring

- ME 495 Mech Capstone Design (4)
- NME 421, Nanosci & MoIE Seminar III (1)

- ChemE 455: Surface and Colloid Science Laboratory (3)
- ChemE 458: Surface Analysis (3)
- EE 486: Fundamentals of Integrated Circuit Tech (3)
- MSE 475: Introduction to Composite Material (3)

## Biomechanics Pathway

### Autumn

- ME 411 Bioframeworks for Engrs (3)

### Biomechanics Electives—6 cr required

- ME412: Biomechanics of movement (3) (offered every other yr)
- ME445: Intro to biomechanics (4)
- ME499: Ind research, biomech lab (graded, max 3 cr)
- ME527: Musculoskeletal biomech (3 cr, perm req'd)
- BIOI427: Comparative biomechanics (5)
- BIOEN460: Neural engineering (3)
- BIOEN461: Neural engineering tech studios (4)
- BIOEN485: Computational bioengineering (4)
- BIOEN486: Tissue engineering (3)

\*Note that some of the listed electives have prerequisites

### Winter

- ME 419 Biomechanics Seminar (1)
- ME 495 Mech Capstone Design (4)

### Spring

- Biomechanics Supportive Electives — Remaining Electives**
- ME414: Engineering innovation in medicine (3)
- ME440: Advanced mechanics of materials (3)
- ME460: Kinematics and linkage design (3)
- ME469: Applications of dynamics in engineering (4)
- ME470: Mechanical vibrations (3)
- ME473: Instrumentation (4)
- ME478: Finite element analysis (4)
- ME480: Introduction to computer-aided technology (4)
- BIOEN420: Medical imaging (4)