

Engineering Electives 2020-21

| Course Title | Course No. | Course Title | Course No. |
|------------------------------------|------------|---|------------|
| Statics | COE 2001 | Research (FR & SO); any School within CoE | XXXX 2699 |
| Deformable Bodies | COE 3001 | * Chem. Eng. in Nanoscale Sys. | CHBE 4020 |
| Microelectronics & Nanotech.Revol. | COE 3002 | * Chemical Engineering of Energy Systems | CHBE 4030 |
| Data Analytics for Engineers | COE 3803 | * Microelec Fabrication | CHBE 4050 |
| Low Speed Aerodynamics | AE 2020 | ** Bioprocess Engineering | CHBE 4310 |
| Introduction to Mechanics | AE 2120 | * Product Design | CHBE 4535 |
| Intro. Bioengr. Stats. | BMED 2400 | * Complex Fluids | CHBE 4610 |
| Biomedical Systems and Modeling | BMED 3520 | * Fundamentals of the Sustainable Chemical Industry | CHBE 4743 |
| Intro. to Biomechanics | BMED 3400 | * Data Analytics for Chemical Engineers | CHBE 4745 |
| Intro. to Biomaterials | BMED 4751 | * Data-Driven Process Systems Engineering | CHBE 4746 |
| Dynamics | CEE 2040 | Research (JR & SR); any School within CoE | XXXX 4699 |
| Environ. Engr. Principles | CEE 2300 | * Microfluidics/BioMEMS | CHBE 4710 |
| Environ. Engr. Systems | CEE 4300 | * Pulp & Paper Manufacturing | CHBE 4720 |
| Air Pollution Engr. | CEE 4330 | * Emerging Tech in Forest Bioproducts | CHBE 4730 |
| Environ. Impact Assessment | CEE 4620 | * Biofluid Mechanics | CHBE 4757 |
| Fund. Of Digital System Design | ECE 2020 | * Electrochem Energy Storage and Conversion | CHBE 4759 |
| Intro. to Signal processing | ECE 2026 | * Biocatalysis | CHBE 4760 |
| Electromagnetics | ECE 3025 | * Protein Engineering | CHBE 4762 |
| Microelectronic Circuits | ECE 3040 | * Drug Design, Development & Delivery | CHBE 4765 |
| Circuits and Microelectronics Lab | ECE 3043 | Pulp & Paper Lab | CHBE 4767 |
| Energy Systems | ECE 3072 | * Polymer Science & Engineering I | CHBE 4775 |
| Semiconductor Devices | ECE 3080 | * Polymer Science & Engineering II | CHBE 4776 |
| Circuits & Electronics | ECE 3710 | * Biosystems Analysis | CHBE 4782 |
| Instrum & Electronic Lab | ECE 3741 | * Mechanical Behavior of Composites | CHBE 4791 |
| Electromagnetic & Microwave Appl. | ECE 4350 | * Composite Materials & Processes | CHBE 4793 |
| Probability w/Applications | ISYE 2027 | * Composite Materials & Manufacturing | CHBE 4794 |
| Engineering Economy | ISYE 3025 | Energy Technology: Options & Policy | CHBE 4801 |
| Basic Statistical Methods | ISYE 3030 | * Aerosol Chemistry & Air Quality | CHBE 4803 |
| Methods of Quality Improvement | ISYE 3039 | * Biorefining | CHBE 4803 |
| Statistics & Applications | ISYE 3770 | * Biosurfaces | CHBE 4803 |
| Stochastic Manufact & Svc. | ISYE 3232 | * Chem. Engin. Applications in Materials Production | CHBE 4803 |
| Matls Characterization | MSE 2021 | * Colloids and Surfaces | CHBE 4803 |
| Mech. Behavior of Materials | MSE 3005 | * Molecular Modeling | CHBE 4803 |
| Materials Science & Eng of Sports | MSE 3300 | * Nanoporous Materials | CHBE 4803 |
| Introduction to Biomaterials | MSE 4751 | Tech. Leadership, Professionalism and Decision-making | CHBE 4803 |
| Fund. of Nanomater.& Struct. | MSE 4330 | * Prep. & Reactions - Polymers | CHBE 6750 |
| Biologically Inspired Design | MSE 4740 | * Advanced Biomaterials | CHBE 6777 |
| Dynamics of Rigid Bodies | ME 2202 | * Cellular Engineering | CHBE 6782 |
| Design and Manufacture | ME 3210 | * Tissue Engineering | CHBE 6794 |
| Radiation Physics | NRE 3301 | | |
| Plasma Phys. & Fusion Engr. | NRE 4610 | | |

* These CHBE classes can be applied as CHBE or Technical Engineering electives.

** CHBE 4310 is a required class for Biotechnology concentration; it can be a CHBE or technical engineering elective for standard option.

You are required to take 6 total hours of technical engineering electives in the Standard Option.

Up to 3 credit hours of technical engineering electives may be taken at the 2000 level; at least 3 credit hours must be taken at the 3000 level or higher.

Undergraduate research (XXXX 2699 and/or XXXX 4699) may be used as technical engineering electives in standard option if the research is performed within the College of Engineering, XXXX = CHBE/BME/ME/MSE/etc. Please see your academic advisor for additional rules governing research.

Any XXXX 480X Special Topics course (e.g. CHBE 4801 or MSE 4803) other than the specific course titles listed above must be approved by the Associate Chair for Undergraduate Studies in ChBE.

No two courses will be allowed towards satisfying the degree requirements if there is more than 20% overlap in course content.

Approval of other College of Engineering courses as technical engineering elective will be at the discretion of the Associate Chair for Undergraduate Studies based on written request that includes a course syllabus.