Biomedical Engineering

Pre-approved Technical Electives

A total of **12 credits of approved technical electives** are required for graduation. A total of **45 credits of engineering topics** are also required for graduation. Courses with designators of BEN, BLE, CHE, CIE, ECE, GEE, MEE, or PPA meet the criteria of engineering topics. For transfer students judicious use of Technical Electives should be employed to meet the minimum number of engineering topic credits. In general, 400 level (and higher) courses offered by a science or engineering program but not shown below may, with the Curriculum Committee's approval, be used to satisfy the technical elective requirement. Only approved technical elective courses offered in the College of Engineering may be used to satisfy BOTH the engineering (45) credit and technical elective (12) credit requirements. The following technical elective courses have been pre-approved.

Biochemistry and Molecular Biology

BIO 335	Comparative Anatomy
BIO 336	Developmental Biology
BIO 377	Medical Physiology
BIO 378	Med. Phys. Lab (*only* if with BIO 377)
BIO 450	Histology
BIO 462	Principles of Genetics
BIO 474	Neurobiology

Biochemistry and Molecular Biology

BMB 400	Molecular Genetics
BMB 420	Infectious Disease
BMB 421	Infect. Dis. Lab (*only* if with BMB 420)
BMB 440	Introductory Immunology
BMB 441	Intro Immun. Lab (*only* if with BMB 440)
BMB 455	Virology
BMB 456	Virology Lab (*only* if with BMB 455)
BMB 490	Microbial Genetics

Chemistry

CHY 431	Structure and Mech. in Bio. Chemistry
CHY 443	Instrumental Analysis
CHY 461	Advanced Inorganic Chemistry I
CHY 472	Physical Chemistry II
CHY 475	Physical Chemistry III
CHY 477	Nanoscience

Mathematics

MAT 452	Complex Analysis
MAT 453	Partial Differential Equations I
MAT 454	Partial Differential Equations
MAT 487	Numerical Analysis
STS 437	Stat. Methods in Research

Physics

PHY 236	Introductory Quantum Physics
PHY 441	Physics Electronics Lab
PHY 447	Molecular Biophysics

Chemical and Biomedical Engineering

BEN 396	Res. Experience in Biomedical Engineering
BEN 497	Independent Study
BEN 498	Special Topics in Biomedical Engineering
BEN 499	Undergraduate Thesis
BLE 597	Advanced Topics in Bio Engineering
CHE 352	Process Control
CHE 362	Elements of Chemical Engineering II
CHE 368	Kinetics and Reactor Design
CHE 410	Advanced Materials
CHE 420	Colloid Technology
CHE 430	Intro to Polymer Science and Tech.
CHE 460	Biochemical Engineering
CHE 498	Special Topics in Chemical Engineering
CHE 498	Special Topics: Physical Chemistry
CHE 510	Transport Phenomena
CHE 540	Advanced Chem. Engineering Thermodynamics
CHE 561	Advanced Chemical Engineering Kinetics
CHE 580	Chemical Engineering Analysis
CHE 598	Special Topics in Chemical Engineering

Civil Engineering

CIE 331	Introduction to Environmental Engineering
CIE 350	Hydraulics
CIE 533	Environmental Aquatic Chemistry

Electrical and Computer Engineering

ECE 177	Introduction to Programming
ECE 314	Signals and Systems
ECE 457	Nanoscience
ECE 465	Microelectronics Science and Engineering
ECE 465	Introduction to Sensors
ECE 598	Biomedical Microsystems

All ECE courses numbered 271 and higher.

Mechanical Engineering

MEE 230	Thermodynamics
MEE 270	Dynamics
MEE 360	Fluid Mechanics
MEE 556	Introduction to Tissue Engineering

Pulp and Paper Technology

PPA 264	Survey of the Paper Industry

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