Pre-approved Technical Electives

A total of 48 credits of engineering topics is required for graduation. Courses with designators of BEN, BLE, CHE, PPA, GEE, CIE, MEE, and ECE meet the criteria of engineering topics. For non-transfer students a minimum of 3 credits of the required 9 credits of Technical Electives must be taken in an Engineering discipline. For transfer students judicious use of Technical Electives should be employed to meet the minimum number of engineering topic credits.

For Students Intending to Seek Admission to Medical School

BIO 335* Comparative Anatomy
BIO 336* Developmental Biology
BIO 377* Medical Physiology
BIO 378* Medical Physiology Laboratory (only if in conjunction with BIO 377)
BIO 450 Histology
BIO 462 Principles of Genetics
BIO 474 Neurobiology
BMB 400 Molecular Genetics
BMB 420 Infectious Disease
BMB 421 Infectious Disease Laboratory (only if in conjunction with BMB 420)
BMB 440 Introductory Immunology
BMB 441 Introductory Immunology Laboratory (only if in conjunction with BMB 440)
BMB 455 Virology
BMB 456 Virology Laboratory (only if in conjunction with BMB 455)
BMB 490 Microbial Genetics

* Strongly recommended by the University of Maine Health Professions Career Specialist

For Non-Medical School Destined Students

Chemical and Biological Engineering

BEN 497 Special Problems in Bioengineering
BEN 499 Undergraduate Thesis
BLE 597 Advanced Topics in Biological 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 Introduction to Polymer Science and Technology
CHE 460 Biochemical Engineering
CHE 498 Special Topics in Chemical Engineering
CHE 498 Special Topics: Physical Chemistry for Chemical Engineering and Bioengineers (or CHY 472)
CHE 510 Introduction to Transport Phenomena

CHE 540 Advanced Chemical Engineering Thermodynamics
CHE 561 Advanced Chemical Engineering Kinetics
CHE 580 Chemical Engineering Analysis
CHE 598 Special Topics in Chemical Engineering

Chemistry

CHY 431 Structure and Mechanism in Biological Chemistry
CHY 443 Instrumental Analysis
CHY 461 Advanced Inorganic Chemistry I
CHY 472 Physical Chemistry II (or CHB 498)
CHY 475 Physical Chemistry III
CHY 477 Nanoscience

Civil Engineering

CIE 533 Environmental Aquatic Chemistry

Electrical and Computer Engineering

ECE 465 Introduction to Sensors
ECE 598 Biomedical Microsystems: Design and Fabrication

Mathematics

MAT 452 Complex Analysis
MAT 453 Partial Differential Equations I
MAT 454 Partial Differential Equations II
MAT 487 Numerical Analysis

Mechanical Engineering

MEE 444 Robot Dynamics and Control
MEE 556 Introduction to Tissue Engineering

Pulp and Paper Technology

PPA 264 Survey of the Paper Industry