General Technical Electives

Department of Mechanical Engineering
University of Colorado Boulder

General Technical Electives are upper division courses in any of a wide range of STEM subject areas. The goal of the requirement is to allow you to expand your field of knowledge in a way that complements your degree, so we would encourage you to be strategic about selecting courses that will be of benefit and/or interest to you. For example, you might choose to focus your General Technical Electives on courses related to a specific area of Applied Math or Computer Science.

Exclusions

1. Courses that are part of the core curriculum for Mechanical Engineering are excluded from the requirement, as are courses completed through other departments that have been used as substitutes for core classes. For example, you would not be able to count CVEN4537 as both a substitute for MCEN 3030 and a General Technical Elective.
2. If a class is approved as both an H&SS Elective and a General Technical Elective, it can only count towards one requirement or the other.

Course Number Ranges

APPM 3000 TO 4999
AREN 3000 TO 4999
ASEN 3000 TO 4999
ASTR 3000 TO 4999
ATOC 3000 TO 4999
CHEM 3000 TO 4999
CHEN 3000 TO 4999
CSCI 3000 TO 4999
CVEN 3000 TO 4999
EBIO 3000 TO 4999
ECEN 3000 TO 4999
EVEN 3000 TO 4999
EMEN 3000 TO 4999
GEEN 3400 (if taken in addition to GEEN 1400)
GEOL 3000 TO 4999
IPHY 3000 TO 4999
MATH 3000 TO 4999
MCDB 3000 TO 4999
MCEN 3000 TO 4999
NAVR 3030
PHYS 3000 TO 4999

Recommended Tech Electives
Note: All of the courses on this list have prerequisites that ME majors are either required to have completed or are likely to have completed. Specifics are subject to change and department/instructor consent may be required.

APPM3170: Discrete Applied Mathematics
APPM3310: Matrix Methods and Applications
APPM3350: Advanced Engineering Calculus
APPM3570: Applied Probability
APPM4120: Introduction to Operations Research
APPM4350: Fourier Series and Boundary Value Problems
APPM4360: Complex Variables and Applications
APPM4440: Undergraduate Applied Analysis 1
APPM4650: Intermediate Numerical Analysis 1
Note: APPM3310 is a prerequisite for most 4000 level APPM courses.

ASEN4215: Descriptive Physical Oceanography
ASEN4218: Large Space Structures Design

ASTR3710: Formation & Dynamics of Planetary Systems
ASTR3720: Planets and Their Atmospheres
ASTR3740: Cosmology and Relativity
ASTR3750: Planets, Moons, and Their Rings
ASTR3760: Solar and Space Physics

ATOC4215: Descriptive Physical Oceanography
ATOC4720: Introduction to Atmospheric Physics and Dynamics

CHEN4650: Particle Technology
CHEN4800: Bioprocess Engineering
CHEN4820: Biochemical Separations
CHEN4836: Nanomaterials
CHEN4838: Special Topics

CSCI3002: Human-Centered Computing Foundations
CSCI3656: Numerical Computation
CSCI4342: Groupware and Workflow Systems
CSCI4412: Design, Creativity, and New Media
CSCI4446: Chaotic Dynamics
CSCI4502: Data Mining
CSCI4576: High Performance Scientific Computing
CSCI4753: Computer Performance Modeling
CSCI4809: Computer Animation
CSCI4830: Seminar in Computational Biology
Note: CSCI1300 is a prerequisite for most CSCI courses. Additional options are available to students who also complete CSCI2270.

CVEN3414: Fundamentals of Environmental Engineering
CVEN3602: Transportation Systems
CVEN3698: Engineering Geology
CVEN4147: Civil Engineering Systems

CVEN4333: Engineering Hydrology
CVEN4383: Groundwater Modeling
CVEN4484: Introduction to Environmental Microbiology
CVEN4537: Numerical Methods in Civil Engineering
CVEN4554: Fundamentals of Air Quality Management
CVEN4700: Sustainability and the Built Environment
CVEN4718: Mechanics and Dynamics of Glaciers
CVEN4728: Foundation Engineering
CVEN4822: GIS for Civil and Environmental Systems
CVEN4834: Special Topics

EMEN4030: Project Management Systems
EMEN4050: Leadership and Professional Skills
EMEN4100: Business Methods and Economics for Engineers
EMEN4800: Technology Ventures and Marketing
EMEN4825: Entrepreneurial Business Plan Preparation
EMEN4830: Special Topics

EVEN4100: Environmental Sampling and Analysis
EVEN4830: Special Topics

GEEN3400: Invention and Innovation

GEOL3010: Introduction to Mineralogy
GEOL3020: Petrology (prereq of GEOL3010)
GEOL3040: Global Change
GEOL3050: GIS for Geologists
GEOL3130: Global Warming
GEOL3230: Earth Materials
GEOL3320: Introduction to Geochemistry
GEOL3410: Paleobiology
GEOL3520: Energy & Climate Change
GEOL3720: Evolution of Life
GEOL4060: Oceanography
GEOL4070: Paleoclimatology
GEOL4093: Remote Sensing of the Environment

IPHY3410: Introduction to Human Anatomy
IPHY3430: Introduction to Human Physiology
IPHY3660: Dynamics of Motor Learning
IPHY4200: Physiological Genetics and Genomics
IPHY4740: Theory of Motor Skill Learning

PHYS3070: Energy and the Environment
PHYS3210: Classical Mechanics and Mathematical Methods 2
PHYS4130: Biological Electron Microscopy
PHYS4460: Teaching and Learning in Physics

Last updated: 2/5/14