

# TECHNOLOGY (TECH)

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**TECH 197. WORKSHOP, SHORT COURSE, CONFERENCE, SEMINAR. 1-5 Credits.**

**TECH 199. DIRECTED STUDY. 1-5 Credits.**

**TECH 297. WORKSHOP, SHORT COURSE, CONFERENCE, SEMINAR. 1-5 Credits.**

**TECH 298. SEMINAR. 1-5 Credits.**

**TECH 330. TECHNOLOGY PROBLEM ANALYSIS AND DESIGN I. 4 Credits.**

**Pre-requisites:** ENGL 201  $\geq$ C.

Development of advanced skills in technical problem analysis, planning, research, solution strategies, critical thinking and presentation.

Computer-aided design tools such as CAD, project-planning software, spreadsheets, as well as imaging and publishing software are used.

Emphasis is on consideration of interconnected systems.

**TECH 331. TECHNOLOGY PROBLEM ANALYSIS AND DESIGN II. 4 Credits.**

**Pre-requisites:** TECH 330  $\geq$ C.

Development of student's synthesis, design, organizational, and learning skills through examination of current research and/or design topics in Technology.

**TECH 393. TECHNOLOGY WORLD CIVILIZATION. 4 Credits.**

**Cross-listed:** HONS 393.

**Pre-requisites:** ENGL 201  $\geq$ C.

**Satisfies:** a university graduation requirement—global studies.

Students will investigate the issues surrounding technological change in discrete cultural settings with a historical perspective of the evolution of technology in a global context.

**TECH 395. CO-OP FIELDWORK. 1-5 Credits.**

**TECH 396. EXPERIMENTAL COURSE. 1-6 Credits.**

**TECH 397. WORKSHOP, SHORT COURSE, CONFERENCE, SEMINAR. 1-5 Credits.**

**TECH 398. SEMINAR. 4 Credits.**

**TECH 403. COMPUTER-AIDED DESIGN AND PROJECT MANAGEMENT. 4 Credits.**

**Pre-requisites:** MATH 107, MATH 114, MATH 141, MATH 142, MATH 161, MATH 162, MATH 200 or MATH 208;  $\geq$ C.

The application of spreadsheets to solve engineering problems, technical graphs, trending and curve fitting. The introduction to the use of computer-aided scheduling of projects, critical path planning, project tracking and cost collection.

**TECH 452. ENGINEERING ECONOMICS. 4 Credits.**

**Notes:** this course cannot be substituted for MENG 452 in degrees that require that class.

**Pre-requisites:** MATH 107, MATH 114, MATH 141, MATH 142, MATH 161, MATH 162, MATH 200 or MATH 208;  $\geq$ C.

This course focuses on the systematic evaluation of the economic benefits and costs of projects involving engineering design and analysis. Engineering economics quantifies the benefits and costs associated with engineering projects to determine whether they make (or save) enough money to warrant their capital investment.

**TECH 454. ENVIRONMENTAL ENGINEERING. 4 Credits.**

**Pre-requisites:** PHYS 100, PHYS 110, PHYS 121, PHYS 131, PHYS 151; ENGL 201; MATH 107, MATH 114, MATH 141, MATH 142, MATH 161, MATH 162, MATH 200 or MATH 208; All  $\geq$ C.

This course explores ways to promote the design and manufacturing of environmentally sound products and processes. Benefits include environmentally-friendly products, more efficient operations and the good will of an informed public that expects a clean, healthy environment.

**TECH 456. ENGINEERING ETHICS, CONTRACTS AND PATENTS. 4 Credits.**

**Pre-requisites:** ENGL 201  $\geq$ C.

This course investigates the elements of professional engineering practice including their relationship to the law, to the public and the ethics of the profession. Topics covered range from ethics, contracts, patents, copyrights, sales agreements and engineering specifications to professionalism, licensing, intellectual property, liability, risk, reliability and safety.

**TECH 458. QUALITY ASSURANCE. 4 Credits.**

**Notes:** this course cannot be substituted for METC 468 in degrees that require that class.

**Pre-requisites:** MATH 107, MATH 114, MATH 141, MATH 142, MATH 161, MATH 162, MATH 200 or MATH 208;  $\geq$ C.

Application and theory of quality control systems including development and use of process control charts, sampling, time and motion studies, and statistical analysis.

**TECH 462. INDUSTRIAL SAFETY ENGINEERING. 4 Credits.**

**Pre-requisites:** junior standing and ENGL 201  $\geq$ C.

Fundamentals of safety, classification of hazards, accident statistics, organization problems, safety codes, machine guarding, mechanical, electrical and chemical hazards, ventilation, respiratory and safety devices. (4 hours lecture per week)

**TECH 490. SENIOR CAPSTONE: PRODUCTION LAB. 4 Credits.**

**Cross-listed:** APTC 490, CMTC 490, DNTC 490, MNTE 490.

**Notes:** the course will simulate a real world design team concept by utilizing a design group that contains members of different program majors.

**Pre-requisites:** senior standing.

**Satisfies:** a university graduation requirement—senior capstone.

The course simulates the real world situation that graduates face.

Students will work in teams to apply techniques of production management, product design/development, plant layout, scheduling, cost accounting, assembly, inspection and quality control to produce a product. Learning to deal with the team dynamics is a valuable learning process. Each student team produces a new product and a final written report to demonstrate how the process and goals of the course have been realized.

**TECH 491. SENIOR PROJECT. 4-6 Credits.**

**Cross-listed:** APTC 491, CMTC 491, DNTE 491, MNTE 491.

**Pre-requisites:** senior standing.

Independent and/or group study and implementation of a design and development project. (variable time).

**TECH 495. INTERNSHIP. 1-15 Credits.**

**Cross-listed:** APTC 495, CMTC 495, DNTE 495, MNTE 495.

**Notes:** Graded Pass/Fail. This course may be repeated.

**Pre-requisites:** junior or senior status and permission of the instructor, department chair and dean.

A maximum of 5 credits may be earned toward electives for a Technology major. Students considering electives for a Technology minor should consult with their departmental advisor.

**TECH 496. EXPERIMENTAL COURSE. 1-6 Credits.**

**Cross-listed:** APTC 496, CMTC 496, DNTC 496, MNTC 496.  
Experimental Course.

**TECH 497. WORKSHOP, SHORT COURSE, CONFERENCE, SEMINAR. 1-6 Credits.**

**Cross-listed:** APTC 497, CMTC 497, DNTC 497, MNTC 497.  
Workshop, short course, conference, or seminar.

**TECH 498. SEMINAR. 1-6 Credits.**

**Cross-listed:** APTC 498, CMTC 498, DNTC 498, MNTC 498.  
Seminar.

**TECH 499. DIRECTED STUDY. 1-5 Credits.**

**Cross-listed:** APTC 499, CMTC 499, DNTC 499, MNTC 499.  
**Pre-requisites:** permission of the instructor, department chair and college dean.  
Designed for students wanting to pursue a subject beyond the scope of regular courses.

**TECH 539. SPECIAL STUDIES TECHNOLOGY. 1-5 Credits.**

**TECH 595. INTERNSHIP. 1-5 Credits.**

**TECH 596. EXPERIMENTAL COURSE. 1-6 Credits.**

**TECH 597. WORKSHOP, SHORT COURSE, CONFERENCE, SEMINAR. 1-6 Credits.**

**Notes:** only one workshop course for up to 3 credits may be used to fulfill graduate degree requirements.

**TECH 598. SEMINAR. 1-6 Credits.**

**TECH 599. INDEPENDENT STUDY. 1-6 Credits.**

**Notes:** may be repeated within the 6 credits allowed to fulfill the student's goals and needs in specific areas.  
**Pre-requisites:** permission of the instructor, department chair and college dean.

**TECH 600. THESIS. 2-6 Credits.**

**Pre-requisites:** permission of the instructor, department chair and college dean.  
Independent research study under the direction of a graduate adviser committee.

**TECH 601. RESEARCH REPORT. 2-6 Credits.**

**TECH 695. INTERNSHIP. 1-6 Credits.**

**Pre-requisites:** permission of the instructor, department chair and college dean.

**TECH 696. COLLEGE TEACHING INTERNSHIP. 1-5 Credits.**

**Pre-requisites:** permission of the instructor, department chair and college dean.  
Teaching a lower-division college course under supervision of a regular faculty member. Includes course planning, arranging bibliographical and instructional aids, conferences with students, experience in classroom instruction and student course evaluation.