

TECHNOLOGY EDUCATION (EDTE)

EDTE 179: 1-4 s.h.

Experimental

Experimental

EDTE 290: 3 s.h.

Children's Engineering

The intent of this course is to teach students about fundamentals of electricity, mechanisms, fluidics (liquids and gases under pressure), computer-control, and structures. Content will be delivered through a series of hands-on activities that will allow the students to immerse themselves in the content through problem-based learning by doing. Simple knowledge and skill building activities will lead to more complex open-ended problem solving and prototyping activities to build deeper understandings of scientific, technological, engineering, and mathematical (STEM) concepts for teachers of young children. Cross-listed with ERCH 290, students may not receive credit for both courses.

EDTE 291: 3 s.h.

Foundations of Technology & Engineering Ed

An introduction to the social, historical and philosophical foundations of technology & engineering education, leading to contemporary programs. Provision is made for observation of classroom and laboratory practices in selected schools. Prereq: Sophomore standing. Must meet current university requirements for field experiences (e.g., current clearances, negative TB test results on file). Not offered during summer sessions. Must achieve a "C" or higher to register for professional block courses.

EDTE 391: 3 s.h.

Curr & Inst in Tech & Eng Ed (W)

An investigation of curriculum design, instructional planning, and lesson delivery in K-12 technology and engineering education. The focus is on engaging teacher candidates in using contemporary strategies and technologies to plan, implement, and assess a standards-based curriculum that promotes students' technological literacy, creativity, engineering problem-solving, and design thinking abilities. Emphasis is placed on meeting the needs of all learners, including English language learners and students with disabilities. Field experiences are required in technology and engineering education classrooms. Prerequisites: Grade of "C" or higher in EDTE 291, EDFN 211, EDFN 241. Grade of "C-" or higher in ENGL 110. Admission to advanced professional studies (APS) required. Co-requisites: EDSE 340 and SPED 346. A minimum grade of "C" must be earned in this class in order to progress to student teaching.

EDTE 461: 9 s.h.

Edte Stu Teaching

Student teachers are assigned full-time to selected mentors in the Lancaster area. They are supervised by University faculty and gain experience in the responsibilities of the teacher. Prereq: EDTE 391, EDSE 340 and SPED 346 with a "C" or higher 6. Co-requisites: EDTE 491 and EDSE 471.

EDTE 462: 4.5,6 s.h.

EDTE Stu Teaching

EDTE 490: 3 s.h.

Integrative Learning Using Experiential Strategies

The purpose of this course is to engage students in curriculum planning, design and assessment that will enable them to identify, use, and evaluate experiential and integrative teaching-learning strategies that facilitate connections between all subjects in grades Pre-K to 6 (e.g., literacy, science, mathematics, social studies, arts, technology, physical education, engineering). Prerequisites: ERCH 110, ERCH 190, EDTE/ERCH 290, and AENG 344.

EDTE 491: 1 s.h.

Seminar in Techn & Engring Ed

A seminar dealing with professional education issues and effective teaching and learning during the technology and engineering education student teaching experience. Emphasis on planning, teaching, managing, and assessing technology and engineering education units of instruction. Attention given to legal issues, safety, professional development, and meeting the needs of all learners in the technology and engineering education environment, including English language learners and students with disabilities. Pre-Requisites: EDTE 391 and EDTE 496; Co-Requisites: EDTE 461 and EDSE 471

EDTE 495: 3 s.h.

Integrative STEM Practicum

This clinical practicum course provides opportunities for teacher candidates to bridge theory and practice. Students will demonstrate and apply knowledge, skills, and dispositions related to the implementation of integrative science, technology, engineering and math (STEM) education at the pre-K to grade 4 level. Emphasis is placed on the planning, development, implementation and assessment of integrative STEM instructional activities and lessons that use problem-based and experiential learning techniques targeted for Pre-K to grade 4 students. Includes field experiences. Prerequisites ERCH 110, ERCH 190, EDTE/ERCH 290, ITEC 344, EDTE 490 or 690 or Permission of Instructor; Advanced Professional Studies (APS) status required. Cross-listed with ERCH 495, credit may not be received for both courses.

EDTE 496: 2 s.h.

Innovatn/Design Methodologies

Technology education methodologies for instruction in advanced design and innovation. Teams of students develop solutions to technological problems. 1 hr. lec., 3 hrs. lab. Prereq: ITEC 110, 120, 130, 140, 344; MATH 130 or higher; and ENGL 312 or 316.

EDTE 498: 1-6 s.h.

Ind Stdy:

Independent Study in Technology Education

EDTE 586: 1-3 s.h.

Topics in Industry & Tech

Investigation of one or more topics of current interest in industry and technology. Topics vary according to needs and interests of students and faculty involved.

EDTE 587: 1-3 s.h.

Topics in Industry & Tech

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EDTE 588: 1-3 s.h.

Sp Topics in Industry & Tech

Investigation of one or more topics of current interest in industry and technology. Topics vary according to needs and interests of students and faculty involved.

EDTE 589: 1-3 s.h.**Sp Topics in Industry & Tech**

Investigation of one or more topics of current interest in industry and technology. Topics vary according to needs and interests of students and faculty involved.

EDTE 603: 3 s.h.**Fostering Creativity by Design**

This course will expose students to the concept of how creativity, within the context of the technological world, is manifested through design. Whether it is during the ideation, development, use, modification and updating, or disposal of the artifact or system of technology, design is the overarching force that is present through each stage. Students will also explore the latest theories on creativity as well as the ways that a designer uses creativity and design thinking toward solving problems in an increasingly technologically complex world. Design-based thinking skills such as problem solving, decision making, researching, designing and creating, will be emphasized. The course is appropriate for all graduate students especially those in education, technological fields, and entrepreneurship.

EDTE 604: 3 s.h.**Engineering Principles and Concepts for the Non-Engineer**

The innovations and inventions of engineering design are vital toward enhancing the standards of living for humanity. In this course, which is intended for the non-engineer, students will learn what engineers do and how they do it. The connections between the engineering profession and society will be examined. This will include a review of engineering organizations and their standards, problem solving techniques and the methods of modeling systems.

EDTE 605: 3 s.h.**Applying Critical Thinking and Decision Making**

An exploration of the nature and application of critical thinking toward acts of decision making. Students will learn how to understand, facilitate, and practice the techniques of disciplined critical thinking and decision-making while avoiding the pitfalls of thinking traps such as biases and irrational tendencies. The course has been designed to address a variety of audiences including all teachers at all levels as well as entrepreneurs and individuals from business and industry, the sciences and the technological fields.

EDTE 646: 3 s.h.**Writing the Professional Paper**

Development of competencies for identifying and developing graduate research topics and for publishing in professional literature. Emphasis on research methods, organization and effective writing. The satisfactory completion of this course is required before pursuit of EDTE 698 Research and Development in Technical Areas or EDTE 699 Thesis.

EDTE 679: 1-3 s.h.**Experimental****EDTE 690: 3 s.h.****Integrative Learning Experiential Strategy**

The purpose of this course is to engage students in curriculum planning, design, and assessment that will enable them to identify, use, and evaluate experiential and integrative teaching-learning strategies that facilitate connections between all subjects in grades Pre-K to grade 6 (e.g., literacy, science, mathematics, social studies, arts, technology, physical education, engineering).

EDTE 691: 1-6 s.h.**Independent Study**

Pursuit of a topic of special interest and of potential application in technology education. Written proposal must be approved by an appropriate faculty sponsor, the graduate program coordinator and the department chairperson prior to the semester of formal registration in this course. Completion of an approved independent study includes a written research report, which partially determines the grade received.

EDTE 698: 6 s.h.**Research and Development Technical Project**

Design, execution and communication of applied research in technology education. Emphasis on recent technological advances and experimentation with contemporary processes, materials and techniques. Three types of applied research may be pursued: technical project, innovative instruction or technical research. Study is guided by a faculty adviser. Research and development results and applications are recorded as a research report.

EDTE 699: 6 s.h.**Thesis:**

Planning, conducting and recording basic research in technology education. Includes application of an experimental, descriptive, historical or other pertinent educational research method. Study is guided by research adviser and faculty committee. Research results and interpretation are recorded as a thesis.