Technology Engineering and Design Education (TDE)

TDE 101 Introduction to Technology Education (1 credit hours)
Orientation to technology teacher education curricula. Overview of the philosophy, objectives and scope of technology education programs in the public schools, multicultural and individual differences of students. A study of current technology issues will be conducted throughout the course.

Typically offered in Fall only

TDE 110 Materials & Processes Technology (3 credit hours)
Basic knowledge and skills needed to process common materials and produce functional products of woods, metals, plastics, and composite materials. Includes laboratory safety, use of hand tools, operation of materials, and teaching strategies. Laboratory experiences in materials testing and construction of multi-material projects.

Typically offered in Fall and Spring

TDE 131 Technology through Engineering and Design I (3 credit hours)
Study of engineering and design processes used to solve technological problems, innovate and invent. Students will actively design, model and test solutions to technological problems and explore methods to teach middle and high school students about engineering design and the design process.

Prerequisite: TDE 110
Typically offered in Fall and Spring

TDE 202 Introduction to Teaching Technology Engineering and Design Education (2 credit hours)
This course introduces students to teaching technology, engineering, and design in middle and secondary schools. Students will become familiar with state standards and national recommendations for teaching technology, engineering, and design. The co-requisite for this course has a required fieldwork component in local middle and secondary schools, and students are responsible for their own transportation to and from their field experience sites. Students are required to purchase internship liability insurance to participate in this course. Contact University Insurance & Risk Management for details on acquiring the insurance and the current charge.

Prerequisite: Sophomore standing; Corequisite: ED 204
Typically offered in Fall only

TDE 205 Desktop Publishing and Imaging Technology (3 credit hours)
An introduction to digital document production and techniques. Explores software packages used in producing documents for print. Structured for public school teachers and other interested persons, the course introduces basic standards and concepts of page layout, copyright and trademark laws, document usability, readability, and methods of document production.

Typically offered in Fall and Spring

TDE 220 Civil Engineering Graphics (3 credit hours)
Civil engineering graphics is an introductory course in basic graphic principles for constructed facilities. The emphasis is on sketching and CAD (computer-aided design) drawing skills and how specific construction systems and materials selected for a design affect production of civil engineering drawings for buildings, residences, and other constructed facilities through CAD. Topics include orthographic and axonometric engineering drawing of site plans, plat plans, section details, utility structure details, elevations and related topics. Restricted to Civil Engineering Majors.

Typically offered in Fall and Spring

TDE 230 Scientific and Technical Visualization (3 credit hours)
Scientific and technical visualization is an introductory course providing orientation to communication of scientific and technical information with graphics. Using current practice in science, technology, and engineering disciplines as the context, the class will use general and discipline-specific techniques to explore how to effectively communicate with graphics. Both manual and current software and computer technologies will be used to design and create graphics. Students will also learn to critically examine and discuss graphics produced by themselves and others.

Prerequisite: TDE 205
Typically offered in Spring only

TDE 261 Digital Media Education (3 credit hours)
Image creation and control, aesthetics, production processes and environments, and media transfer are explored. This course emphasizes concepts of audio and video design, various digital media technologies, and nonlinear editing concepts through laboratory experiments and projects in radio, television, original audio development, and video production. TDE Majors or instructor permission.

Typically offered in Spring only

TDE 331 Technology Through Engineering and Design II (3 credit hours)
Students will explore the contributions of systems engineering for developing and sustaining our designed world. Appropriate measurement, analysis and simulation tools will be used to make informed decisions and solve problems. Students will explore methods to teach middle and high school students about engineering design and the design process. TDE Majors or instructor approval.

Prerequisite: TDE 131
Typically offered in Fall and Spring

TDE 351 Ceramics: The Art and Craft of Clay (3 credit hours)
Contemporary and historical examples of the art and craft of ceramics will be studied. Experiences in designing ceramic forms and expressing individual ideas through the medium of clay.

GEP Visual and Performing Arts

TDE 359 Electronics Technology (3 credit hours)
Direct current, alternating current, and semiconductors. Measurement and circuit behavior. Experimentation with application circuits.

Prerequisite: Junior Standing
Typically offered in Fall only

TDE 371 Emerging Issues in Technology (3 credit hours)
Examination of current and projected technology topics which are growing in importance but are not presently reflected in the Technology Education programs of NC public schools. Laboratory experiences include development, revision, and field testing of appropriate learning activities for middle and high school students in the selected topic areas.

Prerequisite: TDE 131
Typically offered in Fall only

TDE 385 Robotics Education (3 credit hours)
This course is an introduction to design and invention system control mechanisms and robot sensors. Students will classify foundational technical developments in autonomous and computer- and radio-control robot teleoperations. Students will explore the history and evolution of robots and automation and their social, economic, industrial, and educational impacts.

Prerequisite: Junior standing.
Typically offered in Spring only

TDE 386 Robotics Education Lab (3 credit hours)
Students will apply technological problem solving skills toward 21st century design and innovation. This includes experiences multiple robotics design and invention systems and related programming and designing, prototyping, and programming an autonomous robot to resolve a real world issue.

Corequisite: TDE 385
Typically offered in Spring only

TDE 407 Field Work in Technology Education (6 credit hours)
A supervised off-campus field experience in Technology, Engineering, and Design Education that relates on-the-job experiences in the field to the technical competencies that are the content of the curriculum. This course has a required fieldwork component in a workplace, and students are responsible for their own transportation to and from their field experience sites.

Co-requisite: TDE 452, Senior Standing
Typically offered in Spring only

TDE 452 Lab Planning in Technology Education (3 credit hours)
Laboratory planning, management, and safety for technology education. Physical layout, selection, specification, and cost of equipment; the safe operation, repair and maintenance of power and hand tools; specification of expendable supplies, estimating, and ordering.

Restriction: Senior Standing; Corequisite: TDE 407 or TDE 457
Typically offered in Spring only

TDE 456 Curriculum and Methods in Technology Education (4 credit hours)
Methods of teaching Technology Education. Emphasis on curriculum development, instructional methods, laboratory instruction, meeting needs of special populations, and management of student organizations. Field experiences and course assignments two hours each week. Students are responsible for their own transportation.

Prerequisite: Technology Education Majors, Admittance to teacher education candidacy
Typically offered in Fall only

TDE 457 Student Teaching in Technology Education (8 credit hours)
Skills and techniques involved in teaching technology education through practice in a public school setting. The co-requisite for this course has a required fieldwork component in local middle and secondary schools, and students are responsible for their own transportation to and from their field experience sites. Students are required to purchase internship liability insurance to participate in this course. Contact University Insurance & Risk Management for details on acquiring the insurance and the current charge.

Prerequisite: TDE 456 and Corequisite: TDE 452
Typically offered in Spring only

TDE 481 Research & Development in Technology Education (3 credit hours)
Senior design, research, and development experience in technology education. Students research a problem, ideate potential solutions, select a final solution, construct a prototype, and complete a final report analyzing the chosen solution.

Prerequisite: TDE 331
Typically offered in Fall and Spring

TDE 490 Special Problems in Technology Education (1-6 credit hours)
Supervised, independent investigation in a defined area of interest in Technology Education.

Prerequisite: Junior standing.
Typically offered in Fall and Spring

TDE 495 Senior Seminar in Technology Education (3 credit hours)
An in-depth investigation of a topic or a set of problems and/or issues in Technology Education.

Prerequisite: Junior standing.
Typically offered in Spring only

TDE 498 Independent Study in Technology Education (1-3 credit hours)
Individual or group study of special topics in professional technology education. The topic and mode of study are determined by the faculty member after discussion with the student. May be repeated for a maximum of 6 credits. Individualized/Independent Study and Research courses require a "Course Agreement for Students Enrolled in Non-Standard Courses" be completed by the student and faculty member prior to registration by the department.

Prerequisite: Junior standing.
Typically offered in Spring and Summer