CIVIL TECHNOLOGY (CT)

Beginning in the 2018-2019 academic year, the Civil Technology: Construction Management Concentration, Civil Technology: Surveying and Mapping Concentration and Civil Technology: Sustainable Energy Management Concentration programs will no longer be accepting new students. Current Thompson School students in these programs will continue to have access to the same high-quality education and resources until they graduate in 2019.

Civil technology is a dynamic educational opportunity offering skill-based learning through classroom instruction, extensive hands-on laboratory experience and fieldwork, as well as opportunities to develop a strong portfolio. Students choose from one or more of the following concentrations: Construction Management, Surveying and Mapping, or Sustainable Energy Management.

The cornerstone of the educational experience is instruction in computer-aided design (CAD) and parametric modeling using the Thompson School’s state-of-the-art CAD/GIS/BIM (building information management) labs. Students in surveying use the latest GPS and surveying equipment, and students studying geographical information systems (GIS) use the new GIS Instructional Lab. Additional coursework covers building science, building mechanical and electrical systems, construction contracting, materials, soils and foundation design, and methodologies of professional practice in the concentrations.

Admissions Requirements

Applicants to the construction management, surveying and mapping, and sustainable energy management concentrations must present college preparatory mathematics.

Curriculum Fee

Civil technology, all concentrations: $102

1 This one-time curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that are unique to the applied nature of the concentration. The curriculum fee covers the entire two-year course of study for one concentration. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester’s Time and Room Schedule. All fees are subject to change.

https://colsa.unh.edu/thompson-school-applied-science

Courses

Civil Technology (CT)

CT 423 - Introduction to Surveying and Mapping
Credits: 3
An introduction to the field of surveying and mapping and its fundamental principles, theories and methods. Specifically: horizontal and vertical distance measurements, angle and direction measurements, determination of positions, areas and topographic contours. Includes mapping, geographic information systems and the Global Positioning System, measurement accuracy, and statistical analysis.
Co-requisite: CT 425

CT 425 - Surveying and Mapping Lab
Credits: 2
A series of labs and recitations that provide an introduction to the field of surveying and mapping and its fundamental principles, theories and methods. Specifically: horizontal and vertical distance measurements, angle and direction measurements, determination of positions, areas and topographic contours. Includes mapping, geographic information systems and the Global Positioning System, measurement accuracy, and statistical analysis.
Co-requisite: CT 423

CT 427 - 2D Computer Aided Design
Credits: 4
The student designs fundamental design project work including site work and buildings, prepares plans using computer software (AutoCAD). Emphasis is on learning the software, basic design and plan requirements. Students then apply this knowledge to produce presentation drawings and develop proficient skills with this software. The student also works concurrently on course projects. 2-hr lec/2-hr rec.

CT 428 - 3D Design, Modeling and Visualization
Credits: 4
Provides foundational skills in critical thinking, design process and creative expression in three dimensions. Individual and group projects provide opportunities for enhancing spatial thinking, understanding and communication. Hand sketching, computer sketching, REVIT Building Information Modeling (BIM) software and ArcGIS Geographic Information System (GIS) software is utilized to develop a rich awareness of 3D spatial relationships in the natural and built environments.

CT 432 - Applied Environmental Technology
Credits: 4
The technical and administrative issues inherent to the management of our impact on the environment are covered. Topics to be covered include: examination of the evolution, design, and processes inherent to manage and treat stormwater, deliver potable water, collect and treat wastewater discharge, manage solid and hazardous waste, and promote recycling. Global climate change monitoring is also discussed when appropriate.
CT 442 - Construction Surveying
Credits: 4
This course applies methods and techniques learned in CT 423/424 to real world situations. The student works as part of a project team on a proposed construction site. Tasks and materials covered include: setting control, mapping of sites, design and layout of roads, site planning, building and infrastructure layout, area and volume calculations. Class expands on use of survey equipment such as data collectors, RTK-GPS and land design software. Prereq: CT 423 and CT 424 with a grade of C- or better. 2-hr lec/1-hr rec/2-hr lab.

CT 483 - Mechanical and Electrical Systems
Credits: 4
Description, analysis and design application of conventional heating, ventilating, air conditioning, lighting and plumbing systems for residences. Electrical principles, laws, and installation with emphasis on the National Electrical Code. 2-hr lec/2-hr rec.

CT 491 - Studies
Credits: 1-4
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Examples may include energy conservation, surveying, construction, or hydrographic surveying.

CT 492 - Studies
Credits: 1-4
Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student’s field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Examples may include energy conservation, surveying, construction, or hydrographic surveying.
CT 597 - Work Experience
Credits: 0
Career-oriented work experience (10 weeks, full time) to include, but not limited to, architecture, construction, surveying, and mapping. Cr/F.

Faculty

https://colsa.unh.edu/thompson-school-applied-science/people