

# CIVIL ENGINEERING AND SURVEYING TECHNOLOGY (CT)

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## **CT 151. Spreadsheets for Engineering Technology and Surveying**

Credits: 1

Prerequisite: CSCI 101 or Departmental approval.

Typically Offered: SPRING

Emphasizes practical skills of Microsoft Excel for engineering technology and surveying applications.

## **CT 219. Introduction to Planning & Development**

Credits: 2

Typically Offered: SPRING

An introduction to the typical processes, regulations and standards encountered for civil engineering and surveying work including planning, zoning, site development, floodplain development, storm water management, and permitting.

## **CT 225. Land Descriptions**

Credits: 2

Prerequisites: ENGL 125 and ENGR 204, or prior related coursework and/or commensurate work experience.

Typically Offered: SPRING

Course topics include the interpretation and retracement of land descriptions, the preparation of land descriptions, and title concepts involving land descriptions and conveyancing that pertain to land surveying.

## **CT 228. Boundary and Cadastral Surveying**

Credits: 3

Prerequisite: ENGL 125 and ENGR 204, or prior related coursework and/or commensurate work experience.

Typically Offered: FALL

Course topics include the history and evolution of the Public Land Survey System (PLSS), restoration procedures for lost and obliterated corners, researching land records, the laws and regulations that define land surveying particularly in the PLSS context, and riparian boundary concepts.

## **CT 229. Advanced Boundary Surveying**

Credits: 2

Prerequisite: CT 228, or prior related coursework and/or commensurate work experience.

Typically Offered: SPRING

Course topics include adverse possession, practical boundary location doctrines, easements, and plat dedications.

## **CT 234. Water Management Technology**

Credits: 3

Prerequisite: MATH 105 or MATH 107.

Corequisite: CT 234L.

Typically Offered: SPRING

This course covers the fundamentals of water supply and distribution, water treatment processes, sanitary sewage and collection methods, sewage treatment and the environmental effects caused by improper water and sewage handling. Included in the course are topics on hydraulics, chemical and biological testing, water distribution and collection systems and water and sewage treatment facilities.

## **CT 234L. Water Management Technology Lab**

Credits: 1

Corequisite: CT 234.

Typically Offered: SPRING

CT 234L is designed to complement topics covered in CT 234.

## **CT 250. Applied Statics and Mechanics of Materials**

Credits: 3

Prerequisite: MATH 105 or MATH 107.

Typically Offered: FALL

Students study equilibrium of rigid-bodies and coplanar force systems, trusses, load tracing, centroids and centers of gravity, introduction to stress, strain, shear and bending moments, bending stress, shear stress and beam deflections, properties of materials, simple beam and column design, and connections.

## **CT 250L. Applied Statics and Mechanics of Materials Lab**

Credits: 1

Prerequisite: Math 105 or MATH 107.

Corequisite: Concurrent registration in, or previous successful completion of, CT 250.

Typically Offered: FALL

Three hours of lab per week with hands on exercises that supplement lecture material.

**CT 251. Materials Testing**

Credits: 3

Corequisite: Concurrent registration in, or previous successful completion of, CT 251L.

Typically Offered: SPRING

Introduction to the physical properties of soil, aggregates, Portland cement concrete, and bituminous mixes as building materials in engineering projects. Course also covers various AASHTO, ASTM, ACI and NDDOT field and laboratory testing and reporting procedures.

**CT 251L. Materials Testing Lab**

Credits: 1

Corequisite: Concurrent registration in, or previous successful completion of, CT 251.

Typically Offered: SPRING

Introduction to laboratory experience dealing with determining soil properties, soil and aggregate gradations, aggregate properties, concrete properties, bituminous material properties, and mix design. Testing procedures use various AASHTO, ASTM, ACI and NDDOT field and laboratory testing and reporting procedures.

**CT 252. Construction Project Management**

Credits: 3

Prerequisites: CAD 212, CT 250 and ENGR 204 or departmental approval.

Typically Offered: SPRING

An introduction to inspection procedures, management of quality controls of construction projects, estimating, print reading, and procedures used to administer construction specifications and contracts.