CONSTRUCTION MANAGEMENT TECHNOLOGY (CMTC)

CMTC 210. CONSTRUCTION GRAPHICS. 4 Credits.
Introduces digital building documentation using Autodesk Revit and Building Information Modeling (BIM). Students learn to model architectural elements, produce coordinated drawings, create schedules, and annotate construction documents. Emphasis is placed on industry-standard workflows for residential and light commercial buildings. Students complete a full drawing set for a small building, including floor plans, elevations, sections, schedules, and details.

CMTC 235. CONSTRUCTION MATERIALS AND TECHNIQUES. 3 Credits.
Pre-requisites: METC 110 or MENG 217, all with grades ≥C. Corequisite: CMTC 235L.
Introduces various materials and techniques used in construction. Students gain an understanding of the fundamental principles of structural, physical, and long-term performance of some of these materials through lecture and lab experiments. Students also gain an understanding of some of the mechanical and non-mechanical properties of various materials, common construction methods, and knowledge of material properties and applications in construction. Companion course to CMTC 235L.

CMTC 235L. CONSTRUCTION MATERIALS AND TECHNIQUES LAB. 2 Credits.
Pre-requisites: METC 110 or MENG 217, all with grades ≥C. Corequisite: CMTC 235.
Companion lab to CMTC 235.

CMTC 236. CONSTRUCTION MATERIALS AND TECHNIQUES II. 3 Credits.
Pre-requisites: CMTC 235. Corequisite: CMTC 236L.
Introduces various materials and techniques used in construction for internal and external finishing. Students gain an understanding of the fundamental principles of structural, physical, and long-term performance of some of these materials and techniques through lecture and lab experiments. Students also gain an understanding of common construction methods and knowledge of mechanical systems and their application in construction. Companion course to CMTC 236L.

CMTC 236L. CONSTRUCTION MATERIALS AND TECHNIQUES II LAB. 2 Credits.
Pre-requisites: CMTC 235. Corequisite: CMTC 236.
Companion lab to CMTC 236.

CMTC 305. CONSTRUCTION ESTIMATING. 4 Credits.
Pre-requisites: CMTC 235 and MATH 142, MATH 161 or MATH 162; all ≥C.
This course provides students with the ability to estimate construction costs by reading and interpreting technical drawings. Primary focus is on calculating materials, labor and equipment cost for both residential and commercial building projects. Students generate quantity takeoffs for specific building projects.

CMTC 335. ARCHITECTURE. 4 Credits.
Pre-requisites: METC 110 or MENG 217, with a grade ≥C.
Design, layout, and development of residential dwellings and large structures.

CMTC 345. SOILS/SURVEYING. 3 Credits.
Pre-requisites: MATH 142, MATH 161 or MATH 162; with a grade ≥C. Corequisite: CMTC 345L.
Introduces soil mechanics and site surveying. Through lecture and field work the course examines characteristics and compositions of soil, soil classification systems, and the strength of soil masses. Students practice fundamentals of construction surveying, including taping, leveling, angular measurement, traversing, topographic surveying, building layout, and grade staking. Companion course to CMTC 345L.

CMTC 345L. SOILS/SURVEYING LAB. 1 Credit.
Pre-requisites: MATH 142, MATH 161 or MATH 162; with a grade ≥C. Corequisite: CMTC 345.
Companion lab to CMTC 345.

CMTC 354. BUILDING CODES. 4 Credits.
Pre-requisites: ENGL 201 with a grade ≥C.
Building Codes is a comprehensive course pertaining to International Building Codes (IBC). Emphasis is placed on code requirements for both commercial and residential applications to include structural, mechanical, plumbing, fire, fuel gas and private sewage code requirements.

CMTC 394. CONSTRUCTION INDUSTRY SEMINAR. 1 Credit.
Pre-requisites: junior standing.
Provides direct exposure to current trends, challenges, and career pathways in the construction management field through weekly presentations from industry professionals. Students engage in professional preparation, question development, and reflective learning to enhance their industry awareness and career readiness.

CMTC 398. SEMINAR. 1 Credit.
Seminar.

CMTC 399. DIRECTED STUDY. 1-5 Credits.
Cross-listed: APTC 399, DNTC 399, MNTC 399, TECH 399.
Pre-requisites: permission of the instructor, department chair and college dean.
Directed Study.

CMTC 410. BIM FOR CONSTRUCTION MANAGEMENT. 4 Credits.
Pre-requisites: METC 110 OR CMTC 210, CMTC 235.
Covers the introduction to Building Information Modeling (BIM) as a transformative tool in modern construction management. Students learn to create, manage, and coordinate architectural, structural, and MEP models using industry-standard platforms, including Autodesk Revit, Navisworks, and BIM 360. Emphasis is placed on clash detection, model-based scheduling (4D), quantity takeoff (5D), and collaborative workflows for construction planning, estimating, and field coordination.

CMTC 439. TOPICS IN CONSTRUCTION. 6 Credits.
Notes: An authorized elective substitution for CMTC 495. This 6 credit course is only offered during the summer quarter.
Pre-requisites: TECH 331, TECH 462: all with grades ≥C, and junior standing.
This course explores topics in construction that are beyond the scope of the regular program course curriculum. It allows for a more in-depth coverage through lecture, discussion, and explorations of the construction world as students prepare to enter the work force.

CMTC 440. CONSTRUCTION RFI SUBMITTALS. 4 Credits.
Pre-requisites: TECH 331, CMTC 235.
Provides a comprehensive understanding of how Requests for Information (RFIs), submittals, and related contract documents are created, tracked, reviewed, approved, and managed in commercial, residential, and infrastructure construction projects. Emphasis is placed on real-world procedures, problem-solving communication, legal implications, and industry-standard software platforms.

CMTC 490. SENIOR CAPSTONE: PRODUCTION LAB. 2 Credits.
Cross-listed: APTC 490, TECH 490, DNTC 490, MNTC 490.
Notes: the course simulates a real world design team concept by utilizing a design group that contains members of different program majors.
Pre-requisites: senior standing. Corequisite: APTC 490L, CMTC 490L, DNTC 490L, MNTC 490L, or TECH 490L.
Satisfies: a university graduation requirement–senior capstone.
Simulates the real world situation that graduates face. Students 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. 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. Companion course to APTC 490L, CMTC 490L, DNTC 490L, MNTC 490L, or TECH 490L.

CMTC 490L. SENIOR CAPSTONE: PRODUCTION LAB LAB. 2 Credits.
Cross-listed: APTC 490L, TECH 490L, DNTC 490L, MNTC 490L.
Pre-requisites: senior standing. Corequisite: APTC 490, CMTC 490, DNTC 490, MNTC 490, or TECH 490.
Companion lab to APTC 490, CMTC 490, DNTC 490, MNTC 490, or TECH 490.

CMTC 491. SENIOR PROJECT. 4-6 Credits.
Cross-listed: APTC 491, TECH 491, DNTC 491, MNTC 491.
Pre-requisites: senior standing.
Independent and/or group study and implementation of a design and development project. (variable time).

CMTC 495. INTERNSHIP. 1-15 Credits.
Cross-listed: APTC 495, TECH 495, DNTC 495, MNTC 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.

CMTC 496. EXPERIMENTAL COURSE. 1-6 Credits.
Cross-listed: APTC 496, TECH 496, DNTC 496, MNTC 496.
Experimental Course.

CMTC 497. WORKSHOP, SHORT COURSE, CONFERENCE, SEMINAR. 1-6 Credits.
Cross-listed: APTC 497, TECH 497, DNTC 497, MNTC 497.
Workshop, short course, conference, or seminar.

CMTC 498. SEMINAR. 1-6 Credits.
Cross-listed: APTC 498, TECH 498, DNTC 498, MNTC 498.
Seminar.

CMTC 499. DIRECTED STUDY. 1-5 Credits.
Cross-listed: APTC 499, TECH 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.