TECHNOLOGY INNOVATION IN CONSTRUCTION MINOR

Are you fascinated by the latest advancements in construction? Ready to lead innovation in the built environment? Take the next step with the Technology Innovation in Construction Minor!

Courses

BUILDING INFORMATION MODELING
CEMT4240/5240

CONSTRUCTION SURVEYING
CVEN2214/CEMT5701, CVEN2215/CEMT5702, & CEMT3703/5703

CONSTRUCTION TECHNOLOGY 1
CEMT4800/5800 OR CEMT 4724/5724

CONSTRUCTION TECHNOLOGY 2
CEMT 4734/5734

$2000 scholarships are available for 45 students
Signup now to our email list and stay informed.

https://forms.gle/1617db1aKYgAQuT8A

For more info
Contact us ▼

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BUILDING INFORMATION MODELING
CEMT4240/5240

Building Information Modeling is an advanced approach to facility design and construction using object-oriented 3-D models. It can be integrated in the design and construction for analytical purposes, including design, visualization, quantity takeoff, cost estimating, planning, and facility management.

Topics
- Modeling Building Elements and Project Specs
- Project Documentation and Visualization
- MEP Systems
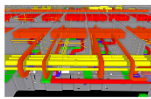- Construction Project Coordination and Review

FALL & SPRING
3 credit hours

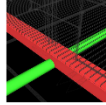Instructor: Dr. Moatassem Abdallah
email: moatassem.abdallah@ucdenver.edu

Architecture   **MEP Systems**   **Simulation**   **Clash Detection**

CONSTRUCTION SURVEYING
CVEN 2214/CEMT5800/CEMT 5701
CVEN2215/CEMT5702
CEMT3703/5703

These course presents basic techniques of land and construction surveying, including measurement of position, elevation, orientation and length of lines, area, volume and layout calculations with total station surveying. A mini project is part of each course.

Courses/Topics
- CVEN 2214/CEMT5800/CEMT 5701: Surveying Basics
  1 credit hour
- CVEN2215/CEMT5702: Surveying Data Collection/Surveying Lab
  1 Credit hour
- Surveying Data Processing and Analytics
  1 credit hour

FALL & SPRING
3 credit hours

Instructor: Dr. Gerald Blackler
email: gerald.blackler@ucdenver.edu

Total Station   **3D Scanning**

CONSTRUCTION TECHNOLOGY 1
CEMT4800/5800

This course is divided into three modules, each focusing on key technologies in the construction industry. The Drone Operation and Data Processing module teaches students drone operation, safety, and data collection, along with hands-on experience in 3D modeling and aerial imagery analysis. In the Construction Coordination Methods and Tools module, students learn to use laser scanning equipment and cloud-based software for real-time data sharing and project coordination. The Virtual and Augmented Reality module introduces students to VR/AR technologies, focusing on improving communication, design, and planning, with practical applications in construction.

Topics
- Drone Operation and Data Processing
- Construction Coordination Methods and Tools
- Virtual and Augmented Reality

SPRING ONLY
3 credit hours

Instructor: Dr. Bing Han
email: bing.2.han@ucdenver.edu

3D Scanning   **Drones**   **VR/AR**

CONSTRUCTION TECHNOLOGY 2
CEMT4734/5734

This course covers three key modules: robotics, AI, and data analytics, focusing on their applications in the construction industry. The Robotics in Construction module introduces students to cutting-edge autonomous systems like SPOT by Boston Dynamics and various robotic equipment, teaching them programming, navigation, and human-robot interaction. The AI in Construction module focuses on AI-driven solutions for project optimization, risk management, and predictive maintenance, offering hands-on experience with machine learning models. The Data Analytics for Construction module trains students to process and analyze construction data, leveraging big data to improve project performance, safety, and efficiency.

Topics
- Artificial Intelligence in Construction
- Robotics
- Data Analytics

FALL ONLY
3 credit hours

Instructor: Dr. Moatassem Abdallah
email: moatassem.abdallah@ucdenver.edu

Data Analytics   **Artificial Intelligence**   **Robotics**