

CONSTRUCTION MANAGEMENT

Construction Management

College of Science, Engineering & Technology
Department of Construction Management
354 Wiecking Center 507-389-6385
www.MankatoConstructionDegree.com

Construction Management Major. The Construction Management major prepares graduates for success in the rapidly changing construction industry. Course work emphasizes management with an additional focus on technology and systems specific to the construction industry. Typical entry-level positions include field manager, assistant superintendent, project engineer, scheduler, assistant estimator, project cost controller and safety director.

Admission to Major is granted by the College of Science, Engineering and Technology. Admission requirements are:

- A minimum of 32 earned semester credit hours
- Overall GPA of "C" 2.0
- Completion of CM 111 "C" (2.0)
- Completion of ENG 101, grade of "C" (2.0) or above
- Completion of Math 112 & 113 or Math 115, grade of "C" (2.0) or above

Contact the CSET Advising Center for application procedures.

POLICIES/INFORMATION

Completion of CPC Exam. All students are required to sit for the "Certified Professional Constructor Exam" prior to graduation.

GPA Policy. A minimum grade of "C" (2.0) is required in all courses listed in the Construction Management BS Degree.

P/N Grading Policy. All courses in the major must be taken for letter grade except where P/N is the only option.

CONSTRUCTION MANAGEMENT BS

Required General Education

ECON	201	Principles of Macroeconomics (3)
ECON	202	Principles of Microeconomics (3)
ENG	101	Composition (4)
MATH	115	Precalculus Mathematics (4)
STAT	154	Elementary Statistics (3)
<u>Lab Based Science Courses</u> (8 credits)		
(Choose 3-4 credits)		
PHYS	101	Introductory Physics (3)
PHYS	211	Principles of Physics I (4)
(Choose Remaining 4-5 credits)		
CHEM	201	General Chemistry I (5)
GEOL	100	Our Geologic Environment (4)

Major Common Core

CM	111	Introduction to Construction Management (1)
CM	120	Construction Graphics (3)
CM	130	Construction Documents (2)
CM	210	Construction Materials and Methods I (3)
CM	220	Construction Materials and Methods II (3)
CM	271	Civil Engineering Measurements (2)
CM	300	Construction Safety (3)
CM	310	Estimating I (3)
CM	330	Planning and Scheduling (3)
CM	350	Mechanical and Electrical Systems (3)
CM	390	Structural Analysis (3)
CM	410	Estimating II (3)
CM	440	Project Management (3)
CM	450	Project Development (3)

CM	492	Construction Management Seminar (3)
CM	497	Internship (3)

Major Restricted Electives

ACCT	200	Financial Accounting (3)
ACCT	210	Managerial Accounting (3)
BLAW	200	Legal, Political, and Regulatory Environment of Business (3)
BLAW	476	Construction and Design Law (3)
ENG	271	Technical Communication (4)
IT	101	Introduction to Information Systems (3)
MET	222	Introduction to Statics and Mechanics of Materials (3)
MGMT	200	Introduction to MIS (3)
MGMT	330	Principles of Management (3)
Select one of two classes (3 credits)		
FINA	362	Business Finance (3)
MRKT	310	Principles of Marketing (3)

Required Minor: None.

COURSE DESCRIPTIONS

CM 111 (1) Introduction to Construction Management

Overview of academic preparation and career opportunities in the fields of: Construction Management. Skills needed for estimating, scheduling, project management and field supervision will be previewed with an emphasis on future trends in the industry.

CM 120 (3) Construction Graphics

Emphasis on plan reading, basic sketching and drawing techniques, graphic vocabulary, detail hierarchies, scale, content, notes and specifications, reference conventions, computer applications.

Fall, Spring

CM 130 (2) Construction Documents

Basic understanding of the plans and specifications for construction projects. Emphasis on interpretation of bidding and contractual documents, conditions of the contract, plans/working drawings; applications of existing and new technology preparing students for the future.

Fall, Spring

CM 210 (3) Construction Materials and Methods I

Understand how construction affects professional industry and society. Learn history of construction methods, present state of the profession and its future. Analyze applications of construction systems and utilities. Understand changes in technology of building construction, including innovations in methods.

Pre: CM 111, CM 120, CM 130, IT 101

Fall, Spring

CM 220 (3) Construction Materials and Methods II

Fundamentals of building construction, including classification of materials and project delivery systems; application of principles of building science to construction sites; relationship between technology and new construction; innovations in materials, including sustainable building practices and "green" buildings.

Pre: CM 210

Fall, Spring

CM 222 Introduction to Statics and Mechanics of Materials

Course introduces the design theory and applied principles of force equilibrium, stress and strain, shear, bending moments, force diagrams, deformations of beams, and stress/strain analysis.

PHYS 101, MATH 113 or MATH 115

Fall, Spring

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CM 271 (2) Civil Engineering Measurements

Basic civil engineering measurements as relates to construction layout, including distances, angles, bearings, elevations, mapping and positioning.

Pre: MATH 113 or MATH 115

Fall, Spring

CM 300 (3) Construction Safety

Principles and practices of construction safety, health and loss control. Emphasis is on hazard recognition, control procedures and management systems for measuring and evaluating loss control performance in the construction industry.

Pre: CM 210

Fall, Spring

CM 310 (3) Estimating I

This course covers types of estimates and their uses, the basics of quantity take-off, labor and equipment productivity and basic computer applications.

Pre: MATH 113 or MATH 115

CM 330 (3) Planning and Scheduling

Understanding project planning, scheduling and control models with emphasis on the critical path methods. Introductions to the techniques used in the industry utilizing commercial software on personal computers, highlighting the importance of analysis of schedules; considering and understanding schedule alternatives will be stressed.

Pre: ENG 271, CM 220

Fall, Spring

CM 350 (3) Mechanical and Electrical Systems for Construction

Design concepts of plumbing, HVAC, and electrical and control systems are analyzed for attributes that affect the design and construction processes and the performance of completed structures.

Pre: CM 220

Fall, Spring

CM 390 (3) Structural Analysis and Design

Structural analysis and design principles for construction managers, including different types of building loads and their effects upon the various materials used by architects and/or engineers. Analysis techniques will focus on structural members utilizing steel, wood and reinforced concrete materials.

Pre: CM 222 or MET 222

Fall, Spring

CM 410 (3) Estimating II

This course covers types of estimates and their uses, pricing and price databases, labor and equipment productivity, proposal presentations, computer applications in estimating and research in sustainable construction.

Pre: CM 310, CM 330

Fall, Spring

CM 440 (3) Construction Project Management

This course encompasses an overview of the operations of a firm relevant to project management and cost controls. The positions and roles of construction management personnel are identified and analyzed. The use of computers will be incorporated into the submittal and transmittal processes.

Pre: CM 300, CM 310, CM 330

Fall, Spring

CM 450 (3) Construction Project Development

The course will involve the students in a Capstone Project in teams representing a construction company. This is a project where students will integrate the coursework concept of the core program through research, application and presentation.

Pre: CM 350, CM 390, CM 440

Fall, Spring

CM 492 (3) Construction Management Seminar

A seminar course that involves a critical evaluation of an area in the construction management discipline and/or industry. Topics vary from year to year. Students are usually required to make a presentation to the class.

Pre: Senior Standing or instructor permission

Fall, Spring

CM 497 (1-12) Internship

Pre: CM 310, CM 300

CM 499 (1-4) Individual Study

An in-depth study on a topic of particular interest to the student. Project must be approved by project supervisor and department chairperson.