

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 & MATH 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

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)
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 222	Introduction to Statics and Mechanics of Materials (3)

CM 271	Civil Engineering Measurements (2)
CM 297	Construction Professional Practice (1)
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 and Design (3)
CM 410	Estimating II (3)
CM 440	Project Management (3)
CM 450	Construction Capstone Project (3)
CM 492	Construction Management Seminar (3)
CM 497	Internship (3)
ENG 271W	Technical Communication (4)
IT 101	Introduction to Information Systems (3)
MGMT 200	Introduction to MIS (3)
MGMT 330	Principles of Management (3)

Major Restricted Electives

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, present state of the profession and its future. Learn about the various materials used in construction—the composition, properties, standard designations, sizes, gradations and testing techniques. Understand changes in technology of building construction materials.

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

CM 220 (3) Construction Materials and Methods II

Fundamentals of building construction and their applications in construction systems and utilities. Application of the principles of building science to construction sites; relationship between technology and innovations in methods, sustainable building practices and "green" building requirements.

Pre: CM 210
Fall, Spring

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CM 222 (3) 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 or MATH 121

Fall, Spring

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 or MATH 121

Fall, Spring

CM 297 (1) Construction Professional Practice

Principles of professional conduct, ethical codes and best practices are applied to the development of a portfolio and presentation. Students will sit for interviews, set career goals and begin building a professional network.

Pre: CM 210

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 or MATH 121

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 271W, 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 Capstone Project

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 222, CM 350, 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.