

## Construction Management

College of Science, Engineering & Technology  
 Department of Interior Design & Construction Management  
 354 Wiecking Center 507-389-6385  
[www.MankatoConstructionDegree.com](http://www.MankatoConstructionDegree.com)

Chair: Scott Fee

### Construction Management Major:

The Construction Management major prepares graduates for success in the rapidly changing construction industry. Coursework emphasizes management (including a required minor in Business Administration) 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. Minimum University admission requirements are:

-A minimum of 32 earned semester credit hours

-A minimum cumulative GPA of 2.00

Contact the CSET Advising Center for application procedures.

### CONSTRUCTION MANAGEMENT BS - Core (42 credits):

CM 106	Construction Experience (1)
CM 111	Intro to Design & Construction Management (1)
CM 212	Surveying & Site Planning (2)
CM 215	Fundamentals of Estimating (3)
CM 216	Construction Methods (3)
CM 248	Contract Documents (2)
CM 250	Mechanical & Electrical Systems (3)
CM 281	Architectural Graphics (3)
CM 311	Equipment Management (2)
CM 312	Foundations & Concrete Structures (3)
CM 413	Cost Estimating & Bidding (3)
CM 414	Advanced Estimating & Scheduling (3)
CM 424	Construction Safety & Loss Control (2)
CM 445	Construction Systems Management (3)
CM 497	Internship (8)

### Required Minor: Business Administration (31 credits)

#### Required Support Courses (21 credits):

ENG 271	Technical Communications (4)
ISYS 101	Personal Productivity with Information Systems (3)
MATH 115	Precalculus Mathematics (4)
BLAW 476	Construction and Design Law (3)
PHYS 101	Introductory Physics (3)
ENVR 101	Perspectives in Environmental Science (4)

#### Required General Education (17 credits):

MATH 115	Precalculus Mathematics (4)
ECON 201	Principles of Macroeconomics (3)
ECON 202	Principles of Microeconomics (3)
PHYS 101	Introductory Physics (3)
ENVR 101	Perspectives in Environmental Science (4)

The required General Education courses listed above are also required minor or support courses. Completion of the above General Education courses does not completely satisfy General Education Requirements.

### POLICIES/INFORMATION

**GPA Policy.** A minimum grade of "C" is required in all courses.

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

### COURSE DESCRIPTIONS

#### CM 106 (1) Construction Experience

Construction Experience consists of at least 15 weeks of work in the construction industry and must precede the internship program. This credit may be waived for experience acquired prior to enrolling at Minnesota State Mankato.

#### CM 111 (1) Introduction to Design & Construction Management

Overview of academic preparation and career opportunities in the fields of: Construction Management; Facilities Planning and Management; Historic Restoration and Preservation; and Interior Design.

#### CM 212 (2) Surveying & Site Planning

Basic surveying as related to the layout of construction work sites, focusing on measurement of distances, angles, and elevations, and making selected computations.

Pre: MATH 115

#### CM 215 (3) Fundamentals of Estimating

Covers principles of quantity takeoff including identification of symbols and trigonometric computations of materials from construction blueprints. Includes commercial and residential types of construction plans.

Pre: MATH 115 (or concurrently), CM 111 and CM 281 (or concurrently)

#### CM 216 (3) Construction Methods

Processes utilized in material handling and installation are examined for their effect on managing design and construction projects. Scheduling concepts are studied for patterns to yield higher productivity in the project management process.

Pre: CM 111 (or concurrently)

#### CM 248 (2) Contract Documents

Basic understanding of the plans and specifications for construction projects. Emphasis on interpretation of bidding and contractual documents, conditions of the contract, technical specifications, quantity takeoffs, and the plans/working drawings.

Pre: CM 111 and CM 281 (or concurrently)

#### CM 250 (3) Mechanical & Electrical Systems

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

Pre: CM 111 (or concurrently)

#### CM 281 (3) Architectural Graphics

Principals and practices of plan reading, introduction to architectural hand drafting and CAD, architectural symbols, vocabulary, lettering and three-dimensional illustration techniques.

#### CM 311 (2) Equipment Management

Study of equipment used in the construction industry with emphasis on equipment selection and cost factors involved in owning and operating equipment.

Pre: CM 111 and CM 216

#### CM 312 (3) Foundations & Concrete Structures

Soil identification and testing methods are examined to identify design concepts and construction circumstances that can effect projects. Concrete design and workmanship principles are studied for their effect on quality and durability of the built environment. Foundation design principles are examined for their effect on scheduling, equipment selection and project success.

Pre: CM 216 (or concurrently)

#### CM 413 (3) Cost Estimating & Bidding

Advanced application of procedures and theory in formulating estimates on highway, grading and utility projects. Study includes job selection, estimating production, compilation of costs, the final preparation of bids, and ethics in estimating and bidding.

Pre: CM 215, CM 216, CM 248 and CM 311

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## CONSTRUCTION MANAGEMENT

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(Pre CM 311 waived for FP & M and HR & P)

### **CM 414 (3) Advanced Estimating and Scheduling**

The process of construction estimating is extended by the use of computers together with specialized construction software packages to increase job productivity. Software utilized includes commonly used packages in the construction industry on workstations.

Pre: CM 311, ISYS 101, ACCT 210

### **CM 424 (2) Construction Safety and Loss Control**

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.

### **CM 445 (3) Construction Systems Management**

This course encompasses an overview of the operations of a firm relevant to strategic management. Identified and analyzed are the positions and roles of construction management personnel and their interrelationship with key individuals external to the company. Global issues impacting management are discussed.

Pre: CM 413 (or concurrently), ACCT 210

### **CM 497 (1-12) Internship**

3 cr. GR; 1-9 P/N only.

### **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.