Construction Management

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

Chair:

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: Yes. Business Administration (31 credits)

Required Support Courses (24 credits):

ENG 271 Technical Communications (4)
ISYS 101 Introduction to 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)
MET 222 Introduction to Statics and Mechanics of Materials (3)

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.

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.

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 213 (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/workings 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
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.