

# Construction Management

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## Department Information

- **Interim Department Chair:**  
Xuefeng (Michael) Chu, Ph.D., F.EWRI
- **Graduate Coordinator:**  
Kalpana S. Katti, Ph.D., F. AIMBE
- **Department Location:**  
Engineering 106
- **Department Phone:**  
(701) 231-6202
- **Department Web Site:**  
[www.ndsu.edu/construction/](http://www.ndsu.edu/construction/) (<http://www.ndsu.edu/construction/>)
- **Application Deadline:**  
Fall: May 1; Spring: October 1 for M.S. and Master of Construction Management, November 1 for Certificate
- **Credential Offered:**  
MSCM, MCM, CCM
- **Test Requirement:**  
GRE (M.S. applicants)
- **English Proficiency Requirements:**  
M.S.: TOEFL iBT: 81, IELTS: 7, PTE Academic 54; Master of Construction Management: TOEFL iBT: 79, IELTS: 6.5, PTE Academic: 53; Duolingo 105

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## Programs

The Department of Civil, Construction, and Environmental Engineering offers three separate and distinct graduate programs as listed below.

### ***Master of Science in Construction Management (MSCM)***

The Master of Science in Construction Management program is an on-campus, research-focused degree. The program consists of a total of 31 credits (24 credits of course work, 6 credits of research/thesis, and 1 credit of seminar). Students are expected to significantly contribute to the development and delivery of scholarly publications and to the development and submission of research grant proposals as determined by the major adviser.

### **Master of Construction Management (MCM)**

The Master of Construction Management program is a 100% online professional program consisting of 30 credits of course work (10 courses offered within a 12 month period) and the Associate Constructor (AC) Exam. The program provides a learning experience constituting a distinct knowledge-base and a specific set of associated skills within the areas of construction estimating, scheduling, project management, finance, safety and quality, and techniques and equipment at the professional level.

### **Graduate Certificate in Construction Management (CCM)**

The Graduate Certificate in Construction Management program provides a 100% online program consisting of 9 credits of course work (3 courses offered within a 12 month period) within the areas of estimating, scheduling, and project management at the professional level. These three areas constitute a body of knowledge that represents the fundamental core of construction management.

### ***Master of Science in Construction Management (MSCM)***

In addition to the Graduate School requirements, to be admitted into the Master of Science in Construction Management applicants must:

- Have earned a baccalaureate degree in construction, engineering, architecture, or other related discipline with a minimum CGPA of 3.0 or equivalent to attain full standing.
- Submit an official transcript for each college/university attended.
- Submit Graduate Record Examination (GRE) score.
- Submit a one-page "Statement of Purpose" outlining reasons for pursuing the Master of Science in Construction Management, emphasizing on research objectives and qualifications that directly relate to one or more of the "Research Interests" of the CM&E faculty.
- Submit a two-page resume.
- Submit three (3) letters of recommendation.

Prospective students must submit application materials directly to the NDSU Graduate School via the online application process.

**Financial Assistance**

For exceptional applicants, the CM&E Department may offer a graduate assistantship, which consists of a monetary stipend and a possible tuition waiver; however, student activity fees and program fees are not waived. There is no separate application process for graduate assistantships. Applicants are evaluated based on their credentials and/or experience.

**Master of Construction Management (MCM)**

In addition to the Graduate School requirements, to be admitted into the Master of Construction Management, applicants must:

- Have earned a baccalaureate degree in construction, engineering, architecture, or other related discipline with a minimum CGPA of 3.0 or equivalent to attain full standing. Work experience in the construction industry can possibly be a substitute if degree is in another field.
- Submit an official transcript for each college/university attended.
- Submit a two-page resume.
- Submit a one-page "Statement of Purpose" outlining reasons for pursuing the Master of Construction Management.
- Submit three (3) letters of recommendation.

Prospective students must submit application materials directly to the NDSU Graduate School via the online application process. Applicants who are deficient in the CGPA requirement are encouraged to apply for the Graduate Certificate in Construction Management. Although successful completion of the Graduate Certificate does not guarantee acceptance into the Master of Construction Management, the Graduate Certificate will be seriously considered in application decisions related to the Master of Construction Management Program.

**Financial Assistance**

Graduates students in the Master of Construction Management program are not eligible for assistantships, tuition waivers, and financial aid offered by the CM&E Department, the Graduate School, or NDSU.

**Graduate Certificate in Construction Management (CCM)**

In addition to the Graduate School requirements, to be admitted into the Graduate Certificate in Construction Management applicants must:

- Have earned a baccalaureate degree in construction, engineering, architecture, or other related discipline with a minimum CGPA of 2.75 or equivalent to attain full standing. Work experience in the construction industry can possibly be a substitute if degree is in another field.
- Submit of an official transcript for each college/university attended.
- Submit a two-page resume.
- Submit a one-page "Statement of Purpose" outlining reasons for pursuing the Graduate Certificate in Construction Management.
- Submit three (3) letters of recommendation.

Prospective students must submit application materials directly to the NDSU Graduate School via the online application process.

**Financial Assistance**

Graduate Certificate in Construction Management Program students are not eligible for assistantships, tuition waivers, and financial aid offered by the CM&E Department, the Graduate School, or NDSU.

**Master of Science in Construction Management (MSCM)**

The Master of Science in Construction Management requires a total of 31 graduate-level credits (24 credits of course work, 6 credits of research/thesis, and 1 credit of seminar) and a thesis. The thesis requires the creation and presentation of new knowledge in providing a solution to a problem. Prior to submitting a thesis to the graduate student's supervisory committee, the thesis must be reviewed by a departmentally approved external editor. All costs associated with external review are the responsibility of the graduate student.

An example of the Plan of Study for the Master of Science in Construction Management is shown below:

Code	Title	Credits
CM&E 790	Graduate Seminar	1
CM&E 603	Scheduling and Project Control	3
CM&E 605	Construction Support Operations	3
CM&E 701	Construction Technology and Equipment	3
CM&E 711	Construction Cost Estimating	3
CM&E 712	Construction Management	3
600, 700 or 800-level electives *		9

CM&E 798	Master's Thesis	6
<b>Total Credits</b>		<b>31</b>

\* Electives may be any 600, 700, or 800-level courses offered at NDSU determined by the student and the major faculty adviser. A minimum cumulative grade point average (CGPA) of 3.0 must be achieved in order to complete the M.S. degree.

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## Master of Construction Management (MCM)

The Master of Construction Management degree consists of thirty (30) credits of course work and AC Exam. The following ten (10) courses constitute the thirty (30) credits of course work required for the degree.

Code	Title	Credits
CM&E 603	Scheduling and Project Control	3
CM&E 605	Construction Support Operations	3
CM&E 660	Infrastructure Management	3
CM&E 701	Construction Technology and Equipment	3
CM&E 703	Advanced Project Planning and Control	3
CM&E 711	Construction Cost Estimating	3
CM&E 712	Construction Management	3
CM&E 715	Construction Specifications and Contracts	3
CM&E 725	Decision Making and Risk Analysis	3
CM&E 740	Financial and Economic Concepts for Construction Managers	3
CM&E 793	Individual Study/Tutorial (ACExam)	
<b>Total Credits</b>		<b>30</b>

### Schedule of Courses

#### Summer Semester

CM&E 603 Scheduling and Project Control  
 CM&E 660 Infrastructure Management

#### Fall Semester

CM&E 703 Advanced Project Planning and Control  
 CM&E 712 Construction Management  
 CM&E 715 Construction Specifications and Contracts  
 CM&E 740 Financial and Economic Concepts for Construction Managers

#### Spring Semester

CM&E 605 Construction Support Operations  
 CM&E 701 Construction Technology and Equipment  
 CM&E 711 Construction Cost Estimating  
 CM&E 725 Decision Making and Risk Analysis

## Associate Constructor (AC) Exam

The Associate Constructor (AC) Exam is administered by the American Institute of Constructors & Constructor Certification Commission. All students in the Master of Construction Management Program must take the AC Exam before their graduation. There is no requirement that a student has to earn a pass score in order to receive the Master of Construction Management Degree from NDSU. However, students are encouraged to prepare for the AC Exam and earn a pass score or better established by the testing agency. The exam may be taken multiple times. The AC exam is the first level in reaching the designation of a "Certified Professional Constructor" (CPC), which is a three-stage process consisting of the AC exam (Level I), 4-5 years of relevant construction management work experience, and the CPC exam (Level II). The AC Exam is offered twice a year, typically in April and November. International applicants should note that the AC Exam is not offered online and is only offered in the United States. If a student has the AC designation, he/she may take the CPC Exam before the graduation. A pass score also is not required for the CPC Exam.

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## Graduate Certificate in Construction Management (CCM)

The certificate program consists of nine credits encompassing the following three (3) courses:

Code	Title	Credits
CM&E 603	Scheduling and Project Control	3
CM&E 711	Construction Cost Estimating	3
CM&E 712	Construction Management	3

Only grades of C or higher will satisfy requirements for certificate completion with a CGPA of 3.0 or greater. The Dean of the Graduate School, using official NDSU transcripts, will verify course completion and issue the certificate. Courses used to satisfy the Graduate Certificate requirements cannot be older than three years at the time the certificate completion is verified.

**Eric Asa, Ph.D.**

Associate Professor

University of Alberta, 2002

Research Interests: Infrastructure and Assets Management, Construction Materials, Engineering Education, Computational Modeling

**Abdul-Aziz Banawi, Ph.D.**

Assistant Professor

University of Pittsburgh, 2013

Research Interests: Life Cycle Assessment, Building Information Modeling, Building Construction - Virtual Reality, Green Buildings and Sustainability, Lean Construction and Six-Sigma

**Zhili (Jerry) Gao, Ph.D., P.E., C.P.C.**

Associate Professor and Department Chair

Iowa State University, 2004

Research Interests: Lean Construction, Virtual Design and Construction (Visualization, BIM Development and Implantation), Advanced Concrete Techniques (Sustainable Concrete, New Concrete Materials And Structures)

**Todd L. Sirotiak, MBA, Ph.D., P.E., C.P.C.**

Associate Professor

Iowa State University, 2008

Research Areas: Cost Control, Sustainability, and Engineering Education

**Huojun Yang, Ph.D.**

Assistant Professor and Graduate Program Coordinator

University of Nebraska-Lincoln, 2012

Research Interest: Built Environmental Systems, Smart Buildings, Building Energy Efficiency, Renewable Energy, and Thermophysical properties measurement of porous materials

**Yao Yu, Ph.D.**

Assistant Professor

North Carolina A&T State University, 2014

Research Areas: Building Energy Conservation Technology, Computational Airflow Modeling, and HVAC System Design and Simulation