

# Construction Management

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[www.ndsu.edu/construction/](http://www.ndsu.edu/construction/)

**Department Chair:** Dr. Yong Bai

**Department Location:** AR/LA 106

**Telephone Number:** (701) 231-6521

**Degrees Offered:** M.S., Master of Construction Management, Certificate

**Application Deadline:** May 1 for the fall semester, October 1 for the spring semester.

**Test Requirements:** GRE (M.S. applicants)

**English Proficiency *M.S. in Construction Management:***

**Requirements:** TOEFL iBT: 81, IELTS: 7, PTE Academic 54

***Master of Construction Management:***

TOEFL iBT: 79, IELTS: 6.5, PTE Academic: 53

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## Programs

The Department of Construction Management and Engineering offers three separate and distinct graduate programs as listed below followed by a description of each of the programs.

- Master of Science in Construction Management
- Master of Construction Management
- Graduate Certificate in Construction Management

## Master of Science in Construction Management

The Master of Science in Construction Management is an on-campus research-focused degree. 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 advisor.

### Admission Requirements

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.
- The Graduate Record Examination (GRE) is required for all applicants.
- Submit a one-page "Statement of Research Objectives and Qualifications" that directly relates to one of the "Research Interests" of the CM&E faculty.
- Submit a two-page resume.

Prospective students must submit application materials directly to the NDSU Graduate School via the on-line application process.

### Financial Assistance

Various types of financial assistance are available to graduate students as described on the Graduate School website. 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.

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## Master of Construction Management

The Master of Construction Management is an on-line professional program consisting of 30 credits of coursework and the Associate Constructor (AC) Exam. The Master of Construction Management is administered through Distance and Continuing Education (DCE) at NDSU.

### Admission Requirements

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.
- Submit a two-page resume.
- Submit a one-page "Statement of Purpose" outlining your reasons for pursuing the Master of Construction Management.

Prospective students must submit application materials directly to the NDSU Graduate School via the on-line 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

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

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## Graduate Certificate in Construction Management

The Program of Graduate Certificate in Construction Management provides an on-line course learning experience constituting a distinct knowledge-base and a specific set of associated skills within the areas of estimating, scheduling, and project management at the graduate level. These three areas constitute a body of knowledge that represents the fundamental core of construction management.

### Admission Requirements

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 3.0 or equivalent to attain full standing.
- Submit a two-page resume.
- Submit a one-page "Statement of Purpose" outlining your reasons for pursuing the Graduate Certificate in Construction Management.

Prospective students must submit application materials directly to the NDSU Graduate School via the on-line application process.

### Financial Assistance

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

## Master of Science in Construction Management

The Master of Science in Construction Management requires a total of 31 graduate-level credits (24 credits of coursework, 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.

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

|                                   |                                       |    |
|-----------------------------------|---------------------------------------|----|
| 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  |
| Total Credits                     |                                       | 31 |

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

## Master of Construction Management Degree and Credit Requirements

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 coursework required for the degree.

### Required Courses

|               |   |    |
|---------------|---|----|
| 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 (AC or CPC Exam)                | 0  |
| Total Credits |   | 30 |

### Schedule of Courses

#### Fall 2014

|          |                                       |
|----------|---------------------------------------|
| CM&E 603 | Scheduling and Project Control        |
| CM&E 701 | Construction Technology and Equipment |
| CM&E 711 | Construction Cost Estimating          |
| CM&E 712 | Construction Management               |

#### Spring 2015

|          |   |
|----------|---|
| CM&E 605 | Construction Support Operations           |
| CM&E 715 | Construction Specifications and Contracts |

#### Summer 2015

|          |   |
|----------|---|
| CM&E 725 | Decision Making and Risk Analysis                         |
| CM&E 740 | Financial and Economic Concepts for Construction Managers |

#### Fall 2015

|          |                                       |
|----------|---------------------------------------|
| CM&E 603 | Scheduling and Project Control        |
| CM&E 701 | Construction Technology and Equipment |
| CM&E 712 | Construction Management               |

#### Spring 2016

|          |   |
|----------|---|
| CM&E 605 | Construction Support Operations           |
| CM&E 711 | Construction Cost Estimating              |
| CM&E 715 | Construction Specifications and Contracts |

#### Summer 2016

|          |                                       |
|----------|---------------------------------------|
| CM&E 660 | Infrastructure Management             |
| CM&E 703 | Advanced Project Planning and Control |

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 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 March and November. International applicants should note that the AC Exam is not offered online and is only offered in the United States.

## Graduate Certificate in Construction Management

The Graduate Certificate in Construction Management is administered through Distance and Continuing Education (DCE) at NDSU. The certificate program consists of nine credits encompassing the following three (3) courses:

|          |                                |   |
|----------|--------------------------------|---|
| 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.**

University of Alberta, 2002

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

**Yong Bai, Ph.D., P.E., F.ASCE**

Chair and Professor

North Carolina State University, 1996

Research Areas: Infrastructure construction and maintenance, highway work zone safety, international construction management, and emerging technologies in construction.

**Bradley Bowen, Ed.D.**

North Carolina State University, 2011

Research Interests: Engineering Education, K-12 Engineering, Project-based Learning

**Zhili (Jerry) Gao, Ph.D.**

Iowa State University, 2004

Research Interests: 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., CPC**

Iowa State University, 2008

Research Areas: Cost control, sustainability, and engineering education.

**Jongchul Song, Ph.D.**

The University of Texas at Austin, 2005

Research Interests: Energy efficient building technology (thermal insulation performance), Asphalt pavement construction (temperature-density relation)

**Matthew L. Stone, Ph.D.**

University of Alabama, 2013

Research Areas: Cost estimating, life cycle analysis, and infrastructure construction.

**Huojun Yang, Ph.D.**

University of Nebraska-Lincoln, 2012

Research Interest: Built Environmental Systems and Building Energy