

Master of Science - Construction and Infrastructure Management

Plan Description

The Master of Science ~~in~~-Construction and Infrastructure Management (MSCIM) degree is for individuals interested in the management of construction and transportation infrastructure.

It is intended for applicants with all backgrounds, especially those in areas other than engineering, and who either presently work for or aspire to work for construction companies, transportation agencies, public agencies, or private companies who provide professional services in the transportation and construction management fields.

The degree provides graduate-level study for those seeking mid- and upper-level management positions in the construction and transportation industries. Students with degrees in construction management, engineering, science, architecture, business, economics, public administration, quantitative geography, computer science, mathematics, operations research, statistics, political science, physical science, psychology, health sciences, urban or regional planning, as well as related disciplines are invited to apply.

Applications for admission to the program are evaluated on an individual basis by the Civil and Environmental Engineering and Construction (CEEC) faculty.

Two concentrations:

- Construction Management (CM) and
- Transportation Infrastructure Management (TIM),

are available in MSCIM degree program.

For more information about your program, including your graduate program handbook and learning outcomes please visit the [Degree Directory](#).

Plan Admission Requirements

Application deadlines

Applications available on the [UNLV Graduate College website](#).

Admission to the program leading to the MSCIM degree in thesis and ~~project course non-thesis~~ subplans ~~is~~ **are** open to those students completing the following requirements:

1. Applications must be submitted in the [Grad Rebel Gateway](#) ~~system~~.
2. Applicants must have an earned baccalaureate degree from a regionally accredited four-year college or university **or international equivalent**. The CEEC Graduate Program Committee (GPC) and Graduate Coordinator make all the final decisions after review of each applicant's records and admissions information.
3. Overall undergraduate GPA should be at least 2.75 (4.00=A) for the bachelor's degree or at least 3.00 (4.00=A) for the last 60 credits of undergraduate work.

4. Students interested in the Construction Management concentration must have earned credits in the following subjects or their equivalents with **s a C** (2.00 out of 4) or better grade: MATH 181-Calculus I PHYS 151/151 L-General Physics I CEM 250/250L-Construction Materials& Methods CEM 270-Construction Engineering Mechanics-A course in construction or engineering graphics.
5. Students interested in Transportation Infrastructure Management concentration must have earned credits in the following subjects or their equivalents with a C (2.00 out of 4) or better grade: MATH 181-Calculus I PHYS 151/151L or 152/152L- General Physics I or II **STA STAT** 152 – Statistics.
6. The above-mentioned deficiency courses required of a student before entering the MSCIM program will be determined on an individual basis. The student will be notified in writing of any deficiencies prior to admission to the program. Students with deficiencies exceeding two courses may need to satisfactorily complete them before admission to the graduate program. A minimum grade of C is required in the deficiency courses.
7. The CEEC Graduate Program Committee (GPC) and Graduate Coordinator make all the final decisions after review of each applicant's records and admissions information.
8. The applicant must submit a Statement of Intent (SOI) with no more than two pages describing the reasons why they wish to earn a MSCIM degree.
9. Furthermore, the applicant must submit a recent resume (no more than 2 pages).
10. In addition, two letters of recommendation (LOR) must be submitted by individuals familiar with applicant's knowledge, skills and abilities. It is highly recommended that LOR documents are created using official letterheads (e. g. academic advisor, academic faculty, professional supervisor). Also, applicants must enter **official professional** email addresses of those sending an LOR.
11. **All applicants are required to take GRE General Test and submit the scores to the University of Las Vegas, Nevada (code 4861).** International applicants must meet English proficiency requirements established in the [UNLV Graduate English proficiency page](#).

All domestic and international applicants must review and follow the [Graduate College Admission and Registration Requirements](#).

Students are accepted into a degree program as described in the Graduate Catalog. The faculty and corresponding sub-disciplines and sub-plans within the described programs are subject to change at any time.

Plan Requirements

See Subplan Requirements below.

[Subplan 1: Construction Management-Thesis](#)

[Subplan 2: Construction Management-**Project Course Non-Thesis**](#)

[Subplan 3: Transportation Infrastructure Management-Thesis](#)

[Subplan 4: Transportation Infrastructure Management-**Project Course Non-Thesis**](#)

Subplan 1 Requirements: Construction Management - Thesis

Total Credits Required: 30

Course Requirements

Required Courses – Credits: ~~16~~ 16 15

Complete ~~16~~ 15 credits by completing all of the following courses.

CEM 651 Construction Estimating	4
CEM 653 Construction Scheduling and Resource Optimization	3
CEM 730 Foundations of Big Data Analytics for Construction Management	3
CEE 609 Engineering Project Management	3
CEE 700 Research Methods in Civil and Environmental Engineering	3

Elective Courses – Credits: ~~5~~ 6

Complete at least two of the following courses:

CEM 680 Sustainable Construction	3
CEM 685 Construction Law and Contracts	3
CEM 705 Construction Engineering Management	3
CEM 710 Modular Construction	3
CEM 720 Information and Sensing Technology in Construction	3
CEE 667 Computer Applications in Transportation Engineering	3
CEE 668 GIS Applications in Civil Engineering	3

(Optional) Graduate Internship ~~Course-Credit: Maximum up to 1~~ and Graduate Seminar ~~Course-Credit Courses-Credits: Maximum up to 1-3~~

Students ~~engaged that opt to engage~~ in Curricular Practical Training (CPT) must take ~~1 credit of CEM CEE 792. The course can be taken a maximum of one time during their study. This course can be taken only once during their studies.~~ However, the credit will not be counted towards the degree.

~~CEM 798 course can be taken to a maximum of three credit hours credits by Thesis subplan students. However, the credit credits will not be counted towards the degree.~~

CEM 792 Graduate Internship for Master in Construction Management	1
---	---

**CEM-798 Graduate Engineering and
Construction Seminar for MSCIM
Students**

**[After] CEM-798: Construction & Infrastructure
Management Capstone Seminar**

1 - 3

Thesis – Credits: 9

CEM 797 Research Thesis in Construction
Engineering and Management

1 - 9

Degree Requirements

1. A Thesis Advisory Committee composed of at least four members of the UNLV graduate faculty is to be formed for the student. At least two of the committee members must be from tenured or tenure-track Construction Engineering Management (CEM) faculty and the third member from CEEC Department. The fourth faculty member, the Graduate College Representative, is recommended by advisor/advisee and appointed by the Graduate College. It is recommended that the Thesis Advisory Committee collective expertise reflects the thesis topic. The committee chair must be a CEM tenure-track faculty from the area of expertise chosen for thesis topic.
2. Students who have credit in CEM 651 and CEM 653 or equivalent courses will select two other courses from the elective courses list.
3. In addition to the coursework requirements, 9 credits of research work associated with the master's level thesis (CEM 797) with the outcome being a manuscript written for a specific indexed conference or journal.
4. At least 50% of the courses (600 and 700 level) within the total coursework must be from the College of Engineering.
5. At least 50% of the courses within the total coursework must be 700 level.
6. Students must maintain a minimum grade point average of 3.00. A course in which a grade of less than C was earned will not be considered for use toward the degree.
7. All requirements for the degree are met upon the satisfactory completion of the proposed research, the submission of a satisfactory thesis, and the successful oral defense of the thesis before the Thesis Advisory Committee.

Graduation Requirements

1. The student must submit all required forms to the Graduate College as well as apply for graduation up to two semesters prior to completing their degree requirements.
2. The student must submit and successfully defend their thesis by the posted deadline. The defense must be advertised and is open to the public.
3. After the thesis defense, the student must electronically submit a properly formatted pdf copy of their thesis to the Graduate College for format check. Once the thesis format has been approved by the Graduate College, the student will submit the approved electronic version to ProQuest. Deadlines

for thesis defenses, format check submissions, and the final ProQuest submission [can be found here](#).

Subplan 2 Requirements: Construction Management-**Project Course Non-Thesis**

Total Credits Required: 30

Course Requirements

Required Courses – Credits: ~~13~~ 12

Complete ~~13~~ 12 credits by completing all of the following courses.

CEM 651 Construction Estimating	4
CEM 653 Construction Scheduling and Resource Optimization	3
CEE 609 Engineering Project Management	3
CEM 730 Foundations of Big Data Analytics for Construction Management	3

Elective Courses – Credits: ~~14~~ 15

Complete five of the following courses:

CEM 680 Sustainable Construction	3
CEM 685 Construction Law and Contracts	3
CEM 705 Construction Engineering Management	3
CEM 710 Modular Construction	3
CEM 720 Information and Sensing Technology in Construction	3
CEE 667 Computer Applications in Transportation Engineering	3
CEE 668 GIS Applications in Civil Engineering	3

(Optional) Graduate Internship Course-**Credit Credits: Maximum up to 1**

Students **engaged that opt to engage** in Curricular Practical Training (CPT) must take **1 credit of CEM CEE 792. The course can be taken a maximum of one time during their study. This course can be taken only once during their studies.** However, the credit will not be counted towards the degree.

CEM 792 Graduate Internship for Master in Construction Management	1
---	---

~~Special Project Graduate Capstone Seminar~~ Culminating Experience Course – Credits: 3

~~CEM-798: Construction & Infrastructure Management Capstone Seminar~~

~~CEM-796 Special Project in Construction
Engineering and Management~~

~~1-3~~

~~CEM-798 Graduate Engineering and
Construction Seminar for MSCIM
Students~~

Degree Requirements

1. The student's Advisor should be tenured or a tenure track Construction Engineering Management faculty member of the CEEC Department. An advisory committee is not required.
2. In addition to the coursework requirement, 3 credits of ~~master's level project Graduate Capstone Seminar~~ (CEM-~~796~~ **798**) with the outcome being a ~~paper written for a specific indexed conference or journal professional presentation.~~
3. Students who have credit in CEM 651 and CEM 653 or equivalent courses will select two other courses from the elective courses list.
4. At least 50% of the courses (600 and 700 level) within the total coursework must be from the College of Engineering.
5. At least 50% of the courses within the total coursework must be 700 level.
6. Students must maintain a minimum grade point average of 3.00. A course in which a grade of less than C was earned will not be considered for use toward the degree.

Graduation Requirements

1. The student must submit all required forms to the Graduate College as well as apply for graduation up to two semesters prior to completing their degree requirements.
2. The student must successfully ~~complete a project present his/her their seminar on an appropriate topic collectively decided by the student and submit a project report his/her their advisor in CEM 798 Capstone Seminar course.~~

Subplan 3 Requirements: Transportation Infrastructure Management - Thesis

Total Credits Required: 30

Course Requirements

Required Courses – Credits: 9

Complete 9 credits by completing all of the following courses.

CEE 609 Engineering Project Management	3
CEE 700 Research Methods in Civil and Environmental Engineering	3
CEE 730 Foundations of Big Data Analytics for Infrastructure Applications	3

Elective Courses – Credits: 12

Complete 12 credits of advisor-approved elective coursework including a minimum of 3 courses from the following list (with at least two 700 level course).

CEE 661 Introduction to Railroad Transportation	3
CEE 662 Railroad Engineering	3
CEE 663 Traffic Engineering	3
CEE 664 Airport Design	3
CEE 666 Geometric Design of Highways	3
CEE 667 Computer Applications in Transportation Engineering	3
CEE 668 GIS Applications in Civil Engineering	3
CEE 671 Public Transportation Systems	3
CEE 725 Freight Transportation	3
CEE 726 Railroad Operations	3
CEE 727 Transportation Safety	3
CEE 760 Transportation Planning	3
CEE 761 Transportation Demand Analysis	3
CEE 762 Operations Research Applications in Civil Engineering	3
CEE 763 Advanced Traffic Engineering	3
CEE 764 Air Transportation	3

(Optional) Graduate Internship ~~Course-Credit:~~ **Maximum up to 1 and Graduate Seminar Course** **Courses-Credit Credits: Maximum up to 1-3**

Students ~~engaged that opt to engage~~ in Curricular Practical Training (CPT) must take **1 credit of CEE 792. The course can be taken a maximum of one time during their study. This course can be taken only once during their studies.** However, the credit will not be counted towards the degree.

CEE CEM 798 course can be taken to a maximum of three-credit hours by Thesis-subplan students credits. However, the-credit credits will not be

counted towards the degree.

CEE 792 Graduate Internship for Master in Civil Engineering and Transportation	1
CEM-798 Graduate Engineering and Construction Seminar for MSCIM Students	
CEE-798 Graduate Engineering and Construction Seminar	
[After] CEM-798: Construction & Infrastructure Management Capstone Seminar	1 - 3

Thesis – Credits: 9

CEM 797 Research Thesis in Construction Engineering and Management	1 - 9
--	-------

Degree Requirements

1. A Thesis Advisory Committee composed of at least four members of the UNLV graduate faculty is to be formed for the student. At least two of the committee members must be from tenured or tenure-track faculty of the CEEC Department and the third member can be from a related field. The fourth faculty member, the Graduate College Representative, is recommended by advisor/advisee and appointed by the Graduate College. It is recommended that the Thesis Advisory Committee collective expertise reflects the thesis topic. The committee chair must be a tenured or tenure-track **CEEC** faculty from the area of expertise chosen for thesis topic.
2. In addition to CEE 700, CEE 609, and CEE 730, all students must successfully complete a minimum of 12 credits of approved graduate courses.
3. In addition to the coursework requirements, 9 credits of research work associated with the master's level thesis (~~CEE~~ **(CEM 797)**) with the outcome being a manuscript written for a specific indexed conference or journal.
4. At least 50% of the courses (600 and 700 level) within the total coursework must be from the College of Engineering.
5. At least 50% of the courses within the total coursework must be 700 level.
6. Students must maintain a minimum grade point average of 3.00. A course in which a grade of less than C was earned will not be considered for use toward the degree.

Graduation Requirements

1. The student must submit all required forms to the Graduate College as well as apply for graduation up to two semesters prior to completing their degree requirements.
2. The student must submit and successfully defend their thesis by the posted deadline. The defense must be advertised and is open to the public.

3. After the thesis defense, the student must electronically submit a properly formatted pdf copy of their thesis to the Graduate College for format check. Once the thesis format has been approved by the Graduate College, the student will submit the approved electronic version to ProQuest. Deadlines for thesis defenses, format check submissions, and the final ProQuest submission [can be found here](#).

Subplan 4 Requirements: Transportation Infrastructure Management-**Project Course Non-Thesis**

Total Credits Required: 30

Course Requirements

Required Courses - Credits: 6

Complete 6 credits by completing all of the following courses.

CEE 609 Engineering Project Management	3
CEE 730 Foundations of Big Data Analytics for Infrastructure Applications	3

Elective Courses - Credits: 21

Complete 21 credits of advisor-approved elective coursework including a minimum of 3 courses from the following list (with at least two 700 level course).

CEE 661 Introduction to Railroad Transportation	3
CEE 662 Railroad Engineering	3
CEE 663 Traffic Engineering	3
CEE 664 Airport Design	3
CEE 666 Geometric Design of Highways	3
CEE 667 Computer Applications in Transportation Engineering	3
CEE 668 GIS Applications in Civil Engineering	3
CEE 671 Public Transportation Systems	3
CEE 725 Freight Transportation	3
CEE 726 Railroad Operations	3
CEE 727 Transportation Safety	3
CEE 760 Transportation Planning	3
CEE 761 Transportation Demand Analysis	3
CEE 762 Operations Research Applications in Civil Engineering	3
CEE 763 Advanced Traffic Engineering	3
CEE 764 Air Transportation	3

(Optional) Graduate Internship ~~Course-Credit~~ **Course-Credits: Maximum up to 1**

Students **engaged that opt to engage** in Curricular Practical Training (CPT) must take **1 credit of CEE 792. The course can be taken a maximum of one time during their study. This course can be taken only once during their studies.** However, the credit will not be counted towards the degree.

CEE 792 Graduate Internship for Master in
Civil Engineering and Transportation

1

~~Special Project Graduate Capstone Seminar~~ **Culminating Experience Course-Credits: 3**

CEM-798: Construction & Infrastructure Management ~~Capstone Seminar~~

~~CEE 796 Design Project in Civil
Engineering~~

1-3

~~CEM 798 Graduate Engineering and
Construction Seminar for MSCIM
Students~~

~~CEE 798 Graduate Engineering and
Construction Seminar~~

Degree Requirements

1. The student's Advisor should be tenured or a tenure-track -faculty member of the CEEC Department. An advisory committee is not required.
2. In addition to CEE 609 and CEE 730, students must complete a minimum of 21 credits of approved graduate courses, and 3 credits of **project work associated with the master's level project Graduate Capstone Seminar (CEE 796) (CEM 798)** with the outcome being a **paper written for a specific indexed conference or journal professional presentation.**
3. At least 50% of the courses (600 and 700 level) within the total coursework must be from the College of Engineering.
4. At least 50% of the courses within the total coursework must be 700 level.
5. Students must maintain a minimum grade point average of 3.00. A course in which a grade of less than C was received will not be considered for use toward the degree.

Graduation Requirements

1. The student must submit all required forms to the Graduate College as well as apply for graduation up to two semesters prior to completing their degree requirements.
2. The student must successfully **complete a project present his/her their seminar on an appropriate topic collectively decided by the student**

and ~~submit a project report his/her~~ their advisor in ~~CEE CEM 798~~
Capstone Seminar course.

Plan Graduation Requirements

Refer to your subplan for Graduation Requirements

Subplan 1: Construction Management-Thesis

Subplan 2: Construction Management-~~Project Course~~ Non-Thesis

Subplan 3: Transportation Infrastructure Management-Thesis

Subplan 4: Transportation Infrastructure Management-~~Project Course~~ Non-Thesis