

# Master of Science - Construction Management

## Plan Description

The ~~Master MSCIM~~ **Master of Science in Construction and Infrastructure Management (MSCIM)** degree is for individuals interested in the management of ~~Science~~ construction and transportation infrastructure. It is intended for applicants with all backgrounds, especially those in ~~Construction Management (M~~ 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. ~~S. C. M.)~~ The degree provides graduate-level study for those seeking mid- and upper-level management positions in the construction ~~industry or continued study for the doctorate~~ and transportation industries. Students with degrees in construction management, engineering, science, architecture ~~and~~, 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 relat ed~~ 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) ~~Department's construction engineering management~~ faculty. Two ~~tracks (thesis concentrations (Construction;~~ **Construction Management (CM) and project) Transportation Infrastructure Management (TIM)**, are available in ~~M. S. C. I. M.~~ **MSCIM** degree program. For more information about your program, including your graduate program handbook and learning outcomes please visit the Degree Directory.

## Plan Requirements

See Subplan Requirements below. Subplan 1: **Construction Management-Thesis** ~~Track Subplan Track~~ Subplan 2: **Construction Management-Project** ~~Track~~ Subplan 3: **Transportation Infrastructure Management-Thesis** ~~Track~~ Subplan 4: **Transportation Infrastructure Management -Project** ~~Track~~

### Subplan 1 Requirements: **Construction Management-Thesis** Track

Total Credits Required: 30

## Course Requirements

Required Courses – Credits: ~~13~~ **16**

**Complete 16 credits by completing all of the following courses.**

CEM 651 Construction Estimating

4

CEM 653 Construction Scheduling and Resource Optimization	3
CEE 700 Research Methods in Civil and Environmental Engineering	3
<del>[After] 3 Credits of 700-level statistics course with consent of student's advisor and instructor</del>	
<b>CEM 730 Foundations of Big Data Analytics for Construction Management</b>	<b>3</b>
<b>CEE 609 Engineering Project Management</b>	<b>3</b>

### **Specialty Elective Courses – Credits: ~~6~~ 5**

Complete at least two of the following courses:

<b>CEM 680 Sustainable Construction</b>	<b>3</b>
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
<del>CEM 751 Construction Cost Analysis and Estimating</del>	<del>3</del>
<b>CEE 667 Computer Applications in Transportation Engineering</b>	<b>3</b>
<b>CEE 668 GIS Applications in Civil Engineering</b>	<b>3</b>

### ~~Elective Courses – Credits: 2~~

~~Complete 2 credits of advisor-approved elective or specialty coursework.~~

### Thesis – Credits: 9

CEM 797 Research Thesis in Construction Engineering and Management	1 - 9
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### (Optional) Graduate Internship Course-Credit: Maximum up to 1

Students engaged in Curricular Practical Training (CPT) must take CEM 792. The course can be taken maximum one time during their study. However, the credit will not be counted towards the degree.

CEM 792 Graduate Internship for Master in Construction Management	1
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## 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 faculty from the area of expertise chosen for thesis topic. **2.** Students ~~must complete at least 21 credits of graduate course, comprised of 13 required 600/700-level credits of CEM, CEE and statistics coursework, 6 credits of specialty courses, and 2 credits of advisor-approved elective or specialty coursework.~~ Students who have credit in CEM 651 and CEM 653 or equivalent courses will select two other courses from the ~~specialty or advisor-approved~~ 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 co urses~~ (600 ~~and a nd~~ 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 ~~M.S.C.I.M 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 ~~and then as well as~~ apply for graduation up to two semesters prior to completing ~~his/her their~~ degree requirements. **2.** The student must submit and successfully defend ~~his/her 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 Track**

Total Credits Required: 30

## Course Requirements

## Required Courses – Credits: ~~10~~ 13

Complete 13 credits by completing all of the following courses.

CEM 651 Construction Estimating	4
CEM 653 Construction Scheduling and Resource Optimization	3
<del>[After] 3 Credits of 700-level statistics course with consent of student's advisor and instructor</del>	
<b>CEM 730 Foundations of Big Data Analytics for Construction Management</b>	<b>3</b>
<b>CEE 609 Engineering Project Management</b>	<b>3</b>

## Specialty Elective Courses – Credits: ~~12-16~~ 14

Complete ~~four~~ five of the following courses:

<b>CEM 680 Sustainable Construction</b>	<b>3</b>
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
<del>CEM 751 Construction Cost Analysis and Estimating</del>	<del>3</del>
<del>CEM 685 Construction Law and Contracts</del>	<del>3</del>
<b>CEE 667 Computer Applications in Transportation Engineering</b>	<b>3</b>
<b>CEE 668 GIS Applications in Civil Engineering</b>	<b>3</b>

## ~~Elective Courses – Credits: 5~~

~~Complete 5 credits of advisor-approved elective or specialty coursework.~~

## Special Project – Credits: 3

CEM 796 Special Project in Construction Engineering and Management	1 – 3
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(Optional) Graduate Internship Course - Credit: Maximum up to 1

Students engaged in Curricular Practical Training (CPT) must take CEM 792. The course can be taken maximum one time during their study. However, the credit will not be counted towards the degree.

CEM 792 Graduate Internship for Master in  
Construction Management

1

## 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. ~~Students must complete at least 27 credits of graduate course, comprised of 10 credits of required 600/700 level credits of CEM and statistics coursework, 12 credits of specialty coursework, 5 credits of approved elective or specialty coursework.~~ **2.** In addition to the coursework requirement, 3 credits of master's level project (CEM 796) with the outcome being a paper written for a specific indexed conference or journal. **3.** Students who have credit in CEM 651 and CEM 653 or equivalent courses will select two other courses from the ~~specialty or advisor approved~~ 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~~ **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 ~~and then as well as~~ apply for graduation up to two semesters prior to completing ~~his/her their~~ degree requirements. **2.** The student must successfully complete a project and submit a project report.

## ~~New Core Subplan 1~~ **3 Requirements: Thesis Transportation Infrastructure Management--Thesis-Thesis Track**

**Total Credits Required: 30**

## ~~New Core~~ **Course Requirements**

### ~~New Core~~ **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

### **New Core Elective Courses – Credits: 12**

Complete 12 credits of advisor-approved elective coursework including a minimum of 3 courses from the following ~~discipline-based list. Note: A minimum of three 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

### **New Core (Optional) Graduate Internship Course- Credit: Maximum up to 1**

Students engaged in Curricular Practical Training (CPT) must take CEE 792. The course can be taken maximum one time during their study. However, the credit will not be counted towards the degree.

<del>GEM 792 Graduate Internship for Master in Construction Management</del>	<del>1</del>
CEE 792 Graduate Internship for Master in Civil Engineering and Transportation	1

### **New Core Thesis – Credits: 9**

CEM 797 Research Thesis in Construction Engineering and Management	1 - 9
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## ~~New Core~~ 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 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 credit hours of approved graduate courses. 3. In addition to the coursework requirements, 9 credits of research work associated with the master's level thesis (CEE 797) with the outcome being a manuscript written for a specific indexed conference or journal. 4. At least ~~50%~~ 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.

## ~~New Core~~ Graduation Requirements

1. The student must submit all required forms to the Graduate College ~~and then~~ as well as apply for graduation up to two semesters prior to completing ~~his/her~~ their degree requirements. 2. The student must submit and successfully ~~complete~~ a ~~project~~ defend ~~his/her~~ 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 ~~project report~~ 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.

## ~~New Core~~ Subplan ~~2~~ 4 Requirements: ~~Project~~ Transportation Infrastructure Management ~~Project~~ Project Track

Total Credits Required: 30

## ~~New Core~~ Course Requirements

### ~~New Core~~ 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

### ~~New~~ Core Elective Courses-Credits: 21

Complete 21 credits of advisor-approved elective coursework including a minimum of 3 courses from the following ~~discipline-based list. Note: A minimum of three 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

### ~~New~~ Core (Optional) Graduate Internship Course-Credit: Maximum up to 1

Students engaged in Curricular Practical Training (CPT) must take CEE 792. The course can be taken maximum one time during their study. However, the credit will not be counted towards the degree.

CEM 792 Graduate Internship for Master in Construction Management	1
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### ~~New~~ Core Special Project-Credits: 3

<del>CEM 796 Special Project in Construction Engineering and Management</del>	<del>1-3</del>
CEE 796 Design Project in Civil Engineering	1 - 3



## ~~New Core~~ 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 credit hours of approved graduate courses, and 3 credits of project work associated with the master's level project (CEE 796) with the outcome being a paper written for a specific indexed conference or journal. 3. 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. 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.

## ~~New Core~~ Graduation Requirements

1. The student must submit all required forms to the Graduate College ~~and~~ as well as apply for graduation up to two semesters prior to completing ~~his/her~~ their degree requirements. 2. The student must successfully complete a project and submit a project report.

## ~~New Core~~ Plan Graduation Requirements

Refer to your subplan for Graduation Requirements ~~Subplan 1~~ Subplan 1: ~~Thesis~~ Subplan Construction Management-~~Thesis Track~~ Subplan 2: Construction Management-~~Project Track~~ Subplan 3: Transportation Infrastructure Management-~~Thesis Track~~ Subplan 4: Transportation Infrastructure Management ~~-Project Track~~

## ~~Course Requirements:~~

## ~~Plan Requirements~~

~~See Subplan Requirements below.~~

~~Subplan 1: Thesis Track~~

~~Subplan 2: Project Track~~

## Plan Admission Requirements

Application ~~deadlines~~ **Applications deadlines Applications** available on the UNLV Graduate College website. Admission to the program leading to the ~~M.S.C.I.M~~ **MSCIM: MS CIM** degree in thesis and project ~~tracks~~ **subplans** is open to those students completing the following requirements: **1.** Applications ~~should~~ **must** be submitted in the Grad Rebel Gateway system. Applicants must have an earned baccalaureate degree from a regionally accredited four-year college or university ~~with~~ **preferred study in construction, engineering, architecture, business, or closely related area.**

The CEEC Graduate Program Committee (GPC) and Graduate Coordinator make all the final decisions after review of each applicant's records and admissions information. **2.** 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. ~~Credit (in semester hours)~~ **3. Students interested in the Construction Management concentration** must have ~~been~~ earned **credits** in the following subjects or their equivalents **with a C (2.00 out of 4) or better grade:** ~~MATH MATH 181~~ Calculus ~~I~~ ~~PHYS 151/151L~~ ~~I~~ ~~PHYS PHYS 151/151L~~ General Physics ~~I~~ ~~CEM I~~ ~~CEM CEM 250/250L~~ ~~Construction Materials Materials Materials Construction Construction Materials & Methods~~ ~~CEM Methods~~ ~~CEM CEM 270~~ Construction Engineering ~~Mechanics~~ ~~A Mechanics~~ ~~A~~ A course in construction or engineering ~~graphics~~ ~~The leveling graphics.~~ **4. 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 MATH 181~~ Calculus ~~I~~ ~~PHYS PHYS 151/151L or 152/152L~~ General Physics ~~I or II~~ ~~STA II STA 152~~ - Statistics. The above-mentioned deficiency courses required of a student before entering the ~~M. S. C. I. M.~~ **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 ~~leveling~~ **deficiency** courses. The CEEC Graduate Program Committee (GPC) and Graduate Coordinator make all the final decisions after review of each applicant's records and ~~admissions~~ ~~admissions~~ **admissions** information. **5.** ~~The The The~~ applicant must submit a Statement of Intent (SOI) with no more than two pages describing the reasons why they wish to earn a ~~master's~~ **MSCIM** degree. **Furthermore, the applicant must submit a recent resume (no more than 2 pages).** In addition, two letters of recommendation (LOR) must be submitted ~~from by~~ individuals familiar with applicant's knowledge, skills and abilities. It is highly recommended that ~~LOR be written on~~ **LOR documents are created using** official ~~letter head~~ **letterheads (e. International g. academic advisor, academic faculty, professional supervisor).** **Also,** applicants must ~~meet English proficiency requirements established in the UNLV Graduate Catalog~~ **enter official email addresses of those sending an LOR.** **6.** All applicants are required to take GRE General Test and submit the scores to the University of ~~Nevada,~~ Las Vegas, **Nevada** (code 4861). ~~Successful~~ **7. International** applicants ~~generally have a combined verbal and quantitative GRE score of at least 300 and analytical writing score of at least 3~~ **must meet English proficiency requirements established in the UNLV Graduate Catalog English proficiency page (add link).** All domestic and international applicants must review and follow the Graduate College Admission and Registration ~~Requirements~~ **R requirements.** Students are ~~accepted~~ ~~accepted~~ **accepted** into a degree ~~program p program progra-m program~~ **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.

~~New Core~~

~~Transportation Infrastructure Management Concentration~~

~~Construction Management Concentration~~

~~New Core~~

### ~~Plan Graduation Requirements~~

~~Refer to your subplan for Graduation Requirements.~~

~~Subplan 1: Thesis~~

~~Subplan 2: Project~~

### ~~Plan Graduation Requirements~~

~~Refer to your subplan for Graduation Requirements.~~

~~Subplan 1: Thesis Track~~

~~Subplan 2: Project Track~~

### ~~New Core~~

### ~~Plan Graduation Requirements~~

~~Refer to your subplan for Graduation Requirements.~~

~~Subplan 1: Thesis~~

~~Subplan 2: Project~~

### ~~New Core~~