

MASTER OF SCIENCE IN CONSTRUCTION ENGINEERING AND MANAGEMENT

The Master of Science in Construction Engineering and Management is program provides students with the knowledge and background that is essential to making decisions at site, company, industrial, and sector levels in the construction industry. Students learn how to plan and schedule projects, estimate and control costs, make economic decisions, administer contracts, organize construction sites, manage construction equipment, analyze productivity, optimize construction activities, plan and manage real estate developments, and address legal problems. There are two degree options: coursework-based (no research or thesis required) and thesis-based (coursework coupled with research and thesis required).

Typically, candidates for this degree have bachelor's degrees in Engineering or Architecture, but individuals in career transition who complete our Certificate in Construction Management can also be admitted in furtherance of their education.

Curriculum

Degree Options

The Master of Science in Construction Engineering and Management program has two degree options:

- **Coursework-based:** For students who wish to prepare for professional practice in construction engineering and management, all credit hour requirements are fulfilled by coursework. No research or thesis is required.

- **Thesis-based:** For students who wish to prepare for a research-based career and/or professional practice in construction engineering and management, credit hour requirements are fulfilled by a combination of coursework and research and thesis credits (CAE 591) earned for conducting mentored research and completing a master's thesis and oral thesis defense.

For both degree options, up to 12 credit hours of 400-level courses can be applied to the program.

Degree Requirements

Code	Title	Credit Hours
Required Courses		(18)
CAE 569	Construction Methods, Cost Estimating, and Project Budgeting ¹	3
or CAE 470	Construction Methods and Cost Estimating	
CAE 570	Legal Issues in Civil Engineering	3
CAE 571	Lean Construction and Control	3
CAE 572	Construction Business Operations and Cost Accounting & Control	3
CAE 574	Economic Decision Analysis in Civil Engineering	3
CAE 577	Construction Equipment Management	3
Major Electives		(12)
Select a minimum of 12 credit hours from any remaining required courses or from the list of courses below: ²		12
CAE 471	Construction Planning and Scheduling	3
CAE 472	Construction Site Operation	3
CAE 473	Construction Contract Administration	3
CAE 474	Introduction to Building Information Modeling	3
CAE 523	Statistical Analysis of Engineering Data	3
CAE 573	Construction Management with Building Information Modeling	3
CAE 575	Systems Analysis in Civil Engineering	3
CAE 576	Applications of Unmanned Aerial Vehicles (UAVs or "Drones") for Construction Projects	3
CAE 578	Construction Claims Management	3
CAE 579	Real Estate Fundamentals for Engineers and Architects	3
CAE 587	Commissioning of Construction Projects	3
CAE 588	Computing, Informatics, and Advanced Information Technologies in Construction Engineering	3
CAE 595	Current Issues in the Construction Industry	3
CAE 591	Research and Thesis for M.S. Degree ³	6
CAE 597	Special Problems	0-4
Total Credit Hours		30

¹ For courses that are cross-listed with both graduate and undergraduate sections, students in the program should prioritize taking the graduate (500-level) section. Accelerated master's students can take either section that best fits their plan of study.

² Course substitutions can be made with advisor approval.

³ Students pursuing the thesis-based option must take 6 credit hours of CAE 591 and complete a written thesis and oral defense.