

# DUAL M.S.E. CIVIL ENGINEERING/MASTER OF BUSINESS ADMINISTRATION

The mission of the Dual Degree MSE in Civil Engineering/MBA program is to educate working engineers and scientists in the engineering and business disciplines that will make them leaders of highly complex technical endeavors within their sponsoring organizations.

The dual degree MSE/MBA program will confer two degrees upon its graduates: an MBA and an MSE in Civil Engineering. Pursuing the dual degree program saves the student several courses compared to pursuing the two degrees separately.

The dual degree MSE in Civil Engineering/MBA program is designed to be completed in approximately three years. Typically, the Civil Engineering classes are completed first, followed by taking the required classes in the MBA program.

## Learning Outcomes

### For the Civil Engineering M.S.E.

Graduates will

- Apply scientific, mathematical, and sustainability principles to analyze and develop solutions to problems in environmental science and engineering;
- Critically assess, evaluate, and understand sustainability, ethics, and social justice in environmental science and engineering; and
- Effectively communicate scientific and engineering principles related to the environment and sustainability

### For the M.B.A.

- Graduates will possess the knowledge and skills to be able to apply key business concepts in organizational settings.
- Graduates will possess the knowledge and skills to manage in a global economy.
- Graduates will possess critical thinking skills and the ability to integrate concepts.
- Graduates will have the ability to communicate effectively.
- Graduates will have the knowledge and skills to function effectively as members, managers, and leaders in the organizations in which they are employed.
- Graduates will be able to incorporate ethical reasoning, social responsibility, and sustainability in making decisions in their organizations.

## Admission

Both the MBA Program in the College of Business Administration and the Civil Engineering Program in the Frank R. Seaver College of Science and Engineering must accept students applying to the dual degree program for admission. Prospective dual degree students should apply first to the MSE in Civil Engineering degree program. After receiving admission to the MSE in Civil Engineering degree program and completing 12 semester hours towards the MSE degree, students interested in the MSE/MBA Dual Degree program should contact Graduate Business Education for admission to the MBA portion of the Dual Degree. Eligibility for the dual degree program is based upon good academic standing (minimum GPA

3.0) in the MSE in Civil Engineering and approval from their respective Seaver College academic advisor. The preferred start term for the MBA portion of the Dual Degree program is the fall term.

The MSE in Civil Engineering degree program application is online at <https://graduatestudies.lmu.edu/apply> (<https://graduatestudies.lmu.edu/apply/>). Applicants must submit:

- Official transcripts from all colleges and universities attended
- Statement of Intent (approximately 1.5 pages) describing the candidate's background, career goals, and interest in the program
- Two letters of recommendation attesting to the candidate's ability to succeed in the graduate program based on previous academic and/or professional performance
- Essay discussing how the two degrees fit into applicant's career development

## Graduation Requirements

(60 Semester Hours)

Students enrolled in the Dual Degree MSE/MBA Program are jointly advised by their Seaver College academic advisor and the MBA Program advisor in the College of Business Administration. It is recommended that incoming students take 12 semester hours of Civil Engineering courses per fall and spring semester and complete the MSE in year one of the dual-degree program, then begin the MBA curriculum in year two.

Dual degree students will take a total of 24 semester hours of Civil Engineering graduate-level coursework and 36 semester hours of MBA courses. 15 semester hours from the Civil Engineering courses will also count towards the emphasis/concentration requirement for the MBA degree. 6 semester hours of the MBA courses that are taken as part of the MBA coursework will also count toward the MSE in Civil Engineering. Separately, the MSE degree requires 30 semester hours and the MBA degree requires 51 semester hours, for a total of 81 semester hours. The Dual Degree program lessens the load by 21 (15+6) semester hours.

## Suggested Curriculum Flowchart for the MSE in Civil Engineering/MBA Dual Degree Program

During the first semester of attendance, the student should prepare a program of study with their academic advisor. The 24 semester hours of required coursework are allocated as follows:

Code	Title	Semester Hours
<b>Year 1 (Summer, Fall, and Spring)</b>		
Required courses for each field of study		
<i>MSE in Civil Engineering with emphasis in Environmental Engineering</i>		
Required Core Courses		
CIVL 617	Water Treatment Processes	3
CIVL 625	Applied Fluid Mechanics <sup>1</sup>	3
CIVL 601	Sustainable Water Quality and Resources	3
CIVL 605	Aquatic Chemistry	3
ENVS 606	Applied Environmental Microbiology	3
Select one of the following:		0
CIVL 690	Comprehensive Oral Exam (Non-thesis students)	
CIVL 696	Thesis Defense (Thesis students)	

ENVS 696	Thesis Defense (Thesis students)	
<i>Technical Electives</i>		
Select three of the following:		9
CIVL 608	Contaminant Fate, Transport, and Remediation	
CIVL 618	Water Reuse and Desalination	
CIVL 619	Advanced Integrated Water Treatment Systems	
CIVL 626	Surface Water Hydrology	
CIVL 627	Urban Water Systems and Stormwater Management	
CIVL 628	Groundwater Hydrology and Sustainable Management	
CIVL 629	Groundwater Contaminant Transport and Remediation	
CIVL 647	Dams and Levees	
CIVL 651	Remote Sensing with Civil Engineering and Environmental Science Applications	
CIVL 653	Modeling Environmental and Water Resources Systems	
ENVS 607	Environmental Engineering and Science Lab	
ENVS 652	Spatial Data Analysis and Geographical Information Systems	
<i>Technical Electives</i>		
Select two of the following:		6
CIVL 671	Air Quality, Control, and Management	
CIVL 672	Sustainable Waste Management	
CIVL 673	Economics of Water and the Environment	
CIVL 674	Sustainable Engineering	
ENVS 680	Engineering Geology	
ENVS 681	Ecosystem Services in Urban Landscapes	
ENVS 682	Urban Coasts: Habitats, Stressors, and Resilience	
ENVS 683	Environmental Toxicology and Health Risk	
ENVS 684	Climate Change and Impacts	
ENVS 686	Climate Change Mitigation	
ENVS 687	Climate Change Adaptation and Resilience	
ENVS 688	Environmental Health	
ENVS 689	Sustainability, Health, and Equity	
<i>MSE in Civil Engineering with emphasis in Water Resources Engineering</i>		
Required Core Courses		
CIVL 601	Sustainable Water Quality and Resources	3
CIVL 625	Applied Fluid Mechanics <sup>1</sup>	3
CIVL 626	Surface Water Hydrology	3
CIVL 627	Urban Water Systems and Stormwater Management	3
CIVL 628	Groundwater Hydrology and Sustainable Management	3
CIVL 653	Modeling Environmental and Water Resources Systems	3
Select one of the following:		0
CIVL 690	Comprehensive Oral Exam (Non-Thesis Students)	
CIVL 696	Thesis Defense (Thesis Students)	
ENVS 696	Thesis Defense (Thesis Students)	
<i>Technical Electives</i>		
Select three of the following: <sup>2</sup>		9
CIVL 605	Aquatic Chemistry	

CIVL 608	Contaminant Fate, Transport, and Remediation	
CIVL 617	Water Treatment Processes	
CIVL 618	Water Reuse and Desalination	
CIVL 619	Advanced Integrated Water Treatment Systems	
CIVL 629	Groundwater Contaminant Transport and Remediation	
CIVL 647	Dams and Levees	
CIVL 651	Remote Sensing with Civil Engineering and Environmental Science Applications	
ENVS 606	Applied Environmental Microbiology	
ENVS 607	Environmental Engineering and Science Lab	
ENVS 682	Urban Coasts: Habitats, Stressors, and Resilience	
<i>Global Perspectives Electives</i>		
Select two of the following: <sup>2</sup>		6
CIVL 671	Air Quality, Control, and Management	
CIVL 672	Sustainable Waste Management	
CIVL 673	Economics of Water and the Environment	
CIVL 674	Sustainable Engineering	
ENVS 684	Climate Change and Impacts	
ENVS 686	Climate Change Mitigation	
ENVS 687	Climate Change Adaptation and Resilience	
ENVS 688	Environmental Health	
ENVS 689	Sustainability, Health, and Equity	
ENVS 680	Engineering Geology	
ENVS 681	Ecosystem Services in Urban Landscapes	
ENVS 682	Urban Coasts: Habitats, Stressors, and Resilience	
ENVS 683	Environmental Toxicology and Health Risk	
Master's Thesis Option <sup>3, 4</sup>		
<b>Subtotal</b>		63
<b>Year 2</b>		
<i>Fall Semester</i>		
MBAA 6020	Financial and Managerial Accounting	3
MBAA 6030	Global Economic Structures and Systems	1.5
MBAA 6040	Managing Markets and Customer Relationships	3
MBAA 6050	Managing Operations	1.5
MBAA 6090	Managing Information Systems	3
MBAA 6400	MBA Orientation	0
<i>Spring Semester</i>		
MBAA 6010	Managing People and Organizations	3
MBAA 6060	Strategic Management	3
MBAA 6070	Managing Financial Resources	3
MBAA 6080	Data, Models, and Decisions	3
MBAA 6402	The Elements of Becoming A Strategic Leader	0
<i>Summer Session</i>		
Business & Society Core		3
MBA Elective		3
<i>Spring Semester</i>		
MBAA 6100	Managing International Business	3
MBAA 6307	Management Leadership Workshop: Planning Your Future	0
<i>Summer Session</i>		
MBAA 691	Comparative Management Systems (CMS)	3

Total MBA Degree Requirement: 36 semester hours + 15 semester hours from MSE in Civil Engineering, satisfying the MBA degree requirement of 51 semester hours

Note: When the course requirements outlined above are completed, the student should submit an application for degree to be awarded both the MBA and the MSE in Civil Engineering. Students must file separately for each degree and both degrees must be awarded in the same term.

#### **Subtotal**

<b>Total Semester Hours</b>	<b>99</b>
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1

Students who have previously passed an upper division undergraduate- or graduate-level fluid mechanics course may substitute CIVL 625 Applied Fluid Mechanics with a Technical or Global Perspectives elective.

2

- Students may enroll in up to one CIVL 699 Independent Studies/ENVS 699 Independent Studies (up to 3 semester hours) with consent of the Associate Dean
- Students may enroll in up to two CIVL 695 Master Thesis (3 semester hours each) with consent of the Associate Dean
- Students may enroll in up to one 500- or 600-level course in another graduate program with consent of the Associate Dean

3

Preparation of a master's thesis under the guidance of a faculty member is optional in the Civil Engineering Master's programs. Students electing to perform a master's thesis must pass ENVS 696 Thesis Defense or CIVL 696 Thesis Defense in the semester they expect to complete their thesis. The defense is in the form of a written thesis and an oral presentation. A thesis committee, selected by the student and primary research advisor, determine if the student has mastered the subject matter of the thesis, understands the work done by others, and can critically assess that work and his/her own work. No later than two weeks prior to the thesis defense presentation, the student must provide their written thesis to their thesis committee for review. Students who elect to prepare a master's thesis are not required to take the ENVS 690 Comprehensive Oral Exam/CIVL 690 Comprehensive Oral Exam. Formal requirements may be obtained from the academic advisor. Please see our research page (<https://cse.lmu.edu/graduateprograms/msce/research/>) for further information on research opportunities.

Thesis students also have the option to enroll in a 3 semester hour master's thesis Independent Study (ENVS 695 Master Thesis or CIVL 695 Master Thesis) in any term with academic advisor and thesis advisor consent. The master's thesis Independent Study can satisfy an elective requirement, may be taken a maximum of two times, and may be taken only once in a semester.

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**Total MSE Degree Requirement: 24 semester hours + 6 semester hours from MBA, satisfying the MSE degree requirement of 30 semester hours**