

# CIVIL ENGINEERING - MASTER OF ENGINEERING IN CIVIL ENGINEERING

The Master of Engineering degree in Civil Engineering (M.E. in CE) is a coursework only degree and several courses are offered online. The M.E. in CE degree requires a total of 30-31 credit hours consisting of one general elective course (3 credit hours); seven technical electives in Civil, Environmental, and/or Agricultural Engineering (21-22 credit hours); and two electives from engineering disciplines outside the department and/or other areas of interest outside the college (6 credit hours).

Prefix	Title	Credits
<b>General elective course</b>		<b>3</b>
C E 490	Introduction to Artificial Intelligence for Civil Engineers <sup>1</sup>	
C E 510	Introduction to Nondestructive Testing <sup>1</sup>	
C E 514	Numerical Methods in Civil Engineering <sup>1</sup>	
C E 535	Technical Communication for Engineers <sup>1</sup>	
<b>CE, ENVE, and A EN elective courses<sup>2</sup></b>		<b>21-22</b>
Seven courses to be selected from the following list of courses (numbered 450-599) <sup>3</sup>		
<i>Environmental Engineering</i>		
ENVE 456	Environmental Engineering Design	
ENVE 459	Environmental Microbiology <sup>1</sup>	
ENVE 487	Air Pollution Control Systems Design <sup>1</sup>	
ENVE 550	Aquatic Chemistry <sup>1</sup>	
ENVE 551	Unit Processes/Operation of Water Treatment <sup>1</sup>	
ENVE 552	Unit Processes/Operation of Wastewater Treatment <sup>1</sup>	
ENVE 557	Surface Water Quality Modeling <sup>1</sup>	
<i>Geotechnical Engineering</i>		
C E 457	Foundation Design	
C E 460	Site Investigation	
C E 470	Design of Municipal and Hazardous Waste Landfills	
C E 479	Pavement Analysis and Design <sup>1</sup>	
C E 485	Design of Earth Dams	
C E 507	Design of Earth Retaining Structures <sup>1</sup>	
C E 508	Advanced Soil Behavior	
C E 509	Deep Foundations <sup>1</sup>	
C E 579	Ground Improvement <sup>1</sup>	
C E 585	Slope Stability Analysis and Design	
<i>Structural Engineering</i>		
C E 469	Structural Systems	
C E 501	Advanced Mechanics of Materials <sup>1</sup>	
C E 502	Advanced Mechanics of Steel Structures <sup>1</sup>	
C E 515	Finite Element Methods <sup>1</sup>	
C E 544	Advanced Design of Steel Structures <sup>1</sup>	
C E 545	Advanced Concrete Design <sup>1</sup>	
C E 554	Wood Design <sup>1</sup>	
C E 555	Masonry Design	
C E 547	Bridge Engineering	
C E 571	Structural Dynamics <sup>1</sup>	
<i>Water Resources and Agricultural Engineering</i>		
C E 452	Geohydrology <sup>1</sup>	

C E 482	Hydraulic Structures	
C E 483	Surface Water Hydrology	
C E 531	Open Channel Hydraulics	
C E 557	Water Resources Development <sup>1</sup>	
C E 581	Ground Water Hydrology <sup>1</sup>	
C E 582	Statistical Hydrology	
A EN 459	Groundwater, Wells & Pumps	
A EN 478	Irrigation and Drainage Engineering	
<i>Transportation and Construction</i>		
C E 471	Transportation Engineering <sup>1</sup>	
C E 477	Engineering Economics and Construction Management <sup>1</sup>	
<b>MECE elective courses<sup>4</sup></b>		<b>6</b>
Two courses to be selected from the following list of courses (numbered 450-599) <sup>3</sup>		
<i>Chemical and Materials Engineering</i>		
CHME 479	Corrosion and Degradation of Materials	
CHME 567	Nanoscience and Nanotechnology <sup>1</sup>	
<i>Engineering Technology</i>		
E T 455	Cost Estimating and Scheduling	
E T 472	Intelligent Transportation Systems (ITS) <sup>1</sup>	
E T 480	Innovation and Product Development	
SUR 451	Spatial Data Adjustment II	
SUR 452	Surveying Practicum	
SUR 461	GNSS Positioning	
SUR 464	Legal Principles and Boundary Law II	
SUR 485	Emerging Techniques in Geospatial Technologies	
<i>Industrial Engineering</i>		
I E 459	Systems Thinking and Decision Making <sup>1</sup>	
I E 515	Stochastic Processes Modeling <sup>1</sup>	
I E 523	Advanced Engineering Economy <sup>1</sup>	
I E 533	Linear Programming <sup>1</sup>	
I E 534	Nonlinear Programming <sup>1</sup>	
I E 535	Discrete Optimization <sup>1</sup>	
I E 537	Large Scale Systems Engineering <sup>1</sup>	
I E 561	Advanced Safety Engineering <sup>1</sup>	
I E 563	Topics in Engineering Administration <sup>1</sup>	
<i>Mechanical Engineering</i>		
M E 456	Experimental Modal Analysis	
M E 502	Elasticity I <sup>1</sup>	
M E 504	Continuum Mechanics <sup>1</sup>	
M E 530	Intermediate Fluid Mechanics	
M E 533	Numerical Methods for Fluid Mechanics and Heat Transfer	
M E 557	Engineering Failure Analysis <sup>1</sup>	
M E 570	Engineering Analysis I <sup>1</sup>	
<b>Total Credits</b>		<b>30-31</b>

<sup>1</sup> Course offered online in the Fall, Spring, or Summer semester

<sup>2</sup> Electives should be chosen from at least 2 different areas (e.g., geotechnical and structural, environmental and water resources/agricultural)

<sup>3</sup> Up to 12 credit hours of undergraduate courses numbered 450-499 may be applied towards the M.E. in CE degree (excess of this limit requires approval of department head)

<sup>4</sup> Courses listed represent only a partial list of engineering electives that may be taken outside the department; courses in other areas of

interest outside the college may be taken including, but not limited to, environmental science, mathematics, statistics, geography, soil science, geology, business, economics, and management (all M.E. in CE electives must be approved by graduate advisor and department head)

New Mexico State University master's accelerated program provides **the opportunity for academically qualified undergraduate students** to begin working on a master's degree **during their junior and senior years** while completing a bachelor's degree. Typically, a bachelor's degree requires four years to complete, and a master's degree requires an additional two years. The master's accelerated programs allow students the opportunity to complete a graduate program in an accelerated manner. You can also check NMSU's catalog for additional information about our programs.

Please talk to an CE faculty advisor about your MAP plan and develop a course plan in consultation with the advisor. The faculty advisor should preferably be from the CE area of your interest.

## MAP Requirements

- The Graduate School allows qualified junior or senior students to substitute its graduate courses for required or elective courses in an undergraduate degree program and then subsequently count those same course as fulfilling graduate requirements in a related graduate program.
- Undergraduate students may apply for acceptance to the accelerated master's program after completing 60 semester hours of undergraduate coursework of which a minimum of 25 semester credit hours must be completed at NMSU.
- The grade point average must be at a minimum of 2.75.
- Students must receive a grade of B or higher in this coursework to be counted for graduate credit. If a grade of B- or lower is earned, it will not count toward the graduate degree.

## Accepted MAP Courses

The following courses are accepted for use in the MAP program, any other courses may be considered after a consultation with an advisor. An exception will need to be made to the degree audit in order for the additional course(s) to be included on both the Undergraduate and Graduate degrees.

Prefix	Title	Credits
For students completing their BSCE degree under the Geotechnical option:		
C E 457	Foundation Design	3
C E 470	Design of Municipal and Hazardous Waste Landfills	3
C E 471	Transportation Engineering	3
C E 477	Engineering Economics and Construction Management	3
C E 479	Pavement Analysis and Design	3
C E 485	Design of Earth Dams	3
C E 507	Design of Earth Retaining Structures	3
C E 508	Advanced Soil Behavior	3
For students completing their BSCE degree under the Structural option:		
C E 457	Foundation Design	3
C E 469	Structural Systems	3
C E 471	Transportation Engineering	3
C E 477	Engineering Economics and Construction Management	3

C E 501	Advanced Mechanics of Materials	3
C E 510	Introduction to Nondestructive Testing	3
C E 554	Wood Design	3
C E 555	Masonry Design	3

For students completing their BSCE degree under the Environmental option:

C E 457	Foundation Design	3
C E 470	Design of Municipal and Hazardous Waste Landfills	3
C E 477	Engineering Economics and Construction Management	3
ENVE 456	Environmental Engineering Design	3
ENVE 459	Environmental Microbiology	3
ENVE 487	Air Pollution Control Systems Design	3
ENVE 550	Aquatic Chemistry	3
ENVE 551	Unit Processes/Operation of Water Treatment	3
ENVE 552	Unit Processes/Operation of Wastewater Treatment	3

For students completing their BSCE degree under the Water Resources option:

A EN 459	Groundwater, Wells & Pumps	3
A EN 478	Irrigation and Drainage Engineering	3
C E 452	Geohydrology	3-4
C E 457	Foundation Design	3
C E 477	Engineering Economics and Construction Management	3
C E 482	Hydraulic Structures	3
C E 483	Surface Water Hydrology	3
C E 531	Open Channel Hydraulics	3
C E 557	Water Resources Development	3

*NOTE: No more than 4 courses from any of the lists above can be applied in the MAP for the Master of Engineering in Civil Engineering (MECE) degree.*