

**MASTER OF SCIENCE DEGREE**

The Master of Science Degree with option in Civil Engineering is designed to extend the education of practicing Civil Engineers; and to offer additional education to Civil Engineering graduates for career entry, or for preparation for further graduate study. Facilities for graduate study in Civil Engineering at California State University, Fresno are excellent. For detailed information about the graduate program at CSU, Fresno, see the *Graduate Bulletin*; available from the Office of the School of Graduate Studies.

**CIVIL ENGINEERING**(74 units engineering; 132 units total) <sup>1</sup>

FIRST SEMESTER		Units	SECOND SEMESTER		Units
C E 1, L	Plane Surveying.....	3	C E 2, 2L	Advanced Plane Surveying.....	3
C E 85	Introduction to Civil Engineering .....	1	Engr 70	FORTRAN IV Programming .....	2
Engr 26	Engineering Graphics .....	4	Math 76	Mathematical Analysis II.....	4
Math 75	Mathematical Analysis I.....	4	Phys 4A	Mechanics and Wave Motion.....	4
Hist 1½	American History .....	3	Pl Sc 2	American Govt and Institutions .....	3
		15			16
THIRD SEMESTER			FOURTH SEMESTER		
Engr 20	Engineering Mechanics: Statics.....	3	Engr 31	Engineering Materials .....	2
Math 77	Mathematical Analysis III .....	4	Math 81	Applied Analysis .....	4
Phys 4B	Electricity, Magnetism, Heat .....	4	Phys 4C	Light and Modern Physics .....	4
Chem 1A	General Chem & Qual Analysis .....	5	Chem 8	Elementary Organic Chemistry .....	3
		16	Geol 1	Physical Geology .....	4
					17
FIFTH SEMESTER			SIXTH SEMESTER		
Engr 121, L	Mechanics of Materials .....	4	C E 123, L	Soil Mechanics .....	3
C E 150	Transportation Planning & Design .....	3	C E 130	Theory of Structures .....	3
Engr 112	Engineering Mechanics Dynamics .....	3	C E 142, L	Water Supply & Wastewater .....	4
Engr 116, L	Thermodynamics-Fluid Mechanics A.....	4	Engr 136	Thermodynamics-Fluid Mechanics B.....	3
Soc Sci	See <sup>4</sup> .....	3	Humanities	See <sup>3</sup> .....	3
		17			16
SEVENTH SEMESTER			EIGHTH SEMESTER		
C E 124	Concrete Laboratory .....	1	C E 133	Steel and Timber Structures .....	4
C E 132	Reinforced Concrete .....	3	C E 180	Senior Project.....	1
C E 185	Civil Engineering Practice .....	1	Engr 182	Engineering Writing .....	1
Engr 160	Engineering Economy .....	2	App Elect	See <sup>2</sup> .....	6
Engr 110, L	Principles of Electrical Circuits.....	4	Humanities	See <sup>3</sup> .....	3
App Elect	See <sup>2</sup> .....	6	Soc Sci	See <sup>4</sup> .....	3
		17			18

<sup>1</sup> Students must satisfy the University's requirements in English.

<sup>2</sup> Approved Electives: Select from courses in one or more of the following groups; selection of asterisked courses requires the Dean's prior approval.

Environmental Water Quality: C E 140, 144;

Biol 133 \*, Micro 91 \*.

Structures: Engr 122, 131, 134, 135.

Surveying: C E 3, 101, 102, 104, 105.

Transportation: C E 101, 140, 151, 152, 153.

Water Resources: C E 140, 141, 143, 144; M E 137.

Additional approved electives: C E 190, 191T, 193;

Engr 161; I E 110.

<sup>3</sup> Social Sciences: Select from Anth 2, 3, 4; As Am 15; B1 S 38, 135; Crim 1, 132; Econ 1A, 1B, 101; Geog 3, 4; Hist 4, 5; La R 3, 5; NAS 103; Pl Si 1, 4, 5, 6; Psych 134; Soc 1, 2; W S 10.

<sup>4</sup> Humanities: Select from Art 1; Art H 10, 20; B1 S 25; Drama 1, 62; Engl 30, 76; Hist 1, 2; La R 7, 9; Phil 1; RTV 127, 128; W S 145, 168.

<sup>5</sup> Environmental Water Quality Students: With the Dean's approval, substitute Bot 10 for C E 2, 2L.