UNIVERSITY OF THE PACIFIC
CIVIL ENGINEERING

CIVIL ENGINEERING AT UNIVERSITY OF THE PACIFIC
The Civil Engineering program is widely known for its practical curriculum, high academic standards and student-centered emphasis. The program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

DEPARTMENT MISSION
The Department of Civil Engineering seeks to develop graduates who have the knowledge, skills, and qualities required for professional licensure, advanced level studies, and practice and leadership in the civil engineering profession.

CIVIL ENGINEERING PROGRAM EDUCATIONAL OBJECTIVES
+ Plan, design, construct, maintain, analyze, advance, and manage civil engineering systems
+ Pursue professional licensure and certifications
+ Engage in life-long learning and pursue advanced level studies
+ Demonstrate leadership skills through career advancement and active participation in the civil engineering profession and in the community.

COOPERATIVE EDUCATION CURRICULUM COMPONENT
Practical work experience (cooperative education or co-op) is an integral part of civil engineering education at University of the Pacific. All students who are U.S. citizens are required to complete 32 units of co-op, which entails a seven month work period. Consequently, earning a B.S. degree in civil engineering may take longer than four years. Experience gained during co-op gives Pacific civil engineering graduates a significant advantage when they seek employment after graduation.

CIVIL ENGINEERING PROGRAM REQUIREMENTS
Requirements for the degree of Bachelor of Science in Civil Engineering are listed on the reverse side of this flyer. These requirements include a minimum of 120 units in four general areas: civil engineering, engineering science, mathematics and science, and general education.

AREAS EMPHASIZED IN THE CURRICULUM
+ Environmental engineering – design and supervise the construction of systems for water treatment, waste disposal, and for air and water pollution control
+ Geotechnical engineering – design and supervise the construction of building foundations, tunnels, dams, and retaining walls
+ Structural engineering – design and supervise the construction of structures of various forms, including bridges and buildings
+ Water resources engineering – design and supervise the construction of systems for water supply, hydropower, irrigation, drainage, flood control, and navigation

To provide depth in one or more of these areas, students choose four civil engineering elective courses in addition to the core civil engineering curriculum.

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UNIVERSITY OF THE PACIFIC
School of Engineering and Computer Science

Effective Fall 2016

Requirements and Sample Curriculum for the Degree of Bachelor of Science in Civil Engineering

1st year fall	ENGR 10 – Dean's Seminar ..... 1 CIVL 15 – Civil Engineering Graphics ..... 3 MATH 51 – Calculus I ..... 4 PACS 1 – Pacific Seminar I ..... 4 GE Elective ..... 3 - 4 **Total units.....15-16**	**1st year spring**	PHYS 53 – Physics I ..... 5 MATH 53 – Calculus II ..... 4 PACS 2 – Pacific Seminar II ..... 4 CIVL 22 (CE elective). ..... 3 **Total units 16**
2nd year fall	ENGR 20 – Mechanics I (Statics) ..... 3 ENGR 19 – Comp. Applications in Engr .... 3 MATH 55 – Calculus III ..... 4 CHEM 24, 25, or 27 – Chemistry ..... 4 - 5 GE Elective ..... 3 - 4 **Total units.....17-18**	**2nd year spring / summer**	CIVL 60 – Water Quality ..... 4 ENGR 121 – Mechanics of Materials ..... 4 ENGR 45 – Materials Science ..... 4 MATH 57 – Differential Equations ..... 4 **Total spring units ..... 16** **---------- 2nd year summer ----------** EMGT 170 – Engineering Administration . 4 ENGR 120 – Mechanics II (Dynamics) ..... 3 Math/Science Elective ..... 3 - 4 ENGR 30 – Engineering Ethics (GEIIB) .... 3 GE Elective ..... 3 – 4 **Total summer units.....16-18**
3rd year fall	CIVL 130/130L – Fluid Mechanics I ..... 3/1 CIVL 132 – Intro. to Environmental Engr.. 4 Life/Geo Science Elective ..... 3 - 4 ENGR Elective (ECPE 41 or ENGR 122) 3 - 4 **Total units 15**	**3rd year spring**	CIVL 100 – Intro. to Structural Engr. ..... 4 CIVL 133 – Water Resources Engr. ..... 4 CIVL 140 – Intro. to Geotechnical Engr. ... 4 CIVL Elective. ..... 3 - 4 ENGR 25 – Professional Practice ..... 1 **Total units.....16-17**
4th yr fall	ENGR 181 – Co-op (summer of 3rd year) ... 16 ENGR 182 – Co-op (fall of 4th year) ..... 16 **Total Co-op units.....32**	**4th yr spring**	CIVL 180 – Engineering Synthesis ..... 4 Structural elective (CIVL 164, 165, or 166) 4 CIVL Design Elective. ..... 4 PACS 3 – Pacific Seminar III ..... 3 **Total units.....15**

Minimum number of units required = 120 plus 32 units of Co-op. This schedule presents all course requirements in a concise form. Degree completion time may vary based on units completed prior to enrollment, activities, interests, and constraints. (Civl – 45-47 units, Engr – 26-27 units, Math/Sci – 31-34 (Min 30 units req'd), Gen Ed – 20-23 units)

CIVL Electives: All Civil Engineering students are required to take a minimum of 4 courses (12 units minimum) of CIVL electives. Of these electives, one must be a structural design course (e.g., CIVL 164, CIVL 165, or 166) and another must be a nonstructural course from the design category.

Analysis:

CIVL 22	Geomatics
CIVL 134	Groundwater
CIVL 145	Engineering Geology
CIVL 160	Structural Analysis
CIVL 171	Water and Environmental Policy
CIVL 173	Sustainable Engineering
EMGT 174	Project Management
CIVL 197	Undergraduate Research

Design:

CIVL 136	Design of Wastewater Facilities
CIVL 138	Solid Waste Systems
CIVL 141	Foundation Design
CIVL 150	Transportation Engineering
CIVL 151	Heavy Construction Methods
CIVL 164	Structural Timber Design
CIVL 165	Structural Steel Design
CIVL 166	Reinforced Concrete Design
CIVL 191	Independent study (may also be Analysis)
CIVL 193	Special Topics (may also be Analysis)

Life/Geo Science Electives (one required): (other electives are subject to departmental approval)
BIOL 35, 41, 51, 61, GESC 41, 51, 53, 102, 148

MATH/Science Electives (may include Life/Geo Science Electives above plus): other electives subject to dept. approval
CHEM 27, 121, 123, 161, PHYS 55, 57 MATH 37, 39, 72, 110, 130, 131, 141, 145

General Education (GE) and GE Electives: