

# SCHOOL OF ENGINEERING

## CIVIL ENGINEERING PROGRAM

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### OVERVIEW

### PROSPECTUS

#### The Field

Civil engineering is the oldest branch of engineering and plays a major role in developing a society and civilization.

#### Relevance and Demand

The need for civil engineers in Guam and the region is projected to remain strong over the next five to 10 years in support of the Marines relocation and general construction demand as infrastructure ages. Civil engineers will be needed to manage projects to rebuild bridges, repair roads, and upgrade levees and dams.

UOG's School of Engineering offers a Bachelor of Science in Civil Engineering to meet the needs of local students and the workforce requirements of Guam and all of Micronesia and the neighboring regions of the Pacific and Asia.

#### Why UOG?

Students from the Pacific region enrolled in UOG's Civil Engineering Program will benefit from being able to study close to home and at a substantial savings compared to schools in other states or countries.

The School of Engineering is preparing to seek accreditation for its Civil Engineering degree program through the Engineering Accreditation Commission of ABET.

#### Career Possibilities

UOG Civil Engineering graduates will be valuable for Guam construction companies, consulting companies, municipalities, Guam Department of Public Works, Guam

Environmental Protection Agency, and more. Graduates will be primarily involved with the analysis, design, and development of structural systems, construction projects, transportation projects, environmental treatment facilities, and project management.

### LEARNING OUTCOMES

Students completing the Civil Engineering Program will have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics;
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare as well as global, cultural, social, environmental, and economic factors;
3. an ability to communicate effectively with a range of audiences;
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts;
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives;
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions;
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## DEGREE REQUIREMENTS

## GRADUATION REQUIREMENTS

The University will confer a bachelor's degree when the following conditions have been met:

- The faculty of the School of Engineering recommends the student for degree completion.
- The dean certifies that all requirements of the degree being sought have been completed.
- The student completes a minimum of 126 credit hours in acceptable coursework.
- The student meets the residency requirement.
- The student completes a minimum of 30 credit hours at the School of Engineering at the junior or senior level. These credits must include the design project, CEE-404 and CEE-405. Exceptions (normally not to exceed six hours) may be made in advance by the dean.
- The requirements of the core curriculum and the CE Program must be satisfied.
- The student holds a cumulative GPA of 2.0 or higher.
- Transfer credits in civil engineering and other technical areas are evaluated by the faculty of the Department of Civil Engineering. Transfer students can be awarded transfer credits for courses with a "C" grade or better and then only for courses that are applicable toward the Bachelor of Science in Civil Engineering curriculum.
- The student holds a 2.0 average GPA in all CEE courses
- The student meets the grade requirements for major, engineering courses, and course sequences established by the School of Engineering.

## PROGRAM REQUIREMENTS (127 CREDIT HOURS)

Description	Credit Hours
Mathematics	13
Sciences	20

Description	Credit Hours
General Engineering, Computer Science	8
Humanities and Social Sciences	30
Civil Engineering	56
<b>Total Credit Hours</b>	<b>127</b>

### General Education (47 credit hours)

Students must complete the [General Education requirements](#) listed in this catalog. Some of these courses are also Civil Engineering program requirements and may be applied toward both sets of requirements. Consult your [SENG academic advisor or major advisor](#) for recommendations that may count toward both General Education and major requirements.

### Mathematics (13 credit hours)

Course	Course Title	Credits	Term Offered
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
MA301	DIFFERENTIAL EQUATIONS	3	SPRING ONLY/ ALL YEARS

## Sciences (20 credit hours)

Course	Course Title	Credits	Term Offered
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ ALL YEARS
NS110	INTRODUCTION TO THE EARTH	3	AS REQUIRED
NS110L	INTRODUCTION TO THE EARTH LABORATORY	1	AS REQUIRED

Description	Credits
General Education Tier II Direction Building	3

## General Engineering, Computer Science (8 credit hours)

Course	Course Title	Credits	Term Offered
CEE100	ENGINEERING ORIENTATION	1	FALL/SPRING/ ALL YEARS
CEE101	ENGINEERING GRAPHICS	3	FALL/SPRING/ ALL YEARS
CS201	PROGRAMMING I	4	FALL/SPRING/ ALL YEARS

## Humanities and Social Sciences (30 credits)

Course	Course Title	Credits	Term Offered
EN110	FRESHMAN COMPOSITION	3	FALL/SPRING/ ALL YEARS
EN111	WRITING FOR RESEARCH	3	FALL/SPRING/ ALL YEARS
CT101	CRITICAL THINKING	3	FALL/SPRING/ ALL YEARS
CO210	FUNDAMENTALS OF COMMUNICATION	3	FALL/SPRING/ ALL YEARS

Description	Credits
General Education Tier II Humanities and Social Sciences	12
General Education Uniquely UOG	6

## Civil Engineering (56 credit hours)

Course	Course Title	Credits	Term Offered
CEE201	ENGINEERING STATICS	3	FALL/SPRING/ ALL YEARS
CEE202	ENGINEERING DYNAMICS	3	FALL/SPRING/ ALL YEARS
CEE203	MECHANICS OF MATERIALS	3	FALL/SPRING/ ALL YEARS
CEE204	MECHANICS OF FLUIDS	3	FALL/SPRING/ ALL YEARS
CEE301	STRUCTURAL ANALYSIS	3	FALL ONLY/ ALL YEARS
CEE302	ENGINEERING HYDRAULICS	3	SPRING ONLY/ ALL YEARS
CEE302L	ENGINEERING HYDRAULICS LAB	1	SPRING ONLY/ ALL YEARS
CEE303	GEOTECHNICAL ENGINEERING	3	FALL ONLY/ ALL YEARS
CEE303L	GEOTECHNICAL ENGINEERING LABORATORY	1	FALL ONLY/ ALL YEARS
CEE304	CIVIL ENGINEERING MATERIALS	3	FALL ONLY/ ALL YEARS
CEE304L	CIVIL ENGINEERING MATERIALS LABORATORY	1	FALL ONLY/ ALL YEARS
CEE305	EARTH STRUCTURES DESIGN	3	SPRING ONLY/ ALL YEARS
CEE306	REINFORCED CONCRETE STRUCTURES DESIGN	3	SPRING ONLY/ ALL YEARS
CEE307	INTRODUCTION TO	3	SPRING ONLY/ ALL YEARS

Course	Course Title	Credits	Term Offered
	ENVIRONMENTAL ENGINEERING		
CEE308L	INTRO TO SURVEYING AND LAB	3	SPRING ONLY/ ALL YEARS
CEE401	STEEL STRUCTURES DESIGN	3	FALL ONLY/ ALL YEARS
CEE402	FOUNDATION ENGINEERING	3	FALL ONLY/ ALL YEARS
CEE403	FUNDAMENTAL OF TRANSPORTATION ENGINEERING	3	SPRING ONLY/ ALL YEARS
CEE404	CIVIL ENGINEERING DESIGN I	2	FALL/SPRING/ ALL YEARS
CEE405	CIVIL ENGINEERING DESIGN II	2	FALL/SPRING/ ALL YEARS
CEE406	INTRODUCTION TO CONSTRUCTION MANAGEMENT	3	SPRING ONLY/ ALL YEARS
CEE407	CIVIL ENGINEERING PROFESSION	1	SPRING ONLY/ ALL YEARS

*\*Note: CEE-201 Course may apply to **General Education requirements.***

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