

The Hong Kong University of Science and Technology
Department of Civil and Environmental Engineering

Course code	CIVL 1100
Title of course	Discovering Civil and Environmental Engineering
Instructors	Anthony Kwan, LEUNG, Irene Man Chi, LO, Kit Ming, LAM
Teaching Assistants	To be confirmed
Prerequisites	None
Credit	3
Textbook(s) and/or Other materials	None
Course Objectives	An overview of civil and environmental engineering, infrastructure development and engineering ethics is provided. The course includes lectures and laboratory sessions, where laboratory sessions are primarily directed to students who require the development of feasible conceptual solutions for the analysis and design of the basic problems in structural, environmental and geotechnical engineering.
Topics	<ul style="list-style-type: none"> • Civil and Structural Engineering <ol style="list-style-type: none"> 1. Civil engineering and Society 2. Forces, moments and equilibrium 3. Loads on building structures 4. Trusses and three-hinged arches 5. Brief history of civil engineering and infrastructure development 6. Becoming a civil engineer • Environmental Engineering <ol style="list-style-type: none"> 1. Environmental engineering and management 2. Land decontamination and solid waste management 3. Water pollution control: water and wastewater treatment 4. Noise and air pollution control • Geotechnical Engineering <ol style="list-style-type: none"> 1. Engineering geology 2. Foundations for high-rise buildings 3. Landslide hazards and prevention 4. Underground constructions and land reclamation
Computer usage	None
Lab Projects	Yes, one lab from each discipline (Structural, Environmental, Geotechnical)
Class/lab schedule	One 110-minute lectures per week
Contribution to the professional component	33% understanding the role and major duties of a civil & structural engineer 33% understanding the role and major duties of an environmental engineer 34% understanding the role and major duties of a geotechnical engineer
Intended learning outcomes (ILO)	<ul style="list-style-type: none"> • Gains general and breadth understanding of the role and professional responsibilities of civil engineers from different disciplines • Recognizes the social responsibility, ethics and environmental sustainability in civil engineering projects • Acquires basic principles of engineering science in structural, environmental and geotechnical engineering to analyze simple civil engineering systems
Relationship to the program objective	<p>1. Provide professional skills in design, construction and management of civil infrastructure, as well as awareness of environmental sustainability (PEO1) The course conveys the general knowledge of the professional roles of civil & structural, environmental and geotechnical engineers in the design and construction of civil engineering systems. Students are made aware of the importance of considering environmental sustainability in engineering design.</p> <p>2. Expose students to real world engineering projects to improve their understanding of the profession (PEO4) The course introduces real world engineering projects to highlight the roles,</p>

	responsibilities and duties of civil & structural, environmental and geotechnical engineers. Case studies in each discipline are also introduced to help the students better understand the engineering practice and professions.
Relationship to program outcome	<p>1. Understand fundamental principles of engineering science (PO2) Students are taught with basic materials mechanics and engineering principles to analyze the behavior of simple civil engineering systems.</p> <p>2. Develop an appreciation of the breadth of civil engineering and acquire basic knowledge in several disciplines (PO7) Students acquire basic knowledge of the breath of civil engineering disciplines and gain deeper understanding on three major civil engineering disciplines, structural, environmental and geotechnical engineering.</p> <p>3. Instill a sense of professional responsibilities and the importance of ethical and societal considerations (PO11) Case studies are given in the course to make students aware of the importance of engineering ethics and social responsibilities when being a competent civil engineer. Importance of public health, safety and environmental conservation in engineering design is introduced.</p>
Assessment of Outcomes	<ol style="list-style-type: none"> 1. Assignments are given to students to learn the subjects (18%) 2. Laboratory test report is designed to simulate (24%) 3. Final exam is held to assess students' understanding in the subject during the learning process (58%)
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