The Hong Kong Polytechnic University

Subject Description Form

Subject Code	CSE1B02W
Subject Title	Civil Infrastructure and Society
Credit Value	3
Level	1
Pre-requisite / Co-requisite/ Exclusion	CEE students are allowed to take CSE1B02W.
Objectives	The objectives of the subject are to enable students to: o have a general overview of civil infrastructure around our society and the world, and understand infrastructure as a system of interrelated physical components; o appreciate how infrastructure affects nearly all aspects of our lives locally and globally such as economy, environment, society, ethics, security, safety, aesthetics, politics and sustainability. o appreciate how engineering technology be applied to address issues related to infrastructural developments; o understand the planning process and the controversial issues in relation to infrastructural developments in Hong Kong as megacities o empathize with people, groups and stakeholders affected by the infrastructural development and acquire interaction skills to communicate with affected stakeholders
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) develop a critical perspective for understanding the importance of infrastructure and how it is necessary for the functioning of society; (b) address critically how infrastructure affects nearly all aspects of our lives locally and globally such as economy, environment, society, ethics, security, safety, aesthetics, politics and sustainability; (c) continuously reflect on the future challenges in light of social, economic, environmental, technological changes and globalization, and actively engage in further enquiry and other life-long learning activities in relation to infrastructural developments; (d) consider critically the controversial issues in relation to the development of infrastructure with due emphasis on empathizing people, groups and stakeholders, and acquiring interaction skills to communicate with affected stakeholders (e) acquire English language skills in both reading and writing from studying the context of infrastructure and society; This subject is so designed that students will be expected to do reading and

	substantive writing. Students will also be expected to apply systematic, critical, creative thinking in dealing with recent issues related to infrastructural developments. This definitely promotes higher order thinking and equips students with skills for active enquiry and life-long learning which are in line with the necessity of continuing professional development in engineering disciplines.
Subject Synopsis/ Indicative Syllabus	Introduction to infrastructure(Weeks 1-2): Water supplies, skyscrapers, highways, bridges, flood control, drainage, water pollution control, sewerage, new town development, town planning and slope protection. Functionality, life cycle and sustainability. Natural environment(Week 3): Interrelationship between infrastructure and land, water and air, the potential impacts of climatic change on infrastructure. History, heritage, and future(Weeks 4-5): Historical evolution of infrastructure such as roads, canals and bridges. Technological innovations for the improvement to infrastructure such as high speed rails, super-tall buildings, long span bridges, intelligent transport system and others. Infrastructure systems and changing constraints(Weeks 6-9): Infrastructure sectors and components, intra-sector system, inter-sector system. Interaction between the infrastructural development and society. Urbanization and globalization. Understanding how the systems affect, and are affected by society, ethics, security, safety, aesthetics, politics, environment, economy, planning, energy demand, sustainability and legal consideration. Planning and Public Engagement(Weeks 10-13): Government, stakeholders and the public. Public engagement approach. Interaction skills such as listening, questioning, reflecting, explaining, informing and summarizing skills to be acquired for understanding and communication.. Analysis of controversial issues regarding the recent infrastructural developments in Hong Kong .
Teaching/Learning Methodology	The course materials are delivered mainly through a combination of lectures, site visit and tutorials. Students acquire the fundamental knowledge through lectures and tutorials. Students will work together during tutorials, facilitated by the teaching staff, for various case studies and a project to reinforce their knowledge acquired during lectures. In particular, case studies allow students to review these social issues and the project requires students to understand the planning process and the pros and cons of recent infrastructural developments in Hong Kong and the world. During the site visit, engineers and/or managers will outline the necessary skills required for sustainable design and construction of an engineering project or operation facility, and impacts of the project to daily lives of the community as well as the neighbourhood. **EW and ER requirements** Extensive reading of the designated references is required in this subject for enhancing students' reading skills as well as the fulfilling the ER requirement. Interactive online learning resources and tutorials are developed and provided by ELC for students acquiring necessary reading and writing skills for academic learning in English.

	Two "embedded tutorials" led by ELC teachers will be arranged in small groups for providing and discussing detailed feedback on the first and revised drafts submitted by students. The quality of their first and second submissions can also be compared and assessed.
Assessment Methods in Alignment with Intended Learning Outcomes	

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1.Quiz **(ER)**	25	✓	✓	✓	✓	✓	
2. Online assignments **(ER)**	25	✓	✓	✓	✓	✓	
3. Project report including public engagement and site visit **(at least 2500 words for EW)**	50	✓	✓	✓	✓	✓	
Total	100 %						

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Students will have finished reading the designated references on their own. The quiz (25%) and online assignments (25%) will be devised based on the designated references, teaching and learning materials for the purpose of fulfilling the ER requirement and assessing the intended subject learning outcomes.

The quiz is intended to assess the understanding of various items highlighted in the intended subject learning outcomes (a) to (e). Online assignments which include cases studies related to the infrastructural development and society are used to continuously assess the understanding of various items (a) to (e) acquired by the students. Each student will need to write articles to address the questions in case studies for the purpose of evaluating their learning achievement in items (a) to (e).

Project report is composed of two parts. The first part of the project report required to write at least 1250 words for a site visit is intended to let students have an appreciation of the on-going projects and highlight the necessary skills required for the sustainable design and construction. This part is designed to assess the intended learning outcomes (a) to (c) and (e). The second part of the project report further required to write at least 1250 words in relation to public engagement is intended to provide students with an opportunity to understand the planning process in a deeper dimension, and the pros and cons of recent infrastructural developments for the purpose of assessing the intended learning outcomes (a) to (e).

Students will be required to submit their first draft of the project report having at least 700 words by week 8, and their revised draft of at least 2000 words by

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<tr><td></td><td colspan="2">week 12 in order to get detailed feedback on the quality of their writing from ELC teachers. The submission of their final version of 2500 words is not later than week 13. The project report will be graded by the instructor (40%) and ELC (10%).

In order to pass this subject, students must pass the writing component, i.e., attain a minimum grade “D” in the writing component.</td></tr>
<tr><td rowspan="6">Student Study Effort Expected</td><td>Class contact:</td><td>Average hours per week</td></tr>
<tr><td>▪ Lecture / Tutorial / Site visit</td><td>3 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>▪ Self study</td><td>3 Hrs.</td></tr>
<tr><td>▪ Preparation for assignments and reports</td><td>3 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>9 Hrs.</td></tr>
<tr><td>Reading List and References</td><td colspan="2">Essential References

Brammer, L.M. (2003). The helping relationship: Process and skills. Boston: Allyn & Bacon. (Ch.2&4) (10,000 words of reading)

Hargie, O. (2019). The handbook of communication skills (4th ed.). Abingdon, Oxon: Routledge. (Ch.6&7) (10,000 words of reading)

Lee, E.W.Y., Chan, E.Y.M., & Chan, J.C.W. (2013) Public Policymaking in Hong Kong : Civic Engagement and State-society Relations in a Semi-democracy.(Ch.1-4&6) (20,000 words of reading)

Penn, M.R., & Parker, P.J. (2012) Introduction to Infrastructure : An Introduction to Civil and Environmental Engineering. Hoboken, N.J. : John Wiley & Sons. (Ch.1-5, 7-8,11-18) (60,000 words of reading)

Supplementary References

Dandy, G., Daniell, T., Foley, B. & Warner, R. (2018) Planning and Design of Engineering Systems. CRC Press 2018 3rd Edition.

Gerston, L.N. (2008) Public policymaking in a democratic society : a guide to civic engagement, 2nd Ed., Armonk, N.Y. : M.E. Sharpe.

Grigg, N.S., Criswell, M.E., Fontane, D.G., & Siller, T.J. (2001) Civil Engineering Practice in the Twenty-first Century: Knowledge and Skills for Design and Management. Reston, Va.: American Society of Civil Engineers.

Kennard, M. (2016) Civil Engineering Procedure, 7th edition. Institution of Civil Engineers. London: ICE.

Lenihan, D. (2012) Rescuing Policy. The Case for Public Engagement. Ottawa: Public Policy Forum.</td></tr>
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	CEDD (2018) Project Administration Handbook for Civil Engineering Works. Chapter 1 - Project Planning. HKIE(2011) Ethics in Practice. A Practical Guide for Professional Engineer. 周子京(2003) 工程人生 ： 香港基建五十年. 香港 ： 香港大學出版社