Subject Description Form

Subject Code	CSE1BN02
Subject Title	Civil Infrastructure and Society
Credit Value	3
Level	1
Pre-requisite / Co-requisite/ Exclusion	CEE students are allowed to take CSE1BN02.
Objectives	The objectives of the subject are to enable students to: 1. have a general overview of civil infrastructure around our society and the world, and understand infrastructure as a system of interrelated physical components; 2. 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. 3. appreciate how engineering technology be applied to address issues related to infrastructural developments; 4. understand the planning process and the controversial issues in relation to infrastructural developments in Hong Kong as megacities 5. 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

	with 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: Water supplies, skyscrapers, highways, bridges, drainage, sewerage, new town development, town planning and slope protection. Functionality, life cycle and sustainability. Natural environment: Interrelationship between infrastructure and land, water and air, the potential impacts of climatic change on infrastructure. History, heritage, and future: Historical evolution of infrastructure such as roads, canals and bridges. Technological innovations for the improvement to infrastructure such as super-tall buildings, long span bridges, intelligent transport system and others. Infrastructure systems and changing constraints: Infrastructure sectors and components. 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: Government, stakeholders and the public. Public engagement approach and 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 visits, engineers and/or managers will outline the necessary skills required for sustainable design and construction of an

<table>
<tr><td></td><td>engineering project or operation facility, and impacts of the project to daily lives of the community as well as the neighborhood.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="5">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td></tr>
<tr><td>1.Quiz</td><td>25%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>2. Assignments</td><td>25%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>3. Project report</td><td>25%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>4. Site visit report</td><td>25%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td>✓</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="5"></td></tr>
</table>
Students must pass all the assessments and achieve a passing overall score / grade to pass the subject.

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

The quiz is intended to assess the understanding of various items highlighted in the intended subject learning outcomes (a) to (e).

Two 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 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).

Site visit report 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 together with impacts of the project to daily lives of the community as well as the neighborhood. This part is designed to assess the intended learning outcomes (a) to (c) and (e).
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<tr><td></td><td>Class contact:</td><td></td></tr>
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Student Study Effort Expected	▪ Lecture	29 Hrs.
	▪ Tutorial	6 Hrs.
	▪ Site visit	4 Hrs.
	Other student study effort:	
	▪ Self-study	39 Hrs.
	▪ Preparation for assignments and reports	39 Hrs.
	Total student study effort	117 Hrs.
Reading List and References	**Essential References** Brammer, L.M. (2003). The helping relationship: Process and skills. Boston: Allyn & Bacon. (Ch.2&4) Hargie, O. (2019). The handbook of communication skills (4th ed.). London: Routledge. (Ch.6&7) 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) 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) **Supplementary References** Dandy, G., Walker, D., Daniell, T. & Warner, R. (2018) Planning and Design of Engineering Systems**.** 3rd edition. CRC Press. 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. ICE (2016) Civil Engineering Procedure, 7th edition. Institution of Civil Engineers. London. Lenihan, D. (2012) Rescuing Policy. The Case for Public Engagement. Ottawa: Public Policy Forum. CEDD (2020) 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