Subject Description Form

Subject Code	CSE573
Subject Title	Facade Engineering
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Recommended background knowledge: Students are expected to have undergraduate knowledge in structural engineering.
Objectives	a. To provide students fundamental knowledge in façade design, fabrication and engineering analysis. b. To describe design considerations of façade structures and to discuss causes of potential problems in façade systems. c. To introduce good installation practice. d. To understand the testing methods and techniques for façade.
Intended Learning Outcomes	Upon completion of the subject, students will be able: a. to apply the basic knowledge and techniques to design of façade; b. to understand the deficiencies of façade systems; c. to realise the role of a façade engineer in a construction project; and d. to understand the serviceability and ultimate requirements for façade systems.
Subject Synopsis/ Indicative Syllabus	**Keyword Syllabus** i) Properties of glass, aluminium and sealants as principal elements in façade structures Basic properties; tensile compressive and bending strengths; spontaneous breakage due to nickel sulphide; heat soak test. ii) Design codes for glass and aluminium structures Design methodology; linear vs non-linear analysis for glass panels; local buckling check of aluminium structures; pressure equalisation system; hard-seal approach against water leakage. iii) Computer analysis and design Use of software in solving engineering problems; design of pre-tensioned glass wall systems; glass panels of irregular shapes. iv) Performance tests Full and small scale tests for façade systems and elements.

<table>
<tr><td>Teaching/Learning Methodology</td><td>Lectures followed by assignment and test will be arranged to ensure a successful transfer of knowledge to students.</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="4">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></tr>
<tr><td>1. Continuous Assessment</td><td>50%</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2. Written Examination</td><td>50%</td><td>√</td><td></td><td></td><td>√</td></tr>
<tr><td>Total</td><td>100%</td><td colspan="4"></td></tr>
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Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Continuous assessment will be based on coursework assignments and computer works.

Written examination is evaluated by final examination.

Students must attain at least Grade D in both coursework and final examination (whenever applicable) in order to attain a passing grade in the overall result.
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<tr><td>Reading List and References</td><td>

British Standards Institution BS8118, Structural Uses of Aluminum, 1988.

Canadian General Standards Boards, Structural Design of Glass for Buildings, 1989.

Code of practice for structural uses of concrete Hong Kong, Buildings Department. 2013.

Code of practice for structural uses of glass, Hong Kong, Buildings Department. 2018.

Code of practice for structural uses of steel, Hong Kong, Buildings Department. 2011.

European Standard, CEN, Eurocode-3, Design of Steel Structures, 2005.

Structural Uses of Glass in Buildings, the Institution of Structural Engineers, 1999.

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