Subject code	BRE350
Subject title	Project Management and Procurement
Credit value	3
Level	3
Pre-requisite	None
Objectives	This subject is intended to: <u>Project procurement</u> • Enable students to appreciate project procurement in context of available form of contracts (e.g., standard form of building contract, general condition of contract, and new engineering contract). • Enable student to understand traditional project delivery options of design-bid-build, design-built, design-build-operate, and design-build-finance-operate, along with alternate options such as new-engineering-contract and public-private-partnership. • Enable students to appreciate procurement process and bidding strategies at pre-contract stage, tendering stage, tender evaluation stage, contract award stage, and explain the tendering methods and procedures, including the use of bidding theory, analysis of tender performance, and selection of tenders. <u>Project management</u> • To become conversant with commonly applied terminology, methods, and practices in connection with project management. • To master the fundamental knowledge and techniques for project planning and control including Work Breakdown Structure, Project Cost Breakdown, Project Team Organization, Project Network Diagramming. • To master and apply mainstream analytical methods for bid price analysis, project schedule analysis (critical path method), schedule risk analysis (PERT) and cost control analysis (earned value management). • To appreciate the role of 3D BIM in communicating design information and facilitating project management. • To understand the critical components of quality and safety management in project management.
Intended learning outcomes	Upon completion of the subject, students will be able to: <u>Project procurement</u> (a) Understand key terminologies of project procurement in context of contractual and tendering responsibilities. (b) Articulate knowledge on construction procurement practice, including tendering systems, tendering strategies, tendering process, tender evaluation, and tendering report. <u>Project management</u> (a) To be able to understand and apply analytical methods for unit-rate bidding, critical path scheduling and earned value analysis for cost control.

<table>
<tr><td></td><td>(b) To be able to implement project planning application frameworks of Work Breakdown Structure, Project Cost Breakdown, Project Team Organization, Project Network Diagramming, Resource Leveling.
(c) To acquire fundamental concepts and lay the knowledge basis to pursue project management studies at advanced levels.</td></tr>
<tr><td>Subject synopsis / indicative syllabus</td><td><u>Project management</u>
• Introduction of Project Management in the construction context.
• Scope/Stakeholders/Communication management
• Time management.
• Cost management.
• Quality management.
• Safety management.
<u>Project procurement</u>
• Principles of procurement practices.
• Spirit of contracts in procurement.
• Tendering procedure and practice (employers' perspectives).
• Tendering documents.
• Tendering strategies (tenderers' perspectives).</td></tr>
<tr><td>Teaching / learning methodology</td><td>• Conceptual models and analytical methods will be delivered in lectures.
• Practice problems will be solved in tutorial classes.
• Practical knowhow and experiences will be shared in classes.
• E-learning materials and e-discussion forums will be provided.
• Basic software use (MS Excel/Project) will be instrumental but not mandatory; guidance on spreadsheet application will be provided to those in need of help.
• Guest lecture will be arranged to share the most updated project management and procurement practice in Hong Kong construction industry.</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="6">Intended subject learning outcomes to be assessed</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
<tr><td>1. Coursework 1</td><td>25%</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. Coursework 2</td><td>25%</td><td></td><td></td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>3. Examination</td><td>50%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="6"></td></tr>
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<tr><td></td><td colspan="2">Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
• Coursework 1: Students are given individual or group assignments relevant to project procurement. Upon completion of Coursework 1, students will be able to achieve learning outcomes (a) and (b).
• Coursework 2: Students are given individual or group assignments relevant to project management. Upon completion of Coursework 2, students will be able to achieve learning outcomes (c) and (d).
• For Coursework 1 and 2: Students will be assessed by individual written assignment.
• Examination is used to assess students' understanding of concepts and practices learned in the lectures and tutorials. Students will be able to achieve learning outcomes (a), (b), (c), and (d).
• Through students' effort in solving the problem exercises given in lectures and tutorials, the students will be able to achieve learning outcomes (a), (b), (c), and (d).</td></tr>
<tr><td rowspan="6">Student study effort expected</td><td>Class contact:</td><td></td></tr>
<tr><td>• Lectures</td><td>26 Hrs.</td></tr>
<tr><td>• Tutorials</td><td>13 Hrs.</td></tr>
<tr><td>Other student study effort:</td><td></td></tr>
<tr><td>• Independent study</td><td>96 Hrs.</td></tr>
<tr><td>Total student study effort</td><td>135 Hrs.</td></tr>
<tr><td>Reading list and references</td><td colspan="2"><u>Project management</u>
• Computer-based Construction Project Management (2001) Prentice Hall (by T. Hegazy, U of Waterloo)
• Project Management Institute. (2017). A guide to the project management body of knowledge. Newtown Square, Project Management Institute, Newtown Square, Pennsylvania, United States.
• Tang, S.L., Ahmed, S.M., Aoieong, R.T., and Poon, S.W. (2008). Construction quality management. Hong Kong University Press, Hong Kong.
• Tang, S.L., Poon, S.W., Ahmed, S.M., and Wong, K.W. (2008). Modern construction project management. Hong Kong University Press, Hong Kong.
<u>Construction procurement</u>
• Chan, A.P.C., and Yung, E.H.K. (2000). Procurement selection model for Hong Kong, 1st Edition, Department of Building and Real Estate, The Hong Kong Polytechnic University.
• Morledge, R. (2013). Developing a construction procurement strategy and selecting an appropriate route, 1st Edition, Royal Institution of Chartered Surveyors, United Kingdom.
• Greenhalgh, B., Squires, G., and Mahamadu, A.M. (2022). Construction procurement: complex property development. Routledge, United Kingdom.</td></tr>
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	• Hong Kong Institute of Architects, the Hong Kong Institute of Construction Managers, and the Hong Kong Institute of Surveyors. (2005). *Agreement and schedule of conditions of building contract for use in the Hong Kong Special Administrative Region, Standard form of building contract private edition, With quantities*. Hong Kong. • Hong Kong Institute of Architects, the Hong Kong Institute of Construction Managers, and the Hong Kong Institute of Surveyors. (2006). *Agreement and schedule of conditions of building contract for use in the Hong Kong Special Administrative Region, Standard form of building contract private edition, Without quantities*. Hong Kong. • Morledge, R. (2013). *Developing a construction procurement strategy and selecting an appropriate route*. Royal Institution of Chartered Surveyors, United Kingdom. • Masterman, D.J., Masterman, J., and Masterman, J.W. (2003). *An introduction to building procurement systems*. CRC Press, Florida, United States. • Naoum, S.G., and Egbu, C. (2016). Modern selection criteria for procurement methods in construction: A state-of-the-art literature review and a survey. *International journal of managing projects in business*, 9(2), 309–336. • Oo, B.L., and Tang, O.S. (2023). Information feedback in construction contract bidding: Perceptions of Hong Kong contractors. *International journal of construction management*, 23(6), 1044–1052.