

Subject Description Form

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-build, 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> • Demonstrate fluency in core project management terminology, methods, and practices, and develop a comprehensive project plan—including Work Breakdown Structure, project organization, and network diagrams—using industry-standard conventions. • Analyse and interpret project network models by converting logical relationships, evaluating path float and criticality, conducting schedule risk analysis using PERT, and quantifying the probability of meeting project milestones. • Apply earned value management (EVM) to integrate cost budgeting, progress tracking, and variance analysis, supporting proactive project control and informed decision-making throughout the project lifecycle • 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> (c) Demonstrate fluency in core project management terminology, methods, and practices, and develop a comprehensive project plan—including Work Breakdown Structure, project organization, and network diagrams—using industry-standard conventions. (d) Analyse and interpret project network models by converting logical relationships, evaluating path float and criticality, conducting schedule risk analysis using PERT, and quantifying the probability of meeting project milestones. (e) Apply earned value management (EVM) to integrate cost budgeting, progress tracking, and variance analysis, supporting proactive project control and informed decision-making throughout the project lifecycle.
Subject synopsis / indicative syllabus	<u>Project management</u> • Introduction of Project Management in the construction context. • Scope/Stakeholders/Communication management • Smart Relationships in Project Network Models • Path Float based Project Schedule Analysis. • Project Schedule Risk Analysis • Earned Value 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).
Teaching / learning methodology	• 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. • AI-assisted learning of selected advanced techniques will be instrumental. • Guest lecture will be arranged to share the most updated project management and procurement practice in Hong Kong construction industry.

Assessment methods in alignment with intended learning outcomes	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
			a	b	c	d	e	
	1. Coursework “Procurement”	25%	√	√				
	2. Coursework “Project Management”	25%			√	√	√	
	3. Examination	50%	√	√	√	√	√	
	Total	100%						

*Students must pass both coursework and examination components to pass the subject.

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

- Coursework “Procurement”: Students are given individual or group assignments relevant to project procurement. Upon completion of Coursework “Procurement”, students will be able to achieve learning outcomes (a) and (b).
- Coursework “Project Management”: Students are given individual or group assignments relevant to project management. Upon completion of Coursework “Project Management”, students will be able to achieve learning outcomes (c), (d) and (e).
- For Coursework “Procurement” and “Project Management”: 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), (d) and (e).

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), (d) and (e).

Student study effort expected	Class contact:	
	• Lectures	26 Hrs.
	• Tutorials	13 Hrs.
	Other student study effort:	
	• Independent study	96 Hrs.
	Total student study effort	135 Hrs.
Reading list and references	<u>Project management</u> • <i>Computer-based Construction Project Management</i> (2001) Prentice Hall (by T. Hegazy, U of Waterloo) • Project Management Institute. (2017). <i>A guide to the project management body of knowledge</i>. Newtown Square, Project Management Institute, Newtown Square, Pennsylvania, United States. • Lu, M., & Lam, H. C. (2009). Transform schemes applied on non-finish-to-start logical relationships in project network diagrams. <i>Journal of construction engineering and management</i>, 135(9), 863-873. • Lu, M., Liu, J., & Ji, W. (2017). Formalizing a path-float-based approach to determine and interpret total float in project scheduling analysis. <i>International Journal of Construction Management</i>, 17(4), 251-263. <u>Project procurement</u> • Chan, A.P.C., and Yung, E.H.K. (2000). <i>Procurement selection model for Hong Kong</i>, 1st Edition, Department of Building and Real Estate, The Hong Kong Polytechnic University. • Morledge, R. (2013). <i>Developing a construction procurement strategy and selecting an appropriate route</i>, 1st Edition, Royal Institution of Chartered Surveyors, United Kingdom. • Greenhalgh, B., Squires, G., and Mahamadu, A.M. (2022). <i>Construction procurement: complex property development</i>. Routledge, United Kingdom.	

	• Hong Kong Institute of Architects, the Hong Kong Institute of Construction Managers, and the Hong Kong Institute of Surveyors. (2005). <i>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</i>. Hong Kong. • Hong Kong Institute of Architects, the Hong Kong Institute of Construction Managers, and the Hong Kong Institute of Surveyors. (2006). <i>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</i>. Hong Kong. • Morledge, R. (2013). <i>Developing a construction procurement strategy and selecting an appropriate route</i>. Royal Institution of Chartered Surveyors, United Kingdom. • Masterman, D.J., Masterman, J., and Masterman, J.W. (2003). <i>An introduction to building procurement systems</i>. 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. <i>International journal of managing projects in business</i>, 9(2), 309–336. • Oo, B.L., and Tang, O.S. (2023). Information feedback in construction contract bidding: Perceptions of Hong Kong contractors. <i>International journal of construction management</i>, 23(6), 1044–1052.
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