Subject Description Form

Subject Code	BRE439
Subject Title	Engineering Contract Procedures
Credit Value	3
Level	4
Pre-requisite / Co-requisite / Exclusion	Nil
Objectives	To learn and apply general knowledge and applicable techniques in making critical decisions commonly associated with engineering contract procedures (project planning and control, claims, standard method of measurement, general condition of contract). To develop an understanding of the technological, practical, procedural, contractual and economic characteristics of engineering work including building services in building projects and civil engineering work.
Intended Learning Outcomes	1. Upon completion of the subject, students will be able to: 2. Possess the knowledge of the technological practices of engineering work including basic mechanics of material, explain more how the system/technology work. 3. Understand the practices of procurement and contractual arrangements of engineering work. 4. Understanding the Standard Method of Measurement including measurement unit, item coverage, preamble 5. Understanding the term and work mechanism is under Condition of Contract 6. Understanding the role of Drawings and Specification and Standard 7. Understanding the Construction Data Management in market 8. Understanding the contract interfacing management 9. Produce and evaluate the measurement and documentation of engineering work. 10. Appraise and apply the principle and practices of contractual procedures and administration in engineering work. 11. Communicate effectively with contractual negotiation skills.
Subject Synopsis/ Indicative Syllabus	1. Technological and cost appraisal of building services work and civil engineering work. 2. Procurement systems and contractual arrangements for building services and civil engineering projects. 3. Documentation, measurement and valuation of building services and civil engineering work. 4. Contract administration and procedure in building services and civil engineering projects. 5. Application of Government standard forms and new engineering contracts. 12. Interpreting the implication and impact of total float and analysis of project time delay. 13. Interpreting the implication and impact of resource availability on the project network model and project time extension. 14. Interpreting the implication and impact of non-finish-to-start relationships (commonly known as smart relationships) in project network diagrams upon project plan and schedule. 15. Analysing the breakdown and implications of resource rate schedules (i.e. hourly rates for various labour trades and major equipment submitted by a contractor as part of unit rate contract).

	16. Interpreting the implication and impact of potential earthwork quantity changes on project cost performance based on commonly used contract conditions.
Teaching/Learning Methodology	The course addresses general knowledge and applicable techniques in support of critical decisions commonly associated with engineering contract procedures (project planning and control, delay analysis, change orders, claims). In addition, the course places engineering contract procedures in the perspective of Hong Kong's current practices. Industry professionals experienced with contract administration and construction laws will serve as Visiting Lecturer to introduce commonly applied contract forms for building services on Hong Kong's public housing and infrastructure projects. Important terms will be elaborated by referring to specific contract terms and real-world application cases. Contract documentation and administration will form the main thrust of the course, to be underpinned on a comprehensive engineering work technologies and practices. Interactive lectures on the various technologies, practice and economic aspects will be conducted with a view of providing the background knowledge necessary for developing competence in documentation, procurement and administration in the field of engineering work. Interactive lecture and case studies will be utilized. Professional practitioners will be invited to facilitate problem-based learning on different contract strategies in different projects. Tutorial sections will be provided to practice knowledge and techniques learned, conduct case studies and guided discussions.
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. Coursework	50%	√	√	√	√	√	
2. Examination	50%	√	√	√	√	√	
Total	100%						

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

Examination and coursework will constitute the 50% and 50% of the overall mark for the subject respectively. The coursework mark will be based on the assignments by producing documentation, seminar presentations and discussions. At least two assignments with equal contribution will be set.

The assessment by examination will be based on a 2 hour examination. The coursework will be evaluated on; (i) a basic understanding of engineering work practices, economics of engineering work development, and its impact on the economy; (ii) a working knowledge of the contract documentation and administration of typical engineering work; (iii) a critical appraisal of alternative contract strategies, procedures and administration in engineering work.

A student may intend to apply Generative AI to facilitate homework such as literature review or essay writing style. To make the submission acceptable for grading, one needs to declare in the submission what tool and to what extent GenAI is applied and write down a clear statement reflecting on the usefulness and limitations. If the student does not apply AI tools in completing the homework, one needs to explicitly declare in the submission.

Student Study Effort Expected	Class contact:	
	▪ Lectures	26 Hrs.
	▪ Tutorials / Seminars	13 Hrs.
	Other student study effort:	
	▪ Self learning and recommended reading	120 Hrs.
	Total student study effort	159 Hrs.

Reading List and References

Recommended:

Construction Industry Council (CIC): Frequently Asked Questions on NEC3 Collaborative Contracts (Version 1 – September 2015). http://www.cic.hk/eng/main/aboutcic/publications/reference_materials/index.html

Wong K.D. (2008) *Target Cost Contracting in Hong Kong* – Chapter 12 of the book by PACE Publishing Ltd, namely "*Contractual and Regulatory Innovations in Building and Real Estate*" edited by Edwin Chan and Edward Yiu, Page 69 to 74, June 2008.

Wong K.D. (1998) "*Real Estate Development in Hong Kong"* Chapter 12 *Procurement & Tendering* and Chapter 13 *Contractual Arrangement and Construction Management*, a book by PACE Publishing Limited 1998 ISBN 962-7723-09-6.

Alhyari, O., & Hyari, K. H. (2022). Handling Unbalanced Pricing in Bidding Regulations for Public Construction Projects. Journal of Legal Affairs and Dispute Resolution in Engineering and Construction, 14(3). https://doi.org/10.1061/(asce)la.1943-4170.0000547

Lu, M., Liu, J. and Ji, W.Y. (2017) "Formalizing a Path-Float Based Approach to Determine and Interpret Total Float in Project Scheduling Analysis", International Journal of Construction Management, Taylor & Francis · July 2016 DOI:10.1080/15623599.2016.1207366.

Lu, M. and Lam, Hoi-Ching (2009) "Transform schemes applied on non-finish-to-start logical relationships in project network diagrams." Journal of Construction Engineering and Management, ASCE. 135(9), 863-873.

Lu, M. and Li, H. (2003), "Resource-activity critical path method for planning construction operations", Journal of Construction Engineering and Management, ASCE, 129(4), 412-420.

HKIA/HKIS Standard Form of Building Contract 2005 Edition.

HKSAR Government General Conditions of Contract for Civil Engineering Works 1999 Editions.

HKSAR Government General Conditions of Contract for Electrical and Mechanical Engineering Works 1999 Editions.

HKSAR Government General Conditions of Contract for Design and Build Contracts 1999 Editions.

	HKSMM4 (2005) *Hong Kong Standard Method of Measurement for Building Services*. Macmillan (1997) Measurement of Building Services PolyU Call Number TH6021.M87 1997. Prentice Hall (1998) Construction Contract Administration PolyU Call Number KF902. L5 1998. Prentice Hall (2011) Engineering and Construction Law and Contracts PolyU Call Number K891. B8 Y38 2011. **Supplementary:** Government of Hong Kong, (1992) *SMM for Civil Engineering Works*, Hong Kong Government Printer. ICE *Civil Engineering Standard Method of Measurement 4* Third Edition, Thomas Telford, London 2012. ICE *Civil Engineering Standard Method of Measurement 4* Examples 2014. New Engineering Contract http://www.neccontract.com Wong and Tse (1998) "*A Study of Quantity Surveying Practices in the Building Services Sector of Hong Kong*" Asia Pacific Building and Construction Management Journal, Page 9 - Page 15 Volume Four December 1998 ISSN 1024-9540. Wong K.D. (2006) **"***The application of a computerized financial control system for the decision support of target cost contracts***"**, ITcon Vol. 11, Special Issue Decision Support Systems for Infrastructure Management, Page 257-268, http://www.itcon.org/2006/19 Wong A K D (2006).