Subject Description Form

Subject Code	BRE505
Subject Title	Professional Workshop and Project
Credit Value	3
Level	5
Pre-requisite	BRE501/BRE585 Research and Consultancy Techniques for Construction and Real Estate or BRE587 Research Methods for Construction and Real Estate
Objectives	a. The primary objective of the subject is to strengthen students' capacity for independent, analytical study in the area of construction and real estate sectors in a professional context. b. In conjunction with the core subjects in construction and real estate studies, it forms an integrating component in the course. c. It is also used as a vehicle for students to engage in a critical assessment of their own work.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. select and pursue in depth, a non-trivial topic relevant to professional practice in the field of construction or real estate; b. complete a substantial piece of work autonomously, with guidance from a supervisor but without detailed day-to-day supervision; c. formulate a set of questions in a way that renders them amenable to rigorous investigation; d. discriminate and identify in the available written material which is useful to the topic under investigation; e. identify and make use of methods of investigation appropriate to the subject; f. draw conclusions that are based on the work undertaken and relevant to construction management and assess the limitations of those conclusions; g. write up a comprehensive report and present an individual project in an appropriate style.
Subject Synopsis/ Indicative Syllabus	The key learning strategy for the subject is that of learning by doing. Students are expected to work independently and individually, reflecting on the experience of the work in progress and feedback from the supervisor. The principle educational aims for the subject are to promote the following abilities and disciplines: • Self learning • Independence of thought • Critical evaluation • Formulation and research of complex problems • Communication of complex ideas and conclusions
Teaching/Learning Methodology	The subject consists of an introduction workshop at the first week of the semester outlining the requirement of the subject. Students then submit their research proposal and will be allocated supervisors according to their areas of research interest. Students will then work independently and meet with their

<table>
<tr><td></td><td>supervisors regularly for supervision. Students are required to present their research findings in class and submit the final reports for assessment.
• Small group meetings
• Individual presentation
• Independent study
• Individual assignment
• Self-study</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., b.</td><td>c., d.</td><td>d., e.</td><td>f.</td><td>g.</td></tr>
<tr><td>1. Proposal*</td><td>15%</td><td>5%</td><td>5%</td><td>-</td><td>-</td><td>5%</td></tr>
<tr><td>2. Presentation*</td><td>15%</td><td>5%</td><td>-</td><td>5%</td><td>-</td><td>5%</td></tr>
<tr><td>3. Research-based paper*</td><td>70%</td><td>-</td><td>25%</td><td>15%</td><td>20%</td><td>10%</td></tr>
<tr><td>Total</td><td>100%</td><td colspan="5"></td></tr>
</table>
*Students are required to pass all the specific assessment methods/tasks to pass the subject.

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

The assessment is 100% by coursework. Assessment criteria will normally be explicitly linked to the learning outcomes for the subject and will be distributed to students as they embark on the subject, usually at the first workshop, which precedes the subject. The assessment criteria for the individual assignment are given in the Table above.</td></tr>
<tr><td>Reading List and References</td><td>Fellows, R. and Liu, A. (2008), Research Methods for Construction, 3rd Edition, Wiley-Blackwell.

Lester J.D. and Lester J.D. (2007). Writing Research Papers; a complete guide, 12 Edition, Longman.</td></tr>
</table>

Subject Description Form

Subject Code	BRE506
Subject Title	Principles of Project Management
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject aims to enrich students' knowledge and skills in project management.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Understand the principles of Project Management Body of Knowledge (PMBOK); b. Learn the skills in managing projects with cross-functional teams and external parties; c. Apply project management techniques at workplaces aiming at shorter lead time, reduced costs, improved quality and enhanced relationship with the concerned parties.
Subject Synopsis/ Indicative Syllabus	**Overview of project management:** characteristics of project; characteristics of project management; defining project management; responsibilities of project managers; meaning of PMBOK. **Project integration management:** definition of integration management; project stakeholders; project objectives and trade-offs; project life cycles; project plan; project execution; overall project change. **Project scope management:** meaning of scope; development of a project charter; scope statement; work breakdown structure (WBS). **Project time / schedule management:** project master schedules; defining activities; estimating activity durations; logic networks; methodology for network analysis; identifying the critical path; schedule control. **Project cost management:** meaning of cost management; process of cost management; resource planning; cost estimating; cost budgeting; cost control; value management. **Project quality management:** source of failure; possible causes for cost related errors; overview of quality management; quality planning; quality assurance; quality control. **Project resource management:** overview of project human resource management; organizational planning; estimating activity resources; staff acquisition; team development. **Project communications management:** general communication concept; process of project communication; best practice for project communication.

	Project risk management: process of project risk management; risk identification; risk quantification; risk response development; risk response control. **Project procurement management:** process of procurement management; procurement planning; solicitation planning; solicitation; source selection; contract administration; contract close-out. **Project stakeholder management:** process of identifying stakeholders; process of planning stakeholder management; process of managing stakeholder engagement; process of controlling stakeholder engagement.
Teaching/Learning Methodology	Lectures and seminars will be run throughout the semester period. A lecture schedule outlining the topics to be discussed throughout the three weekend daytime workshops will be informed to students in the first lecture of the semester. During the lecture period, the lecturers will introduce and discuss the topics, with frequent reference to, and examination of, the recommended textbook, published research papers or other reference materials whenever deemed appropriate. Apart from the face-to-face lecture classes, students are required to form small groups to write a group assignment report based on a set of assigned questions and scenarios in relation to project management in the construction sector or other industry sectors. Students are encouraged to apply their concepts and knowledge learned from the subject, and their hands-on working experience at their workplaces, to tackle the assignment questions. It is the students' ultimate responsibilities to ensure that no plagiarism is committed in their group assignment reports. So students should have checked their works against plagiarism by using some common plagiarism detection and scanning tools (e.g. Turnitin program) before submitting their completed group reports for assessment. Students should submit and retain their "final scanned" electronic copy of their completed group written reports (with the Similarity Index and AI-text Indicators shown) at the same location of the blackboard subject website for perusal and inspection by the subject lecturers. **Honour Declaration Form on the Use of Generative AI (GenAI) Tools in Subject Assignments** **PolyU GenAI App** (source: https://genai.polyu.edu.hk) Students are required to declare the use of any Generative AI (GenAI) tools for brainstorming or generating initial ideas, literature search or writing of assignment reports (e.g. ChatGPT, DeepSeek, Poe, Google Bard, Microsoft 365 Copilot Chat, Qwen 通义千问, etc) in preparing their submitted work, and where and how they have been used. Therefore, students need to submit their completed Honour Declaration Forms (one form for one student for individual assignment whereas one form for one group for group assignment) which should be included at the end of their submitted assignments as a kind of mandatory requirement for perusal and reference by the subject lecturers. If students have adopted AI-generated texts or materials in their work, they must properly cite and reference them in accordance with accepted academic conventions and citation styles. Students may refer to the *Guidelines for Students on the Use of Generative Artificial Intelligence* (source:

	https://www.polyu.edu.hk/ar/students-in-taught-programmes/use-of-genai) developed by the Academic Registry (AR) of PolyU for reference.
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.			
1. Coursework (Individual assignment and Group written report	50%	✓	✓	✓			
2. Examination (2 hours)	50%	✓	✓	✓			
Total	100 %						

Students are required to pass all the specific assessment methods / tasks (**both coursework and examination separately**) in order to pass the whole subject.

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

Coursework (Individual assignment and Group written report)

The designed individual and group assignment questions are intended to assess the level of students' knowledge and understanding of various underlying functions of project management as defined by the PMBOK Guide used for projects, and then to apply learned knowledge and their hands-on working experience at their workplaces to perform main project management functions on different types of construction projects.

The individual assignment requires students to develop a project plan and schedule for a small wooden house construction project, with emphasis on project description including products, processes and logical sequences, project network diagramming to facilitate the communication of project management in general, and to lay the basis for project planning and scheduling in particular. The group-based assignment requires writing a "method statement" report based on the project information as provided to communicate the project development and construction processes to all the stakeholders while making connections with those relevant basic functions as defined by the Project Management Body of Knowledge (PMBOK) Guide.

Examination (2 hours)

The examination questions attempt to test students' knowledge and understanding of various underlying functions of project management as defined by the PMBOK Guide used for projects, and then to analyze different hypothesized scenarios to provide straight answers or logical arguments by citing relevant both local and international case study projects for proper illustration.

Reading List and References	1. Dennis P. Slevin, David I. Cleland and Jeffrey K. Pinto (2004). *Innovations: Project Management Research*. 2. David I. Cleland and Lewis R. Ireland (2010). *Project Manager's Portable Handbook*, 3rd edition. 3. Development Bureau (2018). *Construction 2.0 - Time to Change*, Report of the Project Cost Management Office, Development Bureau, Hong Kong SAR Government, Hong Kong on the future of the local construction industry - the challenges and how these can be addressed, September, 53 pages (URL: https://www.psgo.gov.hk/en/c20.html). 4. Erling S. Andersen, Kristoffer V. Grude and Tor Haug (2009). *Goal Directed Project Management: Effective Techniques and Strategies*, 4th edition. 5. Frederick Harrison and Dennis Lock (2016). *Advanced Project Management: A Structured Approach*, 4th edition. 6. Gary Heerkens (2006). *The Business-savvy Project Manager: Indispensable Knowledge and Skills for Success* 7. Harold Kerzner (2004). *Advanced Project Management: Best Practices on Implementation*, 2nd edition. 8. Harold Kerzner (2022). *Project Management: A Systems Approach to Planning, Scheduling and Controlling*, 13th edition. 9. John M. Nicholas and Herman Steyn (2017). *Project Management for Engineering, Business and Technology*, 5th edition. 10. Paul A. Tedesco (2006). *Common Sense in Project Management*. 11. Project Management Institute (2013). *A Guide to the Project Management Body of Knowledge (PMBOK Guide 2013)*, 5th edition. 12. Project Management Institute (2017). *A Guide to the Project Management Body of Knowledge (PMBOK Guide 2017)*, 6th edition. 13. Project Management Institute (2021). *A Guide to the Project Management Body of Knowledge (PMBOK Guide 2021)*, 7th edition. 14. Rodney J. Turner (2016). *Gower Handbook of Project Management*, 5th edition. 15. Scott Berkun (2005). *The Art of Project Management*. 16. Thomas E. Uher and Martin Loosemore (2004). *Essentials of Construction Project Management*.

Subject Description Form

Subject Code	BRE511
Subject Title	Information Management for Construction and Real Estate
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject aims at understanding of how data and information is designed, created, used and managed in the construction industry with emphasis on information modelling and management at the project and organization levels.
Intended Learning Outcomes	By the end of this subject, students will be able to: a. understand the basic concepts of the creation and management of data and information within construction projects; b. understand contemporary issues in information management at project and organization level; c. apply basic building modelling knowledge to construction projects through the selection, development and implementation of information systems.
Subject Synopsis/ Indicative Syllabus	Information systems: information management; e.g. information distribution, access, securing and control; the strategic management of information and communication technologies assessing the business benefits of information technologies, knowledge management, IT and organization change. Understand current information systems and management procedures within the construction industry; relevant legislation impact of information systems; building information modelling; integrated property and construction industry databases; and construction project-based systems. Case studies from both large and small construction organizations will be used to illustrate current systems within the industry.

Teaching/Learning Methodology	• Lectures
	• Training exercises on information systems (including Microsoft Project, Autodesk Revit and Navisworks)
	• Independent study and teamwork
	  • Assignments
	  • Individual and team projects
	  • Case study and presentation

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			
1. Assignment	30%	✓	✓	✓			
2. Individual Report	30%	✓	✓	✓			
2. Group Report	40%	✓	✓	✓			
Total (Continuous Assessment*)	100 %						

*Students are required to achieve grade D or above in overall subject grade to pass the subject.

Assignments require students to work on questions to help them for understanding of fundamental knowledge of the management of data and information within construction projects.

Individual projects require students to work individually and submit an individual report that is focused on topics of IT-related information management application in construction projects.

Students will also need to work in a project team for the group project. Group project will be focused on potential applications of IT systems, BIM, AI, and Big Data analytics to solve existing practical problems during the life cycle of a construction project. By working together in a team environment and working on real-world working practices, students will be able to test information-management practices in the way to become creative and innovative practitioners.

Reading List and References

Shen, Q.G., Brandon, P., & Baldwin, A., (2009) Collaborative Construction Information Management, Taylor & Francis.

Eastman, C., Eastman, C.M., Teicholz, P., Sacks, R. & Liston, K. (2011). BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors, John Wiley & Sons.

Smith, D.M. & Tardi, F.M. (2009) Building information modeling: a strategic implementation guide for architects, engineers, constructors, and real estate asset managers, Jolm Wiley and Sons.

Electronic Journal of Information Technology in Construction, www.itcon.org.

CIC, Construction Industry Council (2014), Roadmap for Building Information Modelling in Hong Kong's Construction Industry.

CIC, CIC BIM Standards – General (August 2019); (Version 2 - December 2020) and (Version 2.1 - 2021)

	CIC BIM Standards for Architecture and Structural Engineering (Version 2 - December 2020); and (Version 2.1 - 2021); CIC BIM Dictionary (December 2020); and (2021);

Subject Description Form

Subject Code	BRE524
Subject Title	Urban Planning and Urban Design
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	The subject aims to provide student with a comprehensive perspective on urban planning and urban design issues with particular emphasis on the importance of urban planning and urban design in the land development process.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. understand the nature and development of urban planning; b. understand the basic concepts of urban design; c. apply urban planning and urban design concepts to analyze contemporary urban land use problems; d. develop a more in-depth understanding of urban planning and urban design issues in Hong Kong; e. develop ability to work in a team and manage to present research findings in a professional manner.
Subject Synopsis/ Indicative Syllabus	Topical studies: Nature of urban planning; theories of urban structure; conflict between urban planning and real estate development; problems of town planning in Hong Kong; public participation in urban planning; land use planning; urban redevelopment; urban design concepts and heritage conservation principles.
Teaching/Learning Methodology	Topics related to urban planning and urban design will be introduced by lectures. The subject also emphasizes case studies on local urban planning and urban design issues. Small group discussion will bring out initial understanding on the problems of urban planning and urban design in modern cities. Students are required to conduct urban planning/design projects and presentations for constructive criticism and exchange of ideas. Professionals/researchers in the urban planning and urban design fields may be invited to give guest lectures to provide most updated knowledge to the students.

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.	
Coursework:							
a) term project	50%	√	√	√	√	√	
b) term paper	50%	√	√	√	√	√	
Total	100 %						

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

Students are required to conduct urban planning and design projects. The projects require students to apply planning and design concepts to analyze a selected current land use planning issue. The learning outcomes are assessed by various means, such as group presentation, group report, term paper, and so on. Students are required to achieve grade D or above in overall subject grade to pass the subject.

Reading List and References

Birch, Eugenie Ladner (2009) *The Urban and Regional Planning Reader*, Routledge.

Cuthbert, A. (2003) *Designing Cities: Critical Readings in Urban Design*, Blackwell Publishers.

Lai, Lawrence Wai-Chung (2000) *Town Planning Practice*, Hong Kong University Press.

LeGates and Stout (2011) The City Reader, Routledge.

Levy, John M. (2011) *Contemporary Urban Planning*, Pearson/Prentice Hall.

Li, Y., Chen, X., Tang, B. S., & Wong, S. W. (2018). From project to policy: Adaptive reuse and urban industrial land restructuring in Guangzhou City, China. *Cities*, 82, 68-76.

Nissim, Roger (2016) *Land Administration and Practice in Hong Kong*, Hong Kong University Press.

Song, Yan and Ding, Chengri (2009) *Smart Urban Growth for China*, Lincoln Institute of Land Policy.

Scott Campbell and Susan Fainstein (2003) Readings in Planning Theory. Oxford, United Kingdom

- Wong, S.W., Tang, B.S. Liu, J.L., Liang, M and Ho, W. (2021). From "Decentralization of Governance" to "Governance of Decentralization": Reassessing Income Inequality in Periurban China. *Environment and Planning A: Economy and Space*. [DOI:10.1177/0308518X20988013]
- Wong, S.W., Tang, B.S. and Liu, J.L. (2021). Neoliberal State Intervention and the Power of Community in Urban Regeneration: A Tale

	of Three Village Redevelopment Cases in Guangzhou, China. *Journal of Planning Education & Research*. [DOI:10.1177/0739456X21994661] • Wong, S. W., Tang, B.S., Liu, J. (2020). Rethinking China's rural revitalization from an historical perspective. *Journal of Urban History*. [DOI: 10.1177/0096144220952091] [DOI: 10.1061/(ASCE)UP.1943-5444.0000586]. • Wong, S. W., Tang, B. S. and Liu, J. (2020). Village elections, grassroots governance and state power restructuring: an empirical study in Southern Periurban China. *The China Quarterly*, 241(March), 22–42. Wong, S.W., Tang, B.S. and Liu, J.L. (2018).Village Redevelopment and Desegregation as a Strategy for Metropolitan Development in Southern China: Some Lessons from Guangzhou City. *International Journal of Urban and Regional Research*, 42 (6), 1064-1079. Yung, EHK and Chan, EHW (2012) Implementation challenges to the adaptive reuse of heritage buildings: Towards the goals of sustainable, low carbon cities. *Habitat International*, 36(3), 352-361. Yung, E.H.K., Langston, C., & Chan, E.H.W. (2014) Adaptive reuse of shophouses in urban renewal districts in Hong Kong, *Cities*, 39 , 87–98 Yung, E.H.K. & Chan, E.H.W. (2015) Re-examining the pro-growth ideology in cities: Conservation of historic properties in Hong Kong, *Urban Review Affairs,* 32 (4): 513–35. HKSAR Government Publications: *A Report on the updated area assessments of industrial land in the territory* (2006) Planning Department *Building Coordinated and Sustainable World-Class City-Region: Planning Study on the Co-ordinated Development of the Grater Pearl River Delta Townships* (2009) Planning Department Planning and Urban Design for a Liveable High-density City (2016) Planning Department *The Urban Design Guidelines for Hong Kong Executive Summary* (2002) Planning Department *The Urban Renewal Strategy* (2011) Planning Department

Subject Description Form

Subject Code	BRE525
Subject Title	Property Management
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	a. To allow the students to broaden and deepen their knowledge in the areas related to property management practices in Hong Kong. b. To provide lectures and seminars at postgraduate study level in property management theories and techniques in Hong Kong built environment. c. To develop the students' ability in applying theories and techniques in both research and practice in property management in Hong Kong.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. possess in-depth professional knowledge in specialist areas within property management and be able to apply their knowledge and contribute to professional leadership; b. think holistically and analytically in dealing with complex problems and situations pertinent to their professional practice. They will be versatile problem solvers with good mastery of critical and creative thinking skills, who can generate practical and innovative solutions; c. have an enhanced capability for continual professional development through inquiry and reflection on professional practice; d. be equipped with specific multi-disciplinary skills necessary in real estate development, urban planning and economics, asset management and maintenance management in order to meet desired needs within realistic constraints.
Subject Synopsis/ Indicative Syllabus	Building Management Ordinance, Deeds of Mutual Covenants, financial planning and control for property management, real estate appraisal and ethics in property management.
Teaching/Learning Methodology	The subject consists of a series of lectures and tutorials for the introduction of concepts and theory of property management and related operations. In supplement, case studies will be introduced to reflect the real life examples of property management and related techniques. Prominent external speakers will also be invited to present their own cases with the participation of students. • Lectures • Seminars / Workshops • Independent study • Self-study material • Assignments

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.		
1. Continuous Assessment (Individual presentation and participation in class / Group project)*	40%	√	√	√	√		
2. Examination*	60%	√	√	√	√		
Total	100%						

*Students are required to pass all the specific assessment methods/tasks to pass the subject.

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

Assessment methods are set in line with the intended learning outcomes.

Reading List and References

Buildings Department (2002), "Building Maintenance Guidebook", Hong Kong SAR Government.

City University of Hong Kong (2003), "Building Design and Development in Hong Kong", City University of Hong Kong Press.

Corgel, John B. (2001), "Real Estate Perspectives: An Introduction to Real Estate", 4e, McGraw-Hill.

David Flux, (2009), "Hong Kong Taxation: Law & Practice (2008-08 Edition)", The Chinese University Press.

Geltner, D and Miller, N. G. (2001), "Commercial Real Estate Analysis and Investment", Prentice Hall.

Goo, S.H., and Lee, A., (2003) *Land Law in Hong Kong*, Butterworths.

Horngren, Datar, and Foster (2009), "Cost Accounting: A Managerial Emphasis", 13e, Prentice Hall.

Malcolm Merry (2003), "Hong Kong Tenancy Law", Butterworths.

Paul Kent, Malcolm Merry and Megan Walters (2002), "Building Management in Hong Kong", Butterworths.

Rebecca Lai-har Chiu [Editor] (2006), "Professional Housing Management Practices in Hong Kong", Hong Kong University Press.

Robert C. Kyle (2000), "Property Management", 6e, Dearborn Financial Publishing.

Sihombing, J., and Wilkinson, M., (2002) *A Student's Guide to Hong Kong*

	Conveyancing, Butterworths. 方芳(2003), “物業管理”,上海財經大學出版社 方鎮光(2008), “建築物管理法律精解”, 香港大學出版社 香港地產學會(2000),“物業管理專業手冊”商務印書館

Subject Description Form

Subject Code	BRE527
Subject Title	Construction Practice in China
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject aims to introduce the real estate and construction management theories and techniques in the China's construction context for project managers.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. broaden and deepen their knowledge in the areas related to the practices in the construction and real estate industries in China; b. apply theories and techniques in both research and practices in construction management and real estate development in China.
Subject Synopsis/ Indicative Syllabus	**The construction practices in China** Construction market and resource management, construction project development procedures, construction procurement systems, competition and competitiveness, project supervision and project management, contract management, construction professionals' qualifications and practice and risk management in the construction business. **Real estate development in China** Introduction of the real estate market, real estate market practices, urban land use and development, real estate finance and foreign investment in real estate in China.
Teaching/Learning Methodology	The methods of teaching comprise: a. formal lectures for explaining and discussing important concepts and theories in the subject contents; b. workshops and seminars for students to present and discuss the key issues problem-based cases; c. professional study for students to exchange with professionals in China Mainland; d. guest speakers will be invited to deliver lectures on special topics.

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.				
1. Group Work*	50%	√	√				
2. Examination*	50%	√	√				
Total	100%						

*Students are required to pass all the specific assessment methods/tasks to pass the subject.

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

Assessment (50%) via a group work tests the students' ability to analyze and synthesis the construction theories and techniques for developing a business strategy in their own trade.

Examination (50%) tests the students' ability to apply the theories to scenarios drawn from their work experience, and to test whether they can articulate the relationships through discussions and arguments.

Reading List and References

Recommended:

Cao, J. (2015). *The Chinese real estate market: development, regulation and investment*. Abingdon, Oxon: Routledge.

Flanagan, R. and Li, S. R. (1997). *International construction: a perspective of China*, Chartered Institute of Building. (HD9715.C52 F57 1997)

Frederick, E. G. and Nancy, E. J. (2014). *Construction Project Management (4th Edition)*, Boston: Pearson. (TH438 .G62497 2014)

Howlett, A. (2009). *Chinese construction law: A guide for foreign companies (2nd ed.)*. CCH Asia Pte Limited.

Leung, Y.P.B.; Hui, C.M.E.; Tan, J.H., Chen, L. and Xu, W.B. (2011) SWOT Dimensional Analysis for Strategic Planning – The case of Overseas Real Estate Developers in Guangzhou, *International Journal of Strategic Property Management.*, Vol. 15, No. 2. 2011.

Shen, L.Y.; Leung, Y.P.B. and Hao, J.L. (2010) *Construction and Real Estate Practice in China,* The Hong Kong Polytechnic University Press, ISBN 978-962-367-692-2.

Walker, A., Levett, D., and Flanagan, R. (1998). *China: Building for Joint Ventures*, Hong Kong University Press. (HD9715.C52 C564)

Wei, Yigang; Lam, Patrick Tsun-Ip; Chiang, Yat-Hung; Leung, Barbara Yuk-Ping and Seabrooke, William (2014) An exploratory analysis of impediments to China's credit control on the real estate industry: An institutional perspective, Journal of Contemporary, Vol. 23, No. 86.

	Supplementary: Fainstein, S. S. (2010). *The Just City*. Ithaca: Cornell University Press. Fang D. P.; Li, M. E.; Fong, P. And Shen, L. Y. (2004). Risks in Chinese construction market – contractors' perspective*, Journal of Construction Engineering & Management ASCE,* Vol. 130, No. 6, 853-861. *International Journal of Construction Management* *International Journal of Project Management* *Journal of Construction Engineering and Management (ASCE).* *Journal of Construction Management and Economics* Logan, J. R., & Molotch, H. L. (2007). *Urban fortunes: The political economy of place*. Berkeley, CA: University of California Press. Shen, L. Y. and Hai, S. (2000). Project Supervision Practice in the Chinese Construction, *Journal of the Hong Kong Surveyor,* Vol. 11 (1), pp. 22-26. Shen, L. Y., Li, Q. M., Drew, D., and Shen, Q. P. (2004). Awarding construction contracts on multi-criteria basis in China, *Journal of Construction Engineering and Management ASCE,* Vol. 130, No. 3, 385-394. Shen, L. Y. and Song, W. G. (1998). Competitive Tendering Practice in Chinese Construction, *Journal of Construction Engineering and Management ASCE,* Vol.124, (2), pp.155-161. Shen, L. Y., Wu, W. C., and Ng, S. K. (2001). Risk Analysis for Construction Joint Ventures in China, *Journal of Construction Engineering and Management ASCE*, 127 (1). pp.76-82. Shen, L Y, Zhao, Z Y and Drew, D (2006). Strengths, Weaknesses, Opportunities and Threats (SWOT) for foreign-invested construction enterprises: a China study, *Journal of Construction Engineering and Management, ASCE,* Vol. 132, No. 9, 966-976. Zhao, Z.Y., Yao, J.H. and Tang, C. (2017) Chinese Contractors in the International Market: Business Distribution and Competitive Situation. In Wu, Y. et al. (eds.), Proceedings of the 20th International Symposium on Advancement of Construction Management and Real Estate, Springer, Singapore. Zou, P.X.W., Fang, D.P., Wang, S.Q. and Loosemore, M. (2007). An overview of the Chinese construction market and construction management practice, *Journal of Technology Management in China*, 2(2), pp. 163 – 176

Subject Description Form

Subject Code	BRE530
Subject Title	Economics for Urban Studies
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil [Recommended background knowledge: Introductory economics (e.g. Economics 101 or equivalent undergraduate subjects offered by other schools, BRE 263 Construction Economics and Finance, BRE 363 Construction Economics, etc.). Students are expected to possess a basic understanding of the concepts and principles of economics before registering for this subject.]
Objectives	This subject aims to equip students with an economic way of thinking towards the problems in connection to the built environment. Both the classic and state-of-the-art literature in economics will be introduced. Attention will be paid to how economics can shed light on the analyses of problems in urban context. The emphasis of the subject will be put on both economic theories and their applications in resolving problems in urban studies and exploring the economic value in urban development.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. use economic principles and state-of-the-art theories to help students develop an understanding of the real estate market and urban economy, b. acquire skills necessary to analyze urban development and policy implications to support decision-making process, and c. identify the root causes on contemporary issues and possible solutions in dealing with urban problems.
Subject Synopsis/ Indicative Syllabus	**The subject content can be broadly divided into three parts:** **Part I: Introduction to fundamental economic concepts** • State-of-the-art theories covering urbanization, location theories, and urban structure. • Analysis of the real estate market by use of Four-Quadrant Model, Hedonic model, and market efficiency models. • Determining land rents and land use patterns by bid rent theory. **Part II: Social and environmental dimensions of urban development** • Theories covering neighbourhood choice and segregation, urban transportation and congestion, and sustainable development within an urban context. • Comparison of various practices in achieving urban renewal by mitigating negative externalities. **Part III: Economic value of (re)development projects and government policies in urban context** • Valuation of development and redevelopment projects within the urban context by use of various appraisal methods. • Means and justifications for government intervention in urban development and renewal.

<table>
<tr><td>Teaching/Learning Methodology</td><td>Students are required to attend lectures and tutorials throughout the whole course. Lectures will be used to deliver the subject content, and tutorials will be organized in a highly interactive manner which will require students to read selected materials, use online discussion forum, and be prepared before attending the lectures. In-depth discussions and group presentations on problem solving and hands-on urban development/redevelopment issues will be conducted in tutorials.</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td></td><td></td><td></td></tr>
<tr><td>1. In-class participations and discussions for preparing the individual assignment*</td><td>50%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>2. 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></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
*Students are required to pass all the specific assessment methods/tasks to pass the subject.
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
In-class participations and discussions, and individual assignment (50%): Intensive discussions will be held in classes covering the subject topics. Students are required to critically review a contemporary issue assigned to them in an individual assignment, by employing what they learned from classes in resolving urban problems.
Final examination (50%): Students are required to attend a two-hour examination at end of semester. They will be required to attempt three essay type questions out of a list of 5 to 6. No compulsory question will be set and all questions carry equal marks. It is so designed to ensure that the students will gain an in-depth understanding of at least three topics in the indicative syllabus.
</td></tr>
</table>

Reading List and References	**Recommended:** Harvey, J. (2004) *Urban Land Economics: The Economics of Real Property*, London: MacMillan. O'Sullivan, A. (2019) *Urban Economics*, London: Irwin. Pirounakis, N.G. (2013) *Real Estate Economics – A Point-to-point handbook*, Routledge, 2013. **Supplementary:** Adams, D., & Hastings, E. M. (2001). Urban renewal in Hong Kong: transition from development corporation to renewal authority. *Land Use Policy*, 18(3), 245-258. Agarwal, S., Fan, Y., McMillen, D. P., & Sing, T. F. (2021). Tracking the pulse of a city—3D real estate price heat maps. *Journal of Regional Science*, 61(3), 543-569. Arnott, R. (1979). Optimal city size in a spatial economy. *Journal of Urban Economics*, 6(1), 65-89. Bruch, E. E., & Mare, R. D. (2006). Neighborhood choice and neighborhood change. *American Journal of Sociology*, 112(3), 667-709. Davis, J. C., & Henderson, J. V. (2008). The agglomeration of headquarters. *Regional Science and Urban Economics*, 38(5), 445-460. DiPasquale, D., & Wheaton, W. C. (1992). The markets for real estate assets and space: A conceptual framework. *Real Estate Economics*, 20(2), 181-198. Fan, Y., Yang, Z., & Yavas, A. (2019). Understanding real estate price dynamics: The case of housing prices in five major cities of China. *Journal of Housing Economics*, 43, 37-55. Glaeser, E. L. (2007). *The economics approach to cities*. National Bureau of Economic Research (No. w13696). Hui, E. C., & Yue, S. (2006). Housing price bubbles in Hong Kong, Beijing and Shanghai: a comparative study. *The Journal of Real Estate Finance and Economics*, 33(4), 299-327. Mayer, C. (2011). Housing bubbles: A survey. *Annual Review of Economics*, 3(1), 559-577. Musterd, S., & Ostendorf, W. (Eds.). (2013). *Urban segregation and the welfare state: Inequality and exclusion in western cities*. Routledge. Nechyba, T. J., & Walsh, R. P. (2004). Urban sprawl. *Journal of Economic Perspectives*, 18(4), 177-200. Pagourtzi, E., Assimakopoulos, V., Hatzichristos, T., & French, N. (2003). Real estate appraisal: a review of valuation methods. *Journal of Property Investment & Finance*. Parry, I. W. H. (2002). Comparing the efficiency of alternative policies for reducing traffic congestion. *Journal of Public Economics*, 85(3), 333-362. Warren-Rhodes, K., & Koenig, A. (2001). Ecosystem appropriation by Hong Kong and its implications for sustainable development. *Ecological Economics*, 39(3), 347-359. Zheng, S., & Kahn, M. E. (2008). Land and residential property markets in a booming economy: New evidence from Beijing. *Journal of Urban Economics*, 63(2), 743-757.

Subject Description Form

Subject Code	BRE532
Subject Title	Maintenance Management and Operation
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	To provide students with knowledge of building maintenance technology and management. To provide students with the current practice and regulations of building maintenance in Hong Kong To enable students to apply those knowledge to their future workplaces.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. recognize the importance of effective and appropriate maintenance work; b. identify building defects; c. propose execution plan of building maintenance upon the defects;
Subject Synopsis/ Indicative Syllabus	Maintenance management: establishing workload; budgeting, programming, executing and controlling programme; contractual forms and procedures; use of direct and indirect labour; controlling maintenance and repair work; working in occupied premises; service charges; information systems; categories of information; feedback; maintenance manuals; establishing database; schedules and specifications; survey; report writing. Maintenance technology: diagnosis and treatment of common defects in buildings by life expectancy; conservation. Hazardous materials in buildings and health issues related to buildings. Sick building syndrome; development and prevention; case studies. Asbestos management; abatement and disposal; case studies. Building defects diagnostic techniques. Sustainable maintenance.
Teaching/Learning Methodology	The subject consists of a series of lectures, tutorials, practical workshops and laboratory demonstration classes. Concepts, theory and application of maintenance management and operation will be covered. Case studies will be introduced to reflect the real life examples of building maintenance techniques. In particular in maintenance operation, the subject will introduce the condition-based inspection and maintenance technology covering a host of advanced *non-destructive testing* (NDT) technologies such as infrared thermography, pulsed radar, forced vibration techniques etc. The subject will also emphasize the importance of continuous condition monitoring and complete rehabilitation instead of patch repairs to deteriorated concrete structures. Prominent guest speakers are invited to advance students' technological and managerial

<table>
<tr><td></td><td>knowledge.</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="7">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>1. Continuous assessment</td><td>40%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. Examination</td><td>60%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="7"></td></tr>
</table>
*Students are required to pass both the continuous assessment and examination to pass the subject.

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

Continuous assessment through a series of seminar topics and workshops covers all knowledge that students shall be able to achieve as stated in the intended learning outcomes. Examination is to assess the theoretical aspects of maintenance technology and management skills.
</td></tr>
<tr><td>Reading List and References</td><td>

Akhtar, S. (2013). "Review of nondestructive testing methods for condition monitoring of concrete structures." Journal of construction engineering, 2013.

Buildings Department (2002) Building Maintenance Guidebook. HKSAR

Chang, C.-Y., and Tsai, M.-D. (2013). "Knowledge-based navigation system for building health diagnosis." Advanced Engineering Informatics, 27(2), 246 260.

Chanter B. (2007) Building Maintenance Management, Blackwell

Douglas J. & Noy E A (2011) Building Surveys & Reports Wiley Blackwell 4th Edition

Douglas J. & Ransom B. (2013) Understanding Building Failures Routledge 4th Edition.

Lee H.S. and Yuen, C.S. (1993) Building Maintenance Technology Macmillan

Lee R. (2001) Building Maintenance Management Blackwell 4th edition

McCann, D., and Forde, M. (2001). "Review of NDT methods in the assessment of concrete and masonry structures." NDT & E International, 34(2), 71-84.

Petty S. E. Edit. (2013) Forensic Engineering: Damage Assessments for Residential and Commercial Structures CRC Press

Sing, M.C.P., Love, P.E.D., and Davis, P.R. (2014). "Experimental study on condition assessment of reinforced concrete structure using a dynamics

</td></tr>
</table>

	response approach." *Structural Survey*, 32(2), 89-101. Wood B. (2009) *Building Maintenance* Wiley-Blackwell

Subject Description Form

Subject Code	BRE533
Subject Title	Value Management in Construction and Property
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject aims to meet the needs of construction professionals who wish to apply value management/engineering methodology to obtain best value for money for their projects, by broadening and deepening their knowledge in the theory and practice of value management/value engineering in the construction context.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Understand the value management methodology; b. Use value management tools/techniques such as function analysis in workshops; c. Organize and manage value management workshops in a project life cycle; d. Exercise practical creativity skills and work with a team of stakeholders to arrive at innovative solutions; e. Ensure value for money for projects by applying value management in business and/or technical situations; f. Implement the value management methodology and techniques in real-life construction projects.
Subject Synopsis/ Indicative Syllabus	• Value management basics: historical development, definitions and concepts. • Value management methodology and techniques, including function analysis, function cost analysis, environment for creativity, life cycle costing. • Structured job plan (information, analysis, creativity, evaluation, development, presentation) and alternative VM approaches such as the Charette job plan. • Group dynamics, teamwork, group problem-solving methods, and facilitation skills. • Project selections for VM studies, applications in Hong Kong and overseas, limitations. • Comparison of value management and traditional cost management techniques. • Case studies of the practice of value management. • Guided VM workshop for real life projects.

Teaching/Learning Methodology

Topics related to the concepts and development of value management (VM) techniques will be introduced by brief lectures, these periods will also serve to guide the students to various reference materials. Case studies, coursework, and supervised VM workshops will provide opportunities for students to have a deeper understanding of the methodology how it is practiced in real-life projects, and to have some hands-on experience.

Lectures and Seminars

- Historical Developments, Definitions, Concepts of VM
- The Value Management Methodology
- VM Job Plan
- Managing VM Study
- Teamwork and Group Dynamics
- Group Facilitation and Creative Thinking
- The Use of Group Support Systems in VM Studies
- VM Applications, Limitations and Case Studies

Supervised workshops

Independent study

- Self-study material
- Projects
- Assignments

The generative AI tools (genAI) is not allowed for
(1) functions identification and function analysis;
(2) generating creativity ideas during Value Management workshop
but encouraged for
(1) search for typical examples or cases of value management
(2) helping improve structure, grammar, writing, presentation slides, etc.

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.	f.
1. Continuous Assessment*	50%	✓	✓	✓	✓	✓	✓
• Preparation of a term paper individually	25%			✓			✓
• Participation in hands-on VM workshop	25%	✓	✓	✓	✓	✓	✓
2. Examination*	50%	✓	✓			✓	
Total	100%						

	* Students are required to pass both the continuous assessment and examination to pass the subject. Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes: The hands-on VM workshop will inform how well the students have achieved the intended learning outcomes. The examination will measure students' understanding of the VM theory/concepts in a written form.
Reading List and References	**Essential Reading:** Shen G.Q.P., Yu A.T.W. (2016). Value Management in Construction and Real Estate: Methodology and Applications. Routledge, Taylor and Francis Group, ISBN: 978-1-138-85278-5. **Recommended Readings:** British Standards Institution (2020). British Standard: Value Management, BS EN 12973: 2020. Environment, Transport and Works Bureau (2002). Technical Circular (Works) No. 35/2002 Implementation of value management in public works projects, http://www.devb.gov.hk/filemanager/technicalcirculars/en/upload/126/1/c-2002-35-0-1.pdf Kelly John, Male Steven, Graham Drummond (2015). Value Management of Construction Projects, 2nd Edition, John Wiley & Sons. Shen G.Q.P., Fan S.C. and Kelly J. (2009). A group support system for collaborative working in a value management workshop environment, in Shen et al (Eds), Collaborative Construction Information Management, Spon Press, UK, USA, Canada, 303-326. Shen Q.P. and Liu G.W. (2003). Critical Success Factors for Value Management Studies in Construction, Journal of Construction Engineering and Management, ASCE (American Society of Civil Engineers), 129(5), 485-491. Shen Q.P. and Liu G.W. (2004). Applications of Value Management in the Construction Industry in China, Engineering, Construction and Architectural Management, 11(1), 9-19. Shen Q.P. and Yu A.T.W. (2012). Value management: recent developments and way forward, Construction Innovation: Information, Process, Management, 12(3), 264-271. Yu A.T.W., Shen Q.P., Kelly J. and Lin G.B. (2006). A Value Management Approach to Strategic Briefing: An Exploratory Study, International Journal of Architectural Engineering and Design Management, 2(4), 245-259. Yuan Z., *Shen G.Q.P., Chung J.K.H., Ramly Z., Yu A.T.W., Wang H. (2015). Experimental Study on Virtual Value Management Workshop in Hong Kong, ASCE Journal of Management in Engineering, 32(2). DOI 10.1061/(ASCE)ME.1943-5479.0000392.

Subject Description Form

Subject Code	BRE534
Subject Title	Integrated Project in Intelligent Construction
Credit Value	3
Level	5
Pre-requisite	BRE587 Research Methods for Construction and Real Estate
Objectives	This subject is intended to: a. Develop capability of critical investigation, analysis and synthesis in solving problems in Intelligent Construction professional context. b. Develop capability for identifying, collecting, analyzing and presenting information to finding solutions to the practical problems in Intelligent Construction. c. To integrate the core subjects of Intelligent Construction study into real-world case studies.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. select and pursue in depth, a non-trivial topic relevant to professional practice in the field of Intelligent Construction; b. complete a substantial piece of work autonomously, with guidance from a supervisor but without detailed day-to-day supervision; c. formulate a set of questions in a way that renders them amenable to rigorous investigation; d. discriminate and identify in the available written material which is useful to the topic under investigation; e. identify and make use of methods of investigation appropriate to the subject; f. draw conclusions that are based on the work undertaken and relevant to Intelligent Construction and assess the limitations of those conclusions; g. write up a comprehensive report and present an individual project in an appropriate style.
Subject Synopsis/ Indicative Syllabus	The key learning strategy for the subject is that of learning by doing. Students are expected to work independently and individually, reflecting on the experience of the work in progress and feedback from the supervisor. The principle educational aims for the subject are to promote the following abilities and disciplines: • Self-learning • Independence of thought • Critical evaluation • Formulation and research of complex problems • Communication of complex ideas and conclusions

<table>
<tr><td>Teaching/Learning Methodology</td><td>The subject consists of an introduction workshop at the first week (one lecture) of the semester outlining the requirement of the subject. Students then submit their research proposal and will be allocated supervisors according to their areas of research interest. Students will then work independently and meet with their supervisors regularly in the tutorials (13 weeks) for supervision. Students are required to submit the final reports for assessment.
Individual presentation
Independent study
Individual assignment
Self-study</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., b.</td><td>c., d.</td><td>d., e.</td><td>f.</td><td>g.</td></tr>
<tr><td>1. Proposal</td><td>15%</td><td>✓</td><td>✓</td><td></td><td></td><td>✓</td></tr>
<tr><td>2. Research-based paper</td><td>85%</td><td></td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr>
<tr><td>3. Total(Continuous Assessment*)</td><td>100%</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
*Students are required to pass all the specific assessment methods/tasks to pass the subject.

Writing research proposal will develop students' skills in the preparation of a research proposal for a chosen topic, including design of study, conduct of literature review, and test of the feasibility of proposed research.

Writing research-based paper will develop students' capacity for conducting an independent, analytical study in the area of Intelligent Construction in professional and academic context.</td></tr>
<tr><td>Reading List and References</td><td>Carlo Domingo Casinto (2019), Doing Academic Research with Ease: Five Basic Methods Every Novice Researcher Should Know, KDP Print US.

Pagadala Suganda Devi (2017), Research Methodology: A Handbook for Beginners, Notion Press.

Fellows, R. and Liu, A. (2008), Research Methods for Construction, 3rd Edition, Wiley-Blackwell.

Lester J.D. and Lester J.D. (2007). Writing Research Papers; a complete guide, 12 Edition, Longman.</td></tr>
</table>

Subject Description Form

Subject Code	BRE535
Subject Title	Advanced Visualization and Interactive Technologies for Construction
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject is intended to: 1. Equip students with a holistic understanding of eXtended Reality (XR) concepts and how different visualization and interactive technologies have been using in current construction practice to achieve digital construction management. 2. Be aware of the range of visualization and interactive technologies available for construction and gain an understanding of the key concepts determining classification, features and applications.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Relate basic technical vocabulary and terminology for various visualization and interactive technologies in construction. b. Possess knowledge of fundamental principles of visualization and interactive technologies c. Acquire preliminary skills to design, program, and establish corresponding visualization and interactive environment for construction. d. Relate the inter-relationships among visualization/interactive technologies with construction practices and derived applications e. Interpret and extract information from existing digital construction details with visualization and interactive technologies.
Subject Synopsis/ Indicative Syllabus	The subject contains three teaching packages as below: **<u>Digital Visualization Principles (4 lectures)</u>**: • Introduction to visualization and interactive technologies • Object transformation, viewing, projection, and lighting • Rigid body motion and physics in the virtual environment • Modelling theorems and data visualization

Visualization Aids and Interfaces (4 Lectures):

- Human computer interaction and usability
- Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR), Immersive visualization and cooperative environment
- CAD, BIM, and digital twins

Visualization/Interactive Applications in Construction (5 Lectures):

- Visual communication and gestures in construction
- Construction inspection and progress monitoring
- Construction equipment modelling and planning
- Construction productivity analysis
- On-site safety management and occupational safety and health

Teaching/Learning Methodology

The mode of delivering the subject comprises lectures and tutorials. Lectures aim at delivering the basic core concepts and knowledge about visualization and interactive technologies in construction, which are to be discussed and consolidated through tutorials.

Furthermore, tutorials are also used for students' exercises technically on visualization and interactive toolkits, environment and applications, providing hands-on experience to students on selected topics.

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. Tutorial Exercises	25%	√	√	√			
2. Assignments	25%	√	√	√	√		
3. Term Project	50%	√	√	√	√	√	
Total (Continuous Assessment*)	100 %						

*Students are required to pass all the specific assessment methods/tasks to pass the subject.

Tutorial exercises throughout the entire semester on each session will be used to assess students' learning outcomes on the basic knowledge learned from the lecture sessions.

Two assignments, explicitly looking for potential solutions to two construction-related problems, will be used for students to practice and enhance learning outcomes.

	The term project allows students to choose specific topics on applications of visualization and interactive technologies in construction. They have to conduct in-depth study and this can enhance the depth of the knowledge learned through the potential implementation and integration upon their creativity. No examination is required in this subject.
Reading List and References	Textbooks are not compulsory in the subject, while some supplementary readings to enhance students' understanding are listed below: Hughes, J. F., van Dam, A., McGuire, M., Sklar, D. F., Foley, J.D., Feiner, S. K. and Akeley K. (2013) Computer Graphics: Principles and Practice, 3rd edition, Addison-Wesley Professional Peurifoy, R. L., Schexnayder, C. J., Schmitt, R. and Shapira, A. (2018) Construction Planning, Equipment, and Methods, 9th Edition, McGraw-Hill Education Rubin, J. and Chisnell, D. (2008) Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests, 2nd edition, Wiley Well, R. (2020) Unity 2020 By Example: A project-based guide to building 2D, 3D, augmented reality, and virtual reality games from scratch, 3rd Edition, Packt Publishing

Subject Description Form

Subject Code	BRE536
Subject Title	Automation and Robotics in Construction
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject is specially devised for master students of the MSc in Digital Construction programme offered by the Department of Building and Real Estate. Its objectives are to: (a) Enthuse the students about digital construction, especially construction automation and robotics; (b) Cultivate students' creativity, problem-solving ability, and global outlook; (c) Expose students to the concepts and an understanding of sensing technologies, robotics, and their application in construction.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) Understand the necessity of involving automation and robotics in construction; (b) Understand the multi-disciplinary nature of the construction industry; (c) Understand the use of sensing technology and robotics; (d) Demonstrate creative and critical thinking, global outlook, problem solving and communication abilities for addressing issues in the construction industry with sensing and robotic technologies.
Subject Synopsis/ Indicative Syllabus	The subject will cover the following content: **Emerging imaging and sensing technologies for the construction industry:** Introduction to emerging imaging and sensing technologies for 3D reconstruction of construction sites, location and action tracking of construction equipment and personnel, and their integrations with digital modelling technologies for automating the monitoring of construction progress, productivity, safety, and quality. **Robots and exoskeletons in construction:** Introduction to the fundamentals of robotic systems and their components. Introduction to basic types of construction robots and exoskeletons in use or development today as well as their applications. Discussion on the benefits and barriers of deploying robotic and exoskeleton technologies into the construction industry, including potential safety and ethical issues, and prospects for building

<table>
<tr><td></td><td>automated or smart construction sites with these technologies in the future.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>The teaching and learning methodology involve inspirational lectures, group work, assignments, and practitioners'/alumni' seminars. The knowledge gained from the inspirational lectures in the subject constitute a part of the foundation for students in developing their creative thinking and problem solving abilities. Practitioners'/alumni' seminars are arranged to introduce students how the knowledge is applied in practice, the gap between theory and practice in the industry.

Through the project group work, students are expected to base on what they learn through lectures and practitioners'/alumni' seminars to come up with pragmatic solutions/ideas that demonstrate their creative thinking, problem solving, global outlook and entrepreneurship abilities for addressing issues in construction with automation and robotics.</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 (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
<tr><td>1.Assignment</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td></tr>
<tr><td>2. Project group work</td><td>60%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>Total (Continuous Assessment*)</td><td>100 %</td><td colspan="6"></td></tr>
</table>
*Students are required to pass all the specific assessment methods/tasks to pass the subject.

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

The assessment task 1 is knowledge-oriented and plays a part in addressing the intended learning outcomes (a) – (c) covered in inspirational lectures. The assessment task includes four assignments.

The assessment task 2 is high-order in nature and the project group work serves as a main and effective assessed task (i.e., 60% of the overall assessment grade) for students to demonstrate their overall attainment of intended learning outcomes (a) – (d) at the end of the curriculum.</td></tr>
<tr><td>Reading List and References</td><td>ASCE Journal of Computing in Civil Engineering (http://www.asce.org)

Elsevier Journal of Automation in Construction. (http://www.elsevier.com/locate/autocon)</td></tr>
</table>

	Brilakis, I. & Haas, C. (2019). Infrastructure Computer Vision (1st ed.), Butterworth-Heinemann Bock, T., & Linner, T. (2015). Robot-Oriented Design (The Cambridges handbooks in construction robotics). Cambridge University Press. Dinwiddie, K. (2016). Basic robotics. Boston, MA: Cengage Learning. Siciliano, B., & Khatib, O. (2016). Springer Handbook of Robotics (2nd ed., Springer Handbooks). Cham: Springer International Publishing AG.

Subject Description Form

Subject Code	BRE537
Subject Title	Machine Learning and Data Mining for Construction
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	The overall objective of this course is to provide students with hands-on and fundamental knowledge of machine learning and data mining techniques to solve problems of modern construction projects and to carry out data analytics in construction. Specifically, this subject aims at: • Introducing the principles, concepts and models of modern machine learning and data mining. • Practicing the analytics skills to analyze data from construction areas and gain insight into it. • Understanding the practical applications of machine learning and data mining techniques in the construction industry.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) Understand the essential concepts of machine learning and data mining models and algorithms. (b) Use machine learning tools to develop data analytics solutions for solving real-world problems in construction projects. (c) Apply various supervised and unsupervised machine learning models to gain insight into various kinds of data arising from modern construction projects. (d) Understand the fundamental knowledge of data mining in collecting, organizing, summarizing, presenting, and analyzing data and drawing valid conclusions.
Subject Synopsis/ Indicative Syllabus	**Fundamental of machine learning and data mining (7 weeks)** • Data, Database & Data Warehouse, and Data Analytics: Defining data requirements, collecting data, cleaning data, storing data, processing data, analyzing data, and visualizing data. • Association Rule Mining: Apriori algorithm, interestingness measures, applications. • Supervised Learning: Classification and Regression Tree (CART), kNN, etc. • Deep Supervised Learning: Neural Networks (NN) and Convolutional Neural Networks (CNN) • Unsupervised Learning: k-means clustering and spatial clustering

<table>
<tr><td></td><td>

- Deep Unsupervised Learning: dimensionality reduction, Autoencoder.
- Machine Learning and Data Mining Tools: TensorFlow, Pytorch, etc.

Applications of Machine Learning and Data Mining in Construction (6 weeks)

- Prediction and design of construction materials performance by machine learning and data mining
- The applications of machine learning on architectural design.
- Machine learning and data mining tools in 3D concrete printing.
- Manging the construction life-cycle activities using machine learning and data mining.
- Occupational health and safety monitoring.
- Damage prognosis: health monitoring of civil infrastructures.
- Building energy consumption analysis, prediction, and optimisation

</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>

Lectures teach students on the main concepts of the course, together with comprehensive examples, and class questions and answers for easy understanding.

Tutorials help students to review the learned concepts, master the practical techniques and necessary tools for effective system/application development.

Labs and group project projects focused on analytics problems faced by cities, infrastructure, and environment, and offers the opportunity to students to develop analytical and problem-solving skills through system implementation and interpersonal communication.

</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 (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td></td><td></td></tr>
<tr><td>1. Continuous assignment*</td><td>55%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>a. Project</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>b. Assignments</td><td>20%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>c. Lab works</td><td>15%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>2. Examination*</td><td>45%</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>
</table>

</td></tr>
</table>

	*Students are required to pass both the continuous assessment and examination to pass the subject. Continuous assessments consist of projects, assignments, and laboratory works, which are designed to facilitate students to achieve intended learning outcomes. Assignments are designed to ensure the students understand the concepts. The project is to enhance students' ability to acquire the understanding and using different knowledge, principles, techniques, tools to solve a real problem through team. Lab works are to ensure the students gain hands-on experience from machine learning tools. Examination will evaluate student's understanding and usage of machine learning and data mining techniques in construction.
Reading List and References	1. Jake VanderPlas, Python Data Science Handbook, O'Reilly Media, 2016. 2. Aurélien Géron, Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow, 2nd Edition, O'Reilly Media, 2019. 3. Jared Dean, Big Data, Data Mining, and Machine Learning: Value Creation for Business Leaders and Practitioners. Wiley, 2014. 4. EMC Education Services (Editor), Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data, Wiley, 2015. 5. Leskovec, Rajaraman, Ullman, Mining of Massive Datasets, 2nd Ed., Cambridge University Press, 2014. 6. Jiawel Han and Micheline Kamber, Data Mining: Concepts and Techniques. Morgan Kaufmann Publishers, 2012. 7. I. Goodfellow, Y. Bengio and A. Courville, Deep Learning, MIT Press, 2016. 8. Scikit-learn Machine Learning in Python https://scikit-learn.org/

Subject Description Form

Subject Code	BRE538
Subject Title	3D Printing in Construction: Principles and Applications
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	The objectives of this subject are: **1.** Equips students with an understanding of 3D printing, and how the technology works with different construction materials and their related applications in the construction sector. **2.** Develop strong competencies of students in advanced construction materials in 3D printing, digital design, and fabrication, enabling them to take leading positions in the field of architecture, construction, innovation development, and production management.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) Understand the technical principles and workflows for 3D printing of various construction materials, including metals, polymers, composites, etc. (b) Learn how to select a 3D printing process and material for a specific application in the construction sector. (c) Design structure for 3D printing by combining process knowledge, computational design tools, and application requirements. (d) Understand cutting-edge perspective on digital transformation and the factory of the future.
Subject Synopsis/ Indicative Syllabus	**1. Introduction and Basic Principles of 3D Printing** • Recap the conventional construction methods, including cast in situ, precast, spray concrete, etc. • Introduction to the generic process of 3D printing. • Compare the distinction between conventional construction methods and 3D printing • Case study: Analyse the benefits of 3D printing in construction with real examples. **2. 3D printing of Metals, Polymers, Glass and Clay**

	• Introduction to the 3D printing with metals, polymers, glass and clay, including printing process, material selection & modelling, quality control, and post processing. • Take real examples as case study for further explain their related applications in construction sector. **3. Extrusion-based 3D concrete printing** • Introduction to the classification of extrusion-based 3D concrete printing, including gantry system and robotic system. • Introduction to a general process of extrusion-based 3D printing, from equipment setup, material section, 3D CAD modelling to the final printing process. System concept on the extrusion-based 3D concrete printing. • Functional nozzle design, including current existing designed functional nozzle and basic operation of 3D CAD software. **4. Printable Material Design & Reinforcement** • Printable material selection, including material ingredients' effects, material constitutive model, and mixture design method. • Chemical additives' effects on the printable material hydration, fresh and hardened performance, and their applications in the material design of 3D concrete printing. • Material modelling, including buildability model, pumpability model, extrudability model, rheo-mechanical model. • Introduction to the function printable material, including printable strain-hardening construction material, printable transparent construction material, printable lightweight/sustainable material, etc. • Introduction to the method to introduce the reinforcement in the printed structures/materials. **5. Testing Methods & Quality Control in 3D Concrete Printing** • Recap conventional testing methods of construction materials/structures. • Introduction to the developed method in 3D concrete printing for the material and/or structural testing. • Recap the conventional quality control methods of construction materials/structures. • Introduction to the developed method in 3D concrete printing for the material and/or structural testing by digital technologies, including computer vision, machine learning, etc. **6. Particle-bed binding & Material jetting** • Introduction to the general process of particle-bed binding & material jetting

	• Raw material ingredients' selection and mixture design for these two processes. Systematic concept on the material modelling. • Factors impacting on the final printed structures and the underlaying mechanism will be introduced **7. Computational Method of 3D Printing in Construction** • Introduction to dynamo and grasshopper and their basic operation methods in the parametric structural design. • Basic programming skills. The students will gradually build up skills from the fundamental concepts to programming skills, including procedural, imperative, and functional programming (Python, Dynamo, Grasshopper etc.) **8. Applications of 3D Printing in Construction & Other Digital Construction Methods** • Take several practical examples to explain the potential applications of 3D concrete printing, including the 3D printed bridge in the Netherland, the 3D printed choreography in Switzerland, the 3D printed Bathroom Unit in Singapore, and the 3D printed green buildings in China. • Introduction to other digital construction methods, including mesh mould, smart dynamic casting, spatial timber assemblies, in situ robot fabrication, laser melting, spray-based 3D printing, etc.
Teaching/Learning Methodology	**1.** Lectures teach students on the main concepts of the course, together with comprehensive examples and class questions and answers for easy understanding. **2.** Laboratory tour with a concrete printing demonstration to help students build an overview of the real concrete printing process. **3.** Tutorial sessions help students review the learned concepts and master the practical techniques and necessary tools for effective system/application development. **4.** Group project offers the opportunity to students to develop analytical and problem-solving skills through system implementation and interpersonal communication.

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		
1. Project*	40%	✓	✓	✓	✓		
2. Presentation*	40%	✓	✓	✓	✓		
3. Quiz*	20%	✓	✓	✓			
Total	100 %						

*Students are required to pass all the specific assessment methods/tasks to pass the subject.

Continuous assessments consist of project, presentation and quizzes, are designed to facilitate students to achieve intended learning outcomes.

The project is designed to enhance students' ability to understand and use different knowledge, principles, techniques, and tools to design a structure and print through team.

Quizzes are to ensure the students understand the concepts and will comprise multiple-choice and short answer questions on 3D printing in construction, including printing process, printable materials, chemical additives, testing method and quality control, etc.

Reading List and References

1. Jay Sanjayan Ali Nazari Behzad Nematollahi, 3D Concrete Printing Technology, First Edition, Butterworth-Heinemann, 2019
2. Chee Kai Chua and Kah Fai Leong, 3D Printing and Additive Manufacturing - Principles and Applications, The Fifth Edition of Rapid Prototyping: Principles and Applications World Scientific Publishing Co., 2017.
3. Victoria Zukas and Jonas A. Zukas, An Introduction to 3D Printing, First Edition Design Publishing, Inc., 2015.
4. Bachman, David. Grasshopper: Visual Scripting for Rhinoceros 3D. Industrial Press, 2017.
5. Jabi, Wassim. Parametric design for architecture. Hachette UK, 2013.
6. https://compas.dev/

Subject Description Form

Subject Code	BRE541
Subject Title	Property Law
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	No special pre-requisite for this subject. The subject is mutually exclusive with Property and Construction Law (BRE584)
Role of the subject in real estate maintenance and development	As regards real estate maintenance and real estate development, owners of any right relating to any existing estate or any estate yet to be created as well as the legal significance of any action to be taken by those engaged in the industry are needed to be understood before any action is taken for maintaining and/or developing the related estate. Hence, it is essential to equip students the related legal knowledge so that they are in a better position to consider the most appropriate action when circumstances arise.
Objectives	The objectives of the subject are to: a. Equip the students with the legal knowledge being essential to building management and real estate development. b. Develop students' ability to make professional judgment over the areas relating to the management and development of a real estate.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Understanding the legal system of the HKSAR and the obligations created under contract law and tort law. b. Discriminate between property concepts, including land ownership, land use and charges. c. Understand the key concepts in property law which are essential for building management and development and discriminate among the concepts. d. Understand the relationship, rights and obligation between a landlord and a tenant under a tenancy agreement. e. Possess the ability to evaluate property law with reference to contemporary issues and building management in particular. f. Use knowledge, reasoning and research skills to deal with property related issues arising in the context of an area of practice. g. communicate effectively
Subject Synopsis/ Indicative Syllabus	**Context** The nature and classification of property, review of the legal system and general principles in contract law and tort law that have direct application to

	property management area. A comparative analysis of the elements of different legal systems over property law concepts. **<u>Rights and obligation of the owner of an estate</u>** Legal and economic meanings of property rights; title; use; income; and management, including the right of disposal. The legal relationship between co-owners in a multi-storey building, the importance of a deed of mutual covenant in regulating the rights and obligations of the co-owners as well as the statutory law over the management of a multi-storey building. **<u>Acquisition, disposal and loss of property rights</u>** Principles and legal rules relating to the creation and transfer of property rights. The creation of a landlord and tenant relationship in general and in commercial world in particular. The nature of a security transaction and the charges being created by a company for financing a development. **<u>Protection of property rights</u>** Relationships between building management law and contract law, tort law, criminal law and tenancy law and the Land Registration system in Hong Kong and judicial remedies. The nature of a tenancy relationship as well as the rights and obligations of the landlord and tenant under a tenancy agreement. The nature of land covenant and, in particular, the nature and role of a deed of mutual covenant. Adverse possession **<u>Restrictions on property rights</u>** a. Private restrictions including easements and restrictive covenants, and sale of goods b. Public restriction including planning, land resumption, building controls.
Teaching/Learning Methodology	The pedagogical philosophy underpinning this subject is experiential learning. Students will follow a sequence of activities which may be summarized as follows: • Learning by doing • Learning through sharing • Learning through feedback • Learning by reflection An experiential methodology is particularly appropriate for a Master's

programme which is intended for persons with some knowledge and experience in the management of real estate industries. The framework is also consistent with development professional judgment, particularly the emphasis upon reflection, through which experience is turned into learning.

Class contact time is organized into seminars in which relevant topics will be explored and discussed. Guidance on legal research will be provided. Legal practitioner may be invited to attend the seminars to discuss matters of topical interest and practical relevance.

Students will divide into learning support groups to, firstly, assist learning, secondly, share viewpoints on the case studies, and finally, work together in the assignment.

For the graded coursework component of summative assessment, a topic relating to the syllabus of this subject of particular interest to the students will be select and research may be carried out into that topic.

Learning approach involves:

- Lectures and seminars
- Independent study
  - Self-study material
  - Assignment

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. Assignment: research project	50%	√	√	√	√	√	
2. Examination	50%	√	√	√	√	√	
Total	100 %						

*Students are required to pass all the specific assessment methods/tasks to pass the subject.

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

Research project designed to assess legal research skills, legal study and legal analysis and application of law to real-life problems.

One three hour open-book examination, comprising a combination of breadth and depth problems designed to assess knowledge, reasoning ability, and critical judgment.

Reading List and References

Indicative reading list and references:

Note: The latest version of the readings should be used.

Cottrell J (1999) *Legal Research: A Guide for Hong Kong Students*, Hong

	Kong University Press. Hong Kong. **Hong Kong legal system and general principles of law:** Vanessa Stott. (2010). An Introduction to Hong Kong Business Law (6th ed). Pearson Education Clement Shum. (1998). General Principles of Hong Kong Law. (3rd ed). Longman **Land law:** S.H.Goo., & Alice S.C.Lee. (2015). Land Law in Hong Kong. (4th ed). LexisNexis. Sihombing, J., & Wilkinson, M. (2014). A Student's Guide to Hong Kong Conveyancing. (7th ed). LexisNexis Nield, S. (1997) Hong Kong Land Law. (2nd). Addison Wesley Longman China Limited. **Planning and Land Resumption:** John, Litton., & Kate, Olley. (2018) Planning Law in Hong Kong. LexisNexis. Richard, E. Smith. (2006) Planning Control: Development, Permission and Enforcement. RICS Boooks. Gordon N, Cruden,Lisa Jane Cruden. (2017) Land Compensation and Valuation Law in Hong Kong. (4th ed). LexisNexis **Building Management:** Merry M. (2016) Building Management in Hong Kong. (3rd ed). LexisNexis **Tenancy law:** Merry, M. (2016) Hong Kong Tenancy Law, (6th ed). LexisNexis **Security transactions:** S.H.Goo, & Alice S.C.Lee (2015), 4th edition. LexisNexis. V Stott. (2015) Hong Kong Company Law. (14th ed). Pearson Education Asia Limited. **Supplementary:** Authorized Hong Kong Law Report and Digest, Sweet & Maxwell. Government Publications. Halsbury Laws of Hong Kong, Butterworths. Hong Kong Cases, Butterworths **Useful websites** Polytechnic University library database: Westlaw

	HKSAR Judiciary: https://www.judiciary.hk/en/home/index.html Hong Kong Legal Information: http://www.hklii.org/ Hong Kong e-legislation: https://www.elegislation.gov.hk/

Subject Description Form

Subject Code	BRE542
Subject Title	Construction Law
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	Through interactive teaching/learning process between lecturers/students, prepare students to achieve the Intended Learning Outcomes in the area of construction law.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. describe the principles of construction contracts; b. explain key concepts and principles in construction law and management; c. analyse construction law and practice in major legal systems; d. apply knowledge of construction law to their practice areas in the construction industry.
Subject Synopsis/ Indicative Syllabus	**Context:** Overview of the legal issues in the context of the construction industry; Development control laws in general; Construction law in the context of China practice. **Principles of Construction Contracts:** Contracting systems and standard forms, Procurement and contract arrangement; Law related to tendering; Obligations of contracting parties. **Legal issues in Procedures and Conditions:** Certification; Payment and time; Remedies and damages for breach of contract, Sub-Contracts and nomination; Insurance and bonds; Law and practice in major legal systems. **Key Issues in Substantial Disputes:** Suspension and Determination of Contracts; Design and Quality Responsibility; Statutory Controls; Law of Tort for Defective Buildings and Subsequent Owners.
Teaching/Learning Methodology	Topics related to construction law and management will be introduced by lectures. Students will be guided to various reference materials and carry out reading according to reading plans recommended by the lecturers. Practitioners will be invited to give lectures on specialist areas and current legal issues. Seminars in small groups for case studies will be organized in which students will be required to select a topic of particular interest to them and carry out research into some aspect of that topic and share their views with their classmates through presentations and discussion. Constructive criticism and feedback will be provided by the lecturer/tutor. Case study reports and assignments will be used in the continuous assessment. The final examination will be an open book examination.

<table>
<tr><td></td><td>

Lectures and seminars
Tutorials
Workshops
Independent study

Self-study material
Assignments

</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td>d.</td><td></td><td></td></tr>
<tr><td>1. Continuous assessment*</td><td>50%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>2. 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>
</table>
*Students are required to pass both the continuous assessment and examination to pass the subject.
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
Continuous assessment with course assignments allows both developmental and judgmental assessment of the intended learning outcomes. Students learn to explain and analyze through discussions with peer group and tutors, and to apply their knowledge through searching, reflection from mistakes and presentation of their findings.
Examination allows assessment of individual’s ability and of performing tasks under constraints and examination environment. Open book examination can achieve these results whilst not subject students to rote learning, but analyze and apply information available.
</td></tr>
<tr><td>Reading List and References</td><td>
Burr Andrew (Ed), Construction Law Journal, (8 Issues a year), ISSN: 0267-2359Sweet & Maxwell
Chan E.H. & Yiu ECY. (2008) Contractual and Regulatory Innovations, PACE Pub. Ltd. Hong Kong.
Chan E.H.W. & Au M.C.Y. (2010) Enforceability Considerations for Deleting the Extension of Time Provisions in Building Contracts, (2010) 26 Const. L.J., Part 4, (July 2010) 18-39.
Cheng, T. Y.W. & Soo, G. (2013) Construction Law and Practice in Hong Kong, 3rd Edition, Hong Kong: Sweet & Maxwell Asia.
Chitty on contracts. Hong Kong specific contracts (6th Ed), Hong Kong: Sweet & Maxwell Asia. 2019.
Cleland D.I. and Gareis R. (2010) Global Project Management Handbook, 2nd Ed. (USA: McGraw-Hill, Inc.
</td></tr>
</table>

Construction Industry Council (CIC) Construction Adjudication, http://cic.org.uk/services/adjudications.php

CIC (2015) Reference Materials Dispute Resolution (August 2015), Construction Industry Council, Hong Kong.

Development Bureau (2015) Proposed Security of Payment Legislation for the Construction Industry, Consultation Document, DEVB, HKSAR (https://www.devb.gov.hk/filemanager/en/content_880/SOPL_Consultation_Document.pdf)

Fisher, M J & Greenwood, D G (2011) *Contract Law in Hong Kong*, 2nd Ed, HKU Press.

Furmston M. (2012) Powell-Smith & Furmston's *Building Contract Casebook*, 5th Ed., Oxford; Malden, Mass.: Blackwell Science.

Furst S. & Ramsey V. (2019) *Keating on Construction Contracts*, 10th Ed., London: Sweet & Maxwell.

Mark Wright, R.W. Thomas (2016), *Construction Contract Claims*, 4th Ed., Macmillan, U.K.

Mau, S.D. (2013) *Hong Kong Legal Principles: Important Topics for Students and Professionals*, Hong Kong University Press.

Murdoch, Champion and Hughes (2015) *Construction Contracts: Law and Management*, 5th Ed. E & FN Spon, U.K.

Nicholas Dennys, Robert Clay, Atkin Chambers (2019) Hudson's Building and Engineering Contracts, 14th Ed., (London: Sweet & Maxwell).

Soo G. (2013) Construction Law and Practice in Hong Kong, 3rd Ed.Sweet & Maxwell.

Uff, J. (2017) *Construction Law: Law & Practice relating to Construction industry*, 12th Ed. Sweet & Maxwell. U.K.

Wong W.S. & Chan E.H. (2000) *Building Hong Kong: Environment Considerations*, Hong Kong University Press.

Subject Description Form

Subject Code	BRE544
Subject Title	Principles and Practices of Law
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	To engage in critical thinking, analysis and problem-solving within the legal context of the Hong Kong construction industry.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. consolidate their knowledge of the general principles of law in Hong Kong, in particular in the context of the construction industry; b. identify legal problems in the construction industry by application of the principles of contract and tort; c. use legal knowledge, reasoning and research skills to respond appropriately to construction-related issues; d. build up a firm foundation for advancing further legal studies in the construction-related areas.
Subject Synopsis/ Indicative Syllabus	**General principles of Hong Kong law - a consolidation** The Hong Kong legal system - including sources of law; the court system. Contracts - including general principles of contract law; nature of contractual liability; standard forms of building contract; remedies. Torts – including nature of tortuous liability; negligence; nuisance; trespass; Rylands v Fletcher; occupier's liability; breach of statutory duty; remedies. Property law – concept and classification of property; introduction to land law. Note: this topic will only be covered briefly. This coverage is only an introduction to the Property Law module offered by BRE. **Legal personality** Sole proprietorship, partnerships and corporations. **Legal reasoning and analysis** This is an important component of this subject which helps the students grasp the basic skills in legal research and reasoning including retrieval of the useful data from legal references, like on-line databases. Real-life cases will be analysed by the students in form of a continuous assessment or research project.
Teaching/Learning Methodology	Teaching and learning methodology will include in activities are intended to result in: • Learning through participation. • Learning by reflection. • Learning through sharing. • Learning through feedback.

<table>
<tr><td></td><td>Relevant topics will be explored and discussed, and guidance on legal research will be provided. If appropriate, legal practitioners will be invited to attend the seminars to discuss matters of topical interest and relevance. Every student is required to participate actively in classroom dialogues.

For the graded coursework component of summative assessment, students will select a topic of particular interest to them and carry out research into that topic.

• Lectures and seminars
• Tutorials
• Independent study
  • Self-study material
  • Assignments
  • Library work</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td>d.</td><td></td><td></td></tr>
<tr><td>1. Course Work*</td><td>50%</td><td></td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>2. 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>
</table>
*Students are required to pass all the specific assessment methods/tasks to pass the subject..

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

Course Work: demonstration of students' abilities to conduct independent research, consolidation and integration of information, critical analysis of collected data, culminating in a presentation. In short, the Course Work will assess legal research skills, legal analysis and application of law to real-life problems.

Examination: assesses students' comprehension and application of legal principles.</td></tr>
<tr><td>Reading List and References</td><td>Arjunan, Krishnan et al (2nd Ed., 2009). Business Law in Hong Kong, LexisNexis.

Bartholomew, SH (2nd Ed., 2002). Construction Contracting: Business and Legal Principles, Prentice Hall.

Chan, A (3rd Ed., 2009). Hong Kong evidence law handbook: Evidence Ordinance (Cap.8) [electronic resource], Butterworths.

Cheng, T & Soo, G (3rd Ed., 2013). Construction Law and Practice in Hong Kong, Sweet & Maxwell.

Cottrell J (1999). Legal Research: a Guide for Hong Kong Students, Hong Kong University Press, Hong Kong.

Fisher, M J & Greenwood, D G (2nd Ed., 2011). Contract Law in Hong Kong,</td></tr>
</table>

	HKU Press. Furst, S & Ramsay, V (Eds.) (10th Ed., 2016). *Keating on Construction Contracts*, Sweet & Maxwell. Glofcheski, R (3rd Ed., 2012). *Tort Law In Hong Kong*, Sweet & Maxwell. Hills, M J (2001). *Building Contract Procedures in Hong Kong*, Longman. Mau, S D (2nd Ed., 2016). *Contract Law in Hong Kong: An Introductory Guide*, HKU Press. Mau, S D (2nd Ed., 2013). *Hong Kong Legal Principles: Important Topics For Students and Professionals,* HKU Press. Mau, S D (2nd Ed. 2014). *Property Law in Hong Kong: An Introductory Guide*, HKU Press. Mau, S D (2nd Ed. 2015). *Tort Law in Hong Kong: An Introductory Guide*, HKU Press. McInnis, J A (1997). *Hong Kong Construction Law*, [Loose-leaf] Butterworths. Stott, V (4th Ed., 2010). *An Introduction to Hong Kong Business Law*, Pearson Education South Asia. Uff, J (11th Ed., 2013). *Construction Law: Law and practice relating to the construction industry*, Sweet & Maxwell.

Subject Description Form

Subject Code	BRE545
Subject Title	Dispute Management and Law for International Projects
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	Through interactive teaching/learning process between lecturers/students, prepare students to achieve the Intended Learning Outcomes in the area of construction dispute management.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. identify the different factors that contribute to disputes in international construction projects; b. explain the principles of dispute management and law for international construction projects; c. differentiate different dispute resolution practices in major legal systems; d. analyse the legal issues in the different dispute resolution methods in international construction; e. apply knowledge of dispute management and law to their practice areas in the construction industry.
Subject Synopsis/ Indicative Syllabus	**Context:** Overview of the legal issues in the context of international construction project; Characteristic of International construction project; Contract strategies and international contract forms. **Dispute Theory:** Theory of causes and prevention of dispute; Cultural considerations; Contractual avoidance of dispute; Conflict management style; Negotiation skill and theory. **Dispute Resolution Methods:** Overall review of ADR; Law and practice for binding and non-binding Dispute Resolution Methods; Legal issues in multi-tiered dispute resolution mechanism; Current research on selection of dispute resolution methods; Enforceability of decisions: international comparative study. **Claims Management and Procedures:** Management of contractual claims; Law and practice for Experts; Participating in legal proceedings.
Teaching/Learning Methodology	Topics related to dispute management and law will be introduced by lectures in the context of international construction projects. Students will be guided to various reference materials and will carry out critical reviews as recommended by the lecturers. Practitioners in construction contracts and dispute resolution will be invited to give lectures on specialist areas and current issues. Students are required to select a topic of particular interest to them and carry out in-depth research as cases studies. Seminars in small groups will be organized

<table>
<tr><td></td><td>in which, with the guidance of tutors, students will share their views through presentations and discussions on their case studies. Constructive criticism and feedback will be provided by the lecturer/tutor. Students are encouraged to use their own initiative to gain real-life experience in dispute resolution processes, such as attending court hearings etc., and provide reflective journals.

Research reports/case studies will be used in the continuous assessment. The final examination will be an open book examination.

• Lectures and seminars
• Tutorials and Workshops
• Independent study
  • Self-study material
  • Assignments</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td>d.</td><td>e.</td><td></td></tr>
<tr><td>1. Continuous assessment*</td><td>50%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td></tr>
<tr><td>2. 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>
</table>
*Students are required to pass both the continuous assessment and examination to pass the subject.

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

Continuous assessment with course assignments allows both developmental and judgmental assessment of the intended learning outcomes. Students learn to identify factors, explain, differentiate and analyze issues through discussions with peer group and tutors, and to apply their knowledge through searching, reflection from mistakes and presentation of their findings.

Examination allows assessment of individual’s ability and of performing tasks under constraints and examination environment. Open book examination can achieve these results whilst not subject students to rote learning, but analyze and apply information available.</td></tr>
<tr><td>Reading List and References</td><td>Blackaby, Partasides, et al. (2015) Redfern and Hunter on International Arbitration (Hardback and eBook), Sixth Edition, Oxford University Press.

Bramble B. & Callahan MT (2018) Construction Delay Claims, (Construction Law Library) 6th Edition, Kluwer.

Brett J.M., ‘Culture and Negotiation’ (2000) Vol. 35, No. 2, International Journal Of Psychology, p.97-104.

Brown H.J. & Marriott A.L., (2011) ADR Principles and Practice, 3rd Ed. (London: Sweet & Maxwell).</td></tr>
</table>

Carnevale P.J. and Choi D.W., (2000) *'Culture in the Mediation of International Disputes'* Vol.35, No.2, International Journal of Psychology, p. 105-110.

Chan, E. (2003) "Disputology" in the International Construction Industry. Construction Research Congress: pp. 1-9.doi: 10.1061/40671(2003)11

Chan E. H., Suen H. (2005) Legal Issues of Dispute Management in International Construction Projects Contracting, Construction Law Journal, Vol.21(4), 291-305.

Chan E. H. & Suen H. (2005) Disputes and dispute resolution systems in Sino-Foreign Joint Venture (SFJV) Construction Projects in China, ASCE Journal of Professional Issues in Engineering Education and Practice, Vol.131(2),141-148.

Chan E.H.W. Dispute Resolution Model (Interactive on-line platform) website (http://www.drm.hk/)

Chan E.H.W. & Yiu E.C.Y. (2008) *Contractual and Regulatory Innovations*, Pace Pub. Ltd., Hong Kong.

Construction Industry Council (CIC) Construction Adjudication, http://cic.org.uk/services/adjudications.php

Coulson, P. (2015) Coulson on Construction Adjudication, Third Edition Oxford University Press.

Development Bureau (2015) Proposed Security of Payment Legislation for the Construction Industry, Consultation Document, DEVB, HKSAR (https://www.devb.gov.hk/filemanager/en/content_880/SOPL_Consultation_Document.pdf)

Fan, K (2013) Arbitration in China: A Legal and Cultural Analysis, Bloomsbury Publishing.

Fenn, P., O'Shea M. and Davies E., (1999) Dispute Resolution and Conflict Management in Construction: An International Review (London: E&FN Spon,), p. 858.

Furst S. & Ramsey V. (2019) Keating on Building Construction Contracts, 10th Ed., London: Sweet & Maxwell.

Hofstede, G., (2010) *Culture and Organizations: Software of the Mind*, (NY: McGraw-Hill,).

Hong Kong Mediation Ordinance Cap 620

Hunter, M., Paulsson, J., Rawding, N., & Redfern, A., (2010*) The Freshfields Guide to Arbitration and, Clauses in International Contracts,* (Boston, Deventer: Kluwer Law and Taxation Publishers, 3rd Edition).

Kendall, J. (2014) *Expert Determination,* 5th Ed.,(London: Sweet & Maxwell).

Mawhinney, Mark, (2008) *International Construction*, John Wiley & Sons.

Mustill & Boyd, (2014) *Commercial Arbitration*, 3rd Ed. (London: Butterworths) and Noter-up of *Commercial Arbitration 2nd Ed. 2001 Companion,* London: Butterworths, 2001).

Nicholas Dennys, Robert Clay, Atkin Chambers (2019) Hudson's Building and Engineering Contracts, 14th Ed., (London: Sweet & Maxwell).

	Potter, P. (2005) The Chinese Legal System: Globalization and Local Legal Culture, 2nd Ed, Routledge Redfern, A. and Hunter*, (2015) Redfern & Hunter on International Arbitration 6th edition, Oxford University Press.* Uff, J. (2017) *Construction Law: Law & Practice relating to Construction industry*, 12th Ed. Sweet & Maxwell. U.K.

Subject Description Form

Subject Code	BRE546
Subject Title	Mediation Training
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	Through interactive teaching/learning process between lecturers/students, prepare students to achieve the Intended Learning Outcomes in the area of mediation. ***NOTE: Students enrolling in BRE546 Mediation Training, which involves mediation training run by approved trainers, will be required to pay an extra fee in addition to the tuition fee for 3 credits.***
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. evaluate the characteristics of mediation to appreciate its major differences in comparison with other dispute resolution; b. clearly communicate key concepts, principles and findings related to mediation issues; c. apply knowledge, reasoning and research skills to deal with mediation issues arising in a real-life context; d. carry out a mediation process to resolve problems associated with the construction and real estate industries.
Subject Synopsis/ Indicative Syllabus	The Mediation Training provides an international standard training package fully recognised by dispute resolution professional bodies. The syllabus reflects the requirements specified from time to time by the professional body which provides accreditation to the subject. Not only will successful completion of the workshop provide students with the 3 credits associated with this subject but it will also lead to membership of dispute resolution professional bodies subject to passing the respective qualifying examinations.
Teaching/Learning Methodology	Students are required to attend 40 hours of Mediation Training conducted by authorized mediation trainers and coordinated by academic staff from the BRE Department. The training will be carried out within a few days in order to provide an intensive and focused experience. Students will be briefed on the requirements of the mediation training at the beginning of the semester. In addition to the contact hours provided by the training workshop, students will be expected to have regular contact with BRE academic staff in the form of consultation and discussion session during which mediation issues will be addressed. Throughout the semester, students will be required to conduct guided self-study related to mediation and to submit a reflective journal of the study at the end of the semester. Successful completion of the training, as assessed satisfactory by the authorised trainers, and the reflective journal will provide students with the 3 credits associated with this subject and will also lead to membership of dispute

<table>
<tr><td></td><td>resolution professional bodies subject to passing the respective qualifying examinations.

Teaching/Learning:
• Briefing and tutorials with BRE staff
• Training Workshops
• Independent self-study</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td>d.</td><td></td><td></td></tr>
<tr><td>1. Training Workshops</td><td>80%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>2. Reflective Journal</td><td>20%</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>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The workshop by the approved trainer will provide continuous assessment with course assignments and role-plays, which allows both developmental and judgmental assessment of the intended learning outcomes. There will be a mock up role-play which will be conducted by the approved trainer to assess students learning outcomes.

Continuous assessment of students' academic performance based on their reflective journals and participation in tutorials. This allows assessment of individual's ability and a student's critical analysis of the learning process and learning outcomes.

Students are required to achieve grade D or above in overall subject grade to pass the subject.</td></tr>
<tr><td>Reading List and References</td><td>Brooker P., & Wilkinson S. (2010) Mediation in the Construction Industry: An International Review, Spon Press.

Chan E.H.W. (2022) Dispute Resolution Model by Edwin Chan
You can access the interactive teaching /learning web site at Dispute Resolution Model (http://www.drm.hk/)

Construction Industry Council (CIC) Construction Adjudication, http://cic.org.uk/services/adjudications.php

CIC (2015) Reference Materials Dispute Resolution (August 2015), Construction Industry Council, Hong Kong.</td></tr>
</table>

	Fisher, R.; Patton, B. M.; & Ury, W. L. (1992) *Getting to Yes: Negotiating An Agreement Without Giving In,* 2nd Ed. London: Random House. (Online version ©2011 Roger Fisher, William Ury, and Bruce Patton (P)2011 Simon & Schuster) Hong Kong Mediation Ordinance Cap 620 Pickavance J. (2015) A Practical Guide to Construction Adjudication, Wiley Blackwell Pickavance, K (2013) Construction Law and Management, Infoma law Qiang, Shigong **(**2001) *Mediation, Legality and Modernity: Mediation in China /* 強世功編, Beijing : Zhongguo fa zhi chu ban she. Strasser, Freddie (2004) *Mediation: A Psychological Insight into Conflict Resolution*. London: Continuum. Ury, W. L. (1993) *Getting Past No: Negotiating Your Way From Confrontation To Cooperation*. New York, N.Y.: Bantam Books. (Online Audio version: Bantam Doubleday Dell Audio Publishing, A Division of Random House, Inc.)

Subject Description Form

Subject Code	BRE547
Subject Title	Construction Law Project
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	Through collaborative teaching/learning process between lecturers/students, prepare students to achieve the Intended Learning Outcomes in the area of construction law and research.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. understand key concepts and principles in construction law and management; b. clearly communicate key concepts, principles and findings related to construction law issues; c. apply knowledge, reasoning and research skills to deal with construction law issues arising in a real-life context; d. propose solutions to complex construction law problems associated with the construction and real estate industries.
Subject Synopsis/ Indicative Syllabus	The Project requires candidates to identify a construction law related problem and then, as part of a team, formulate a number of alternative arguments. This will involve exploring the whole range of construction law issues involved in the problem. The intention is to improve students' comprehension of construction law and provide them with an opportunity of applying the principles and practice of construction law to practical situations.
Teaching/Learning Methodology	A team of tutors is responsible for the Project, which spans one 13-week semester. At the beginning of the semester, students are briefed on the requirements of the Project. They will then be required to orally present their proposals during a half-day workshop by around Week 4 and, based on the research interest of the students, they will be required to form themselves into teams of three to which one of the tutors will be assigned. A one-day seminar is held at the end of the semester for presentation and discussion of each team's completed project, at which time each project will be assessed by all the tutors. Small group tutorials will be held with the assigned team tutor throughout the duration of the project. The pedagogical philosophy for this subject is student-centered learning. For the most part, students are required to work using their own initiative to find information and discover ways in which to apply it to their project. The project tutors act principally as mentors, facilitators, and assessors. • Workshops • Small group tutorials • One-day seminar for presentations

<table>
<tr><td></td><td>

Independent study

Individual and group project
Self-study

</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td>d.</td><td></td><td></td></tr>
<tr><td>1. Project Proposal</td><td>25%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>2. Project Development</td><td>75%</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>
</table>
*Students are required to achieve grade D or above in overall subject grade to pass the subject.

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

Assessment is based on 100% coursework. Students will be assessed, individually and as a team, on their ability to analyse, critically evaluate, and synthesis knowledge gained from a variety of sources into their chosen project. The Project is divided into two distinct phases; Phase A and Phase B. Phase A will be carried out individually, whilst Phase B will be carried out in teams with a maximum of three members. Each component (Phase A and Phase B) must receive at least a passing grade in order to gain the 3 credits associated with the subject (it is not possible to pass one component and fail the other and still gain an overall pass). To ensure equitability, each project will be assessed by all of the tutors, not just the tutor assigned to a particular team. The assessment of each phase, based on a presentation to peers and tutors, and a written report, will be in accordance with PolyU's prevailing grading scheme.

Phase A, Project Proposal, is an individual piece of work which requires each student to identify a construction law problem and present it to the class. The students, with advice from tutors, will evaluate the feasibility of the proposals and, based upon their research interest, form themselves into teams of three. Within each team, members will then select one of the proposals that their team members have put forward for further development. Phase B, Project Development, requires the team to explore all the issues associated with the chosen proposal and suggests possible solutions the problem. Although this phase is developed and presented as a team, each member will also be assessed on his or her individual contribution. The following shows the assessment weighting for the Project:

<table>
<tr><td></td><td><u>Individual</u></td><td><u>Team</u></td></tr>
<tr><td>Phase A - Project Proposal</td><td>25%</td><td>N/A</td></tr>
<tr><td>Phase B - Project Development</td><td></td><td>75%</td></tr>
</table>
</td></tr>
</table>

	Total Weighting	25%	75%
Reading List and References	Chitty on contracts. Hong Kong specific contracts (6th Ed), Hong Kong: Sweet & Maxwell Asia. 2019. Burr, Andrew (Ed), *Construction Law Journal,* (8 Issues a year), ISSN: 0267-2359 Sweet & Maxwell. Chan, E.H.W. & Au, M.C.Y. (2010) Enforceability Considerations for Deleting the Extension of Time Provisions in Building Contracts, (2010) 26 Const. L.J., Part 4, (July 2010) 18-39. Chan, E.H.W. & Yiu, E.C.Y. (2008) *Contractual and Regulatory Innovations*, Hong Kong: Pace Pub. Ltd. Cheng, T.Y.W. & Soo, G. (2013) *Construction Law and Practice in Hong Kong*, 3rd Ed. Hong Kong: Sweet & Maxwell Asia. Nicholas Dennys, Robert Clay, Atkin Chambers (2019) Hudson's Building and Engineering Contracts, 14th Ed., (London: Sweet & Maxwell). Fisher, M.J. & Greenwood, D.G. (2011) *Contract Law in Hong Kong*, 2nd Ed., HKU Press. Furmston, M.P. (2012) *Powell-Smith & Furmston's Building Contract Casebook*, 5th Ed., Chichester, UK: Wiley-Blackwell. Furst S. & Ramsey V. (2021) Keating on Construction Contracts, 11th Ed., Sweet & Maxwell. McInnis, J.A. (Ed.) *Emden's Construction Law Hong Kong (updated three times per year)* LexisNexis. Ramsey, V. (2007-2018) *Construction Law Handbook*. London: Thomas Telford. Uff, J. (2021) *Construction Law: Law & Practice relating to Construction industry*, 14th Ed. Sweet & Maxwell. U.K. Wallace I.D. (2021) *Hudson's Building and Engineering Contracts*, 14th Ed., 1st Supplement (London: Sweet & Maxwell).		

Subject Description Form

Subject Code	BRE548
Subject Title	Dispute Resolution Project
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	Through collaborative teaching/learning process between lecturers/students, prepare students to achieve the Intended Learning Outcomes in the area of construction dispute resolution and research.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. differentiate the characteristics of the different dispute resolution methods; b. identify the substance and nature of a dispute, and match it with the appropriate dispute resolution method; c. communicate, using appropriate legal wording, findings such that a neutral third party to a dispute might arrive at when required to assist in its resolution; d. apply knowledge, reasoning and research skills to the resolution of disputes in the construction and real estate industries.
Subject Synopsis/ Indicative Syllabus	The Project requires candidates to identify a dispute resolution related problem and then, as part of a team, formulate a number of alternative solutions. This will involve exploring the whole range of dispute resolution activities involved in the problem. The intention is to improve students' comprehension of dispute resolution techniques and provide them with an opportunity of applying them to practical situations.
Teaching/Learning Methodology	Students will be expected to use a work related case study or current issues in industry to develop a topic for the project, which is intended to combine the students' knowledge of construction with the law related to dispute resolution. The project will span one semester and will be supervised by a team of tutors. After having received a briefing on the requirements of the Project during the first week of the semester, students will be required to present individual proposals to the tutors and other class members during a half-day workshop on week four. At this presentation workshop, students will divide into groups of three and, with advice from the tutors, choose one case study to use as the basis for their group project. A one-day seminar will be held during the last week of the semester in order that each team's completed project may be presented and discussed; at this time the projects will also be assessed by the tutors. Throughout the duration of the semester, each group will meet at regular intervals with the tutor assigned to their group. The pedagogical philosophy for this subject is student-centered learning. For the most part, students are required to work using their own initiative to find information and discover ways in which to apply it to their project. The project tutors act principally as mentors, facilitators, and assessors.

<table>
<tr><td></td><td>

Workshops
Small group tutorials
One-day seminar for presentations
Independent study

Individual and group project
Self-study

</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td>d.</td><td></td><td></td></tr>
<tr><td>1. Project Proposal*</td><td>25%</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>2. Project Development*</td><td>75%</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>
</table>
*Students are required to pass all the specific assessment methods/tasks to pass the subject.

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

Assessment is based on 100% coursework. Students will be assessed, individually and as a team, on their ability to analyse, critically evaluate, and synthesis knowledge gained from a variety of sources into their chosen project. The Project is divided into two distinct phases;

Phase A and Phase B. Phase A will be carried out individually, whilst Phase B will be carried out in teams with a maximum of three members. Each component (Phase A and Phase B) must receive at least a passing grade in order to gain the 3 credits associated with the subject (it is not possible to pass one component and fail the other and still gain an overall pass). To ensure equitability, each subject will be assessed by all of the tutors, not just the tutor assigned to a particular team. The assessment of each phase, based on a presentation to peers and tutors, and a written report, will be in accordance with PolyU's prevailing grading scheme.

Project Proposal (Phase A) is an individual piece of work which requires each student to develop a case study drawn from their present or past work situation or to identify current issues in industry for research and then analyse the issues related to dispute resolution that it raises. This case will then be presented to the tutors and class as a proposal for further study. With advice from the tutors, each team of three students (assigned by the tutors) will evaluate the feasibility of each proposal and select one for their team to further develop. Development of the project (Phase B) requires each team to explore the issues associated with the chosen case study or research topic and suggest appropriate dispute resolution methods for tackling the problems involved. Although this phase is developed and presented as a team, each
</td></tr>
</table>

	member will also be assessed on his or her individual contribution. The following shows the assessment weighting for the Project: Individual / Team Phase A - Project Proposal: 25% / N/A Phase B - Project Development: 10% / 65% Total Weighting: 35% / 65%
Reading List and References	Anderson, R.N.M. (2001) *Construction Adjudication Casebook*. England: Butterworths. Berkeley, A. & Mimms, J. (2001) *International Commercial Arbitration: Practical Perspectives*. London: Centre of Construction Law & Management. Bernstein, R., Tackaberry, J., Marriott, A. & Wood, D., (1998) *Handbook of Arbitration Practice,* London: Sweet & Maxwell. Burr, Andrew (Ed), *Construction Law Journal,* (8 Issues a year), ISSN: 0267-2359 Sweet & Maxwell. Chan E.H. & Suen H. (2005) *Disputes and dispute resolution systems in Sino-Foreign Joint Venture (SFJV) Construction Projects in China*, ASCE Journal of Professional Issues in Engineering Education and Practice, Vol.131(2),141-148. Chan E.H., Suen H. (2005) *Legal Issues of Dispute Management in International Construction Projects Contracting*, Construction Law Journal, Vol.21(4), 291-305. Chan, E.H.W. & Au, M.C.Y. (2010) *Enforceability Considerations for Deleting the Extension of Time Provisions in Building Contracts*, (2010) 26 Const. L.J., Part 4, (July 2010) 18-39. Chan, E.H.W. & Yiu, E.C.Y. (2008) *Contractual and Regulatory Innovations*, Hong Kong: Pace Pub. Ltd. Chan, E.H.W. (2008) *Dispute Resolution Model (on interactive on-line platform) website* http://drm.hkiac.org/ Chee, Simon (2016) *Construction Dispute Prevention and Resolution in Hong Kong 2016,* Hong Kong : Sweet & Maxwell Chee, Simon (2013) *From Right to Interest – Specialised Facilitative Mediation (Construction),* Thesis Cheng, T.Y.W. & Soo, G. (2013) *Construction Law and Practice in Hong Kong*, 3rd Ed. Hong Kong: Sweet & Maxwell Asia. Cheung C.C. and Chuah K.B., *'Conflict management styles in Hong Kong industries'* (1999) Vol. 17, Issue 6, International Journal of Project Management, p. 393-399. Chitty on contracts. Hong Kong specific contracts (6th Ed), Hong Kong: Sweet & Maxwell Asia. 2019. Development Bureau, HKSAR Govt (2015) *Proposed Security of Payment Legislation for Construction Industry Consultation Document*

	Development Bureau, HKSAR Govt (2017) *Practice Notes for New Engineer Contract – Term Service Contract for Public Works Projects in Hong Kong* Development Bureau, HKSAR Govt (2017) *Library of Standard Additional Conditions of Contract* Eilenberg, I.M. (2003) *Dispute Resolution in Construction Management*. Sydney: UNSW. Fenn, P.; O'Shea, M.; & Davies, E. (1998) *Dispute Resolution and Conflict Management in Construction: An International Review*. London: E & FN Spon. Fisher, M.J. & Greenwood, D.G. (2011) *Contract Law in Hong Kong*, 2nd Ed., HKU Press. Fisher, R.; Patton, B.M.; & Ury, W.L. (1991) *Getting to Yes: Negotiating An Agreement Without Giving In,* 2nd Ed. London: Random House. Furmston, M.P. (2012) *Powell-Smith & Furmston's Building Contract Casebook*, 5th Ed., Chichester, UK: Wiley-Blackwell. Furst, S. & Ramsey, V. (2019) *Keating on Building Contracts*, 10th Ed., London: Sweet & Maxwell. Gordon, K., (1998) *Adjudication in the Construction Industry*, London: Sweet & Maxwell. Hibberd, P.R. (1999) *ADR and Adjudication in Construction Disputes*. Oxford: Blackwell Science. HKIA / HKIS / HKICM Standard Forms of Building Contracts (2005, 2006 Editions) Hong Kong Arbitration Ordinance Cap. 609 Hong Kong Mediation Ordinance Cap 620 Jaques, M.S. (2001) *The Construction Law Minefield of Hong Kong*. Hong Kong: Butterworths. The Judiciary of Hong Kong, (2001) *Hong Kong Civil Justice Reform – Interim Report* Ma, Geoffrey, Editor-in-Chief., (3rd Ed., 2014) *Arbitration in Hong Kong: A Practical Guide*, Hong Kong: Sweet & Maxwell. Mackie, K.J. (2000) *The ADR Practice Guide: Commercial Dispute Resolution*. London: Butterworths. Matyas, R.M., (1996) *Construction Dispute Review Board Manual,* New York: McGraw-Hill. McInnis, J.A. (Ed.) *Emden's Construction Law Hong Kong (updated three times per year)* LexisNexis. Moser, M.J., and Cheng, T. Y.W. (2004) *Arbitration in Hong Kong: A User's Guide*, Aspen Publishers, USA. NEC4 Contracts

	Nicholas Dennys, Robert Clay, Atkin Chambers (2019) *Hudson's Building and Engineering Contracts*, 14th Ed., (London: Sweet & Maxwell). Ramsey, V. (2007-2018) *Construction Law Handbook*. London: Thomas Telford. Redmond, John, (2001) *Adjudication in Construction Contracts*, John Wiley & Son, First Ed. Simmonds, D. (2003*) Statutory Adjudication: A Practical Guide*. Oxford: Blackwell. Stephenson, D. A. (2001) *Arbitration Practice in Construction Contracts*. Oxford: Blackwell Science. Tang Houzhi, '*Is there an Expanding Culture that Favors Combining Arbitration with Conciliation or other ADR Procedures?*' in Van Den Berg, A.J. (ed.) *International Dispute Resolution: Towards an International Arbitration Culture*, Kluwer Law International, (London/Boston: The Hague, 1999), p. 101-120. Uff, J. (2009) *Construction Law: Law & Practice relating to Construction industry*, 10th Ed. Sweet & Maxwell. U.K. Uff, J. (2017) Construction Law: Law & Practice Relating to the Construction Industry, 12th Ed. London: Sweet & Maxwell. Ury, W. (1993) *Getting Past No: Negotiating Your Way From Confrontation To Cooperation*. New York: Batam Books. Related websites Hong Kong Legal Information Institute: http://www.hklii.hk Westlaw China, Westlaw Hong Kong and Westlaw International with all of them can be had in the databases of the University Library. Website of the Department of Justice of the HKSAR: http://www.doj.gov.hk Note: The latest version of the above-mentioned readings should be used.

Subject Description Form

Subject Code	BRE549
Subject Title	Arbitration Law and Practice
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Recommended background knowledge: A general knowledge of contract law
Objectives	Through workshop activities and interactive teaching/learning process between lecturers/students, prepare students to achieve the Intended Learning Outcomes in the area of arbitration.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. describe the principles in arbitration proceedings; b. explain holistically and analytically the preparation for arbitration proceedings; c. analyze with creative thinking to generate practical and innovative solutions; and d. apply skills and knowledge on recognizing and addressing legal issues arising from construction dispute.
Subject Synopsis/ Indicative Syllabus	**Keyword Syllabus** a. Introduction The nature of Arbitration; Domestic and International Arbitration; conflict of laws; substantive and Procedural laws; the UNCITRAL Model and domestic laws such as the Hong Kong Arbitration Ordinance. b. The Arbitration The Arbitration agreement; the commencement of Arbitration; the appointment of Arbitrators; fees and expenses of Arbitration; privacy and confidentiality. c. Procedure of Arbitration Procedures for preliminary issues; concurrent proceedings; choice of procedures; preliminary meeting; submissions; evidence; experts. Awards and Costs; appeal. d. Enforcement New York Convention and Enforcement of Awards (Hong Kong and mainland China).

<table>
<tr><td>Teaching/Learning Methodology</td><td>Lectures will provide fundamental knowledge relating to the arbitration proceedings. Students will be required to undertake various activities including tutorials and workshops, which will enable them to thoroughly digest the taught contents.

Tutorials will provide opportunities for students and lecturer to communicate and discuss any difficulties relating to the lecture programme.

Workshops will provide students with opportunities to experience conducting arbitration through the use of proceedings real cases in order to facilitate their learning.

Independent study and associated reading will require students to conduct some problem-solving exercises independently, analyze the case law and prepare submissions for the workshops.

Practitioners will be invited as guest lecturer to share professional practice experience in arbitration.</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td>d.</td><td></td><td></td></tr>
<tr><td>Continuous Assessment</td><td>100%</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>
</table>
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Continuous assessment will be based on 3 assignments, 1 case study and 2 small group workshops. The assignments include written submissions and self-study on reading materials/video, etc. Students are required to pass all the specific assessment methods/tasks and attend all the workshops to pass the subject.</td></tr>
<tr><td>Reading List and References</td><td>Brown, H.J. and Marriott, A., (2011) ADR Principles and Practice, London: Sweet & Maxwell.

Chee, Simon (2016) Construction Dispute Prevention and Resolution in Hong Kong 2016, Hong Kong : Sweet & Maxwell

Cheung, Kwok Kit., (2014) A Simple Guide to Arbitration in Hong Kong and Mainland China,
http://www.deaconslaw.com/eng/knowledge/knowledge_42.htm

Hong Kong Arbitration Ordinance Cap. 609

Hong Kong Mediation Ordinance Cap 620

HKIA / HKIS / HKICM Standard Forms of Building Contracts (2005, 2006 Editions)

Ma, Geoffrey, Editor-in-Chief., (3rd Ed., 2014) Arbitration in Hong Kong: A</td></tr>
</table>

	Practical Guide, Hong Kong: Sweet & Maxwell. Moser, M.J., and Cheng, T. Y.W. (2004) *Arbitration in Hong Kong: A User's Guide*, Aspen Publishers, USA. *Singapore Arbitral Awards 2010*, LexisNexis Stephenson, D. A. (2001) *Arbitration Practice in Construction Contracts*. Oxford: Blackwell Science. Tackaberry, J., Marriott, A. & Wood, D., (2003) *Bernstein's Handbook of Arbitration and Dispute Resolution Practice*, London: Sweet & Maxwell. <u>Essential Textbook</u> Blackaby, N., (6th Ed., 2015) *Redfern and Hunter on International Arbitration*, Oxford: Oxford University Press.

Subject Description Form

Subject Code	BRE550
Subject Title	Statutory Framework for Construction Practice
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	To provide students with an overview and understanding of the regulations currently enforced in the construction industry. Responsibilities of the engineers will be highlighted and this will equip students with sound knowledge to appreciate the relationship between regulations and practice of the construction industry.
Intended Learning Outcomes	Upon completion of the subject, students will be able: a. to possess in-depth knowledge in construction related ordinances; b. to possess skills in managing disputes by reference to construction related ordinances; c. to think holistically and analytically in dealing with complex problems and situations pertinent to construction disputes; and d. to make use of the ordinances to general practical argument.
Subject Synopsis/ Indicative Syllabus	**Keyword Syllabus** i) Statutory Control Framework and Building Control Enactment history and Buildings Ordinance, regulations, PNAP, Offences. Minor Works Control System. Control of buildings and appeal. Practice Notes in force and authority. Procedures for approval, consent and permit to occupy. Supervision plans. ii) Exemptions and Unauthorized Building Works Exemptions (s41) and Buildings Ordinance (Application to the NT). Unauthorized building works. Order for demolition, removal or alteration, and appeal. iii) Building Management Ordinance Deed of mutual covenant and general duties under BMO. Common parts. Owners incorporated and Management. iv) Environmental Legislation and Administration Town planning system and environmental impact assessment. Environmental legislation and regulations.

<table>
<tr><td></td><td>v) <u>Construction Safety</u>
Principle of construction safety.
Ordinances and Regulations.
Vi) <u>Prosecution and Appeal arising from Construction Practice</u>
Civil v. Criminal Prosecution
Judicial Review,
Administrative Appeal
Other Consequences of non-compliance and exemptions.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Lectures will provide fundamental knowledge and application examples relating to the construction-related ordinances. Students will be required to undertake various activities including tutorials to enable them to thoroughly digest the taught contents.

Tutorials will provide opportunities for students and lecturer to communicate and discuss any difficulties relating to the lecture programme. It will also provide a forum for students and lecturer to discuss the ongoing coursework.

Coursework will provide students with opportunities to tackle complex real problems to facilitate their learning.

Independent study and associated reading will require students to conduct some problem-solving exercises independently, analyze the cases and prepare practical and innovative arguments.</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td>d.</td><td></td><td></td></tr>
<tr><td>1.Coursework (PPT slide and report)*</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td></tr>
<tr><td>2. Written Examination*</td><td>60%</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>
</table>
*Students are required to pass all the specific assessment methods/tasks to pass the subject.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:Coursework will be set such that students will be asked to completed tasks to align with intended learning outcomes, including:

research related to in-depth knowledge in construction related ordinances,
prepare presentation and discussion with party group work to learn managing disputes and exercise problem solving skills and
prepare and submit a final report to cover the subject area holistically and analytically.

</td></tr>
</table>

	Written examination: To align with intended learning outcomes, at least 4 questions will be set to cover the key knowledge area of the subject and they are separated into two sections that students have to attempt both sections. Students can answer the questions with open-book examination approach. As such, students can be examined on the in-depth understanding of a broad range of knowledge and the ability to search and use information critically. Some of the questions will be problem solving type on practical issues and the others are essay type to discuss controversial issues in order to test student both holistically and analytically. 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.
Reading List and References	**<u>Ordinances</u>** Cap 59, Factories and Industrial Undertaking Ordinance Cap 123, Buildings Ordinances Cap 344, Building Management Ordinance Cap 499, Environmental Impact Assessment Ordinance Cap 509, Occupational Safety and Health Ordinance **<u>References</u>** • Environment, Transport and Works Bureau: www.etwb.gov.hk - technical circulars • Butterworths, *Hong Kong Building Law Handbook. .* (2017, Fourth Edition) • Chan E.H.W., Mok P. & Scott D. (2001) Statutory Requirements for Construction Professionals, Published by HK Institute of Construction Managers and Pace Publishing Ltd. ISNB:962-7723-28-2, Hong Kong. • Christopher Tung, *Keeping It Clean and Safe: The Impact of Safety and Environmental Regulations on The Hong Kong Construction Industry*, Chapter 2, The Construction Law Minefield of Hong Kong, Butterworths, 2001. • Halsbury's Laws of Hong Kong – Building & Construction. (2011, Second Edition) • Lawrance W. C. Lai and Daniel C. W. Ho, *Planning, Buildings for a High-rise Environment – A Review of Building Appeal Decisions*, HKU Press, 2002. • Practice Notes for AP and RSE issued and updated from time to time from the Buildings Department. • Sihombing and Wilkinson, *Students' Guide to Hong Kong Conveyancing.* (2021, Ninth Edition (Student)) • Steve Rowlinson, *Hong Kong Construction – Site Safety Management*, Sweet & Maxwell, Asia, 2003.

Subject Description Form

Subject Code	BRE562
Subject Title	Project Appraisal
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject aims to: a. introduce basic valuation concepts of international real estate; b. develop knowledge and understanding of international approaches to standards of appraisals; c. familiarize students with a broad spectrum of appraisal approaches and to integrate them in comprehensive project appraisals.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. have an understanding of basic valuation concepts of international real estate; b. have a knowledge of international approaches to standards of appraisals; c. gain a broad spectrum of appraisal approaches and to apply them in comprehensive project appraisals.
Subject Synopsis/ Indicative Syllabus	Indicative syllabus: • Real estate valuation techniques • International real estate valuation standard • Economic appraisal: theory and methods • Financial appraisal and development decisions
Teaching/Learning Methodology	Lectures and directed reading will be used to outline the techniques and approaches determined by international valuation practice; conventional economic appraisal and environmental appraisal. Visiting speakers from international agencies will illustrate practical applications. Coursework will be used to test understanding and application of the relevant methodologies and ability to undertake a critical appraisal of each method. Case studies will be used. • Lectures • Seminars and workshops • Independent study • Assignment • Self-study

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.			
1. Coursework	50%	√	√	√			
2. Examination	50%	√	√	√			
Total	100%						

*Students are required to pass all the specific assessment methods/tasks to pass the subject.

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

Both coursework and examination will be used to test understanding and application of the relevant methodologies and ability to undertake a critical appraisal of each method.

Reading List and References

Indicative Reading List:

Asian Development Bank (1996) *Economic Evaluation of Environmental Impacts*, Asian Development Bank, Manila.

Baum A., Mackmin D., Nunnington N., (1997) *The Income Approach to Property Valuation: 4th ed.*, International Thompson Business Press.

Best P., (1998), *Implementing Value at Risk*, Wiley, New York.

Champness, (1997), *Approved European Property Valuation Standards*, Estates Gazette Limited.

Copeland T., Koller T., Murrin J., (1995), *Valuation: Measuring and Managing the Value of Companies 2nd Edition*, Wiley, New York.

Eckert, Joseph K., (1990), Property Appraisal and Assessment Administration. Chicago, International Association of Assessing Officers.

Economist Intelligence Unit, (1997), *Global Direct Investment and the Importance of Real Estate*, EIU, London.

Field, (1997), *The Appraisal of Real Estate*, 11th ed., Appraisal Institute, Chicago.

Gelbtuch H.C., Mackmin D., (1997) *Real Estate Valuation in Global Markets*, Appraisal Institute, Chicago.

HKIS, (2005), *The HKIS Valuation Standards on Properties*, The Hong Kong Institute of Surveyors.

Johansson P., (1993) Cost-Benefit Analysis of Environmental Change, CUP, Cambridge.

Li Ling-hin, (1997) *Development Appraisal of Land in Hong Kong*, Chinese University Press, Hong Kong.

	Lumby S., (1994), *Investment Appraisal and Financial Decisions*, 5th Edition, Chapman & Hall. Millington, A. F., (2000) An Introduction to Valuation, Estate Gazette Nevitt P.K., Fabozzi F., (1995) *Project Financing*, Euromoney. Royal Institution of Chartered Surveyors, (1997), *Calculation of Worth: An Information Paper*, RICS, London. Sirota D., (1998), *Essentials of Real Estate Finance: 9th ed*., Real Estate Education Co., Chicago. Squire, van der Tak H.G., (1975, seventh printing 1992) *Economic Analysis of Projects*, Johns Hopkins University Press, Baltimore. Ventolo, Williams, (2004), *Fundamentals of Real Estate Appraisal*, 8th ed., Dearborn Real Estate Education. Ward W.A., Deren B.J., (1991), *The Economics of Project Analysis: A Practitioner's Guide,* Economic Development.

Subject Description Form

Subject Code	BRE565
Subject Title	Real Estate Asset Management
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil (Students are expected to possess some knowledge of the real estate development process and an understanding of basic organizational management theory)
Objectives	This subject aims to provide an integrated and consolidated intellectual framework for students to comprehend and analyse the current factors and issues in the management of corporate real estate as a business asset.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. explain the institutions or rules of the game (formal and informal) in the context of real estate management, which focuses on the real estate, the organization that use it and the people that manage it; b. develop knowledge and understanding of the strategic management of and the corporate real estate; c. familiarize with theoretical models and concepts in analyzing issues in asset management and performance applied to real estate assets; d. communicate and present ideas in a clear and articulate manner using appropriate academic convention.
Subject Synopsis/ Indicative Syllabus	**Institutions:** Legal framework setting out ownership rights of organizations over real estate. Formal and informal rules and conventions adopted by organizations in management of real estate assets. Types of governance – markets or hierarchies, risk management by real estate assets. **Organizational Theory:** Relationship between real estate ownership and use within organizations – objectives of organizations, organizational structure, allocation of resources, behavioural theory of the firm. **Management Strategy:** Alignment of organizational real estate strategy with organizational objectives. Structure of real estate management unit within organization. Performance monitoring and procurement of real estate assets and management skills. **Real Estate:** a. as a factor of service and production;

<table>
<tr><td></td><td>b. as a financial investment. Real estate asset performance, value creation and management relating to different asset management model and investment vehicles.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Topics will be introduced by lectures with guidance to various reference materials. Case studies and assignments will be used to create an ‘action learning’ environment in which the students will critically evaluate practices and procedures for the achievement of quality. Small group discussion will enhance the information flow and evaluation process.

• Lectures and seminars
• In-class tutorials
• Independent study
  • Assignment
  • Self-study</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td>d.</td><td></td><td></td></tr>
<tr><td>1. Assignment/case studies*</td><td>40%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>2. Examination*</td><td>50%</td><td>√</td><td>√</td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>3. Participation/ presentation*</td><td>10%</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>
</table>
*Students are required to pass all the specific assessment methods/tasks to pass the subject.

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

Assignment questions are distributed to students to practice applying investment strategies and analysis to evaluate real estate asset management decision. Selected problems/case studies will be discussed in tutorial sessions, and students are required to present their solution apply to those case studies.

The final examination assesses students’ ability in solving and rationalizing problems of real estate asset management by applying their knowledge gained from the subject.</td></tr>
<tr><td>Reading List and References</td><td>Cinquini, L., Minin A. & Varaldo, R. (2013) New Business Models and Value Creation: A Service Science Perspective, Milan; London: Springer.

Haynes, B., Nunnington, N. & Eccles, T, (2017) Corporate Real Estate Asset Management: Strategy and Implementation (Second edition), Abington, Oxon: Routledge.

Hewlett, C. & Kaufmann, G. (2008), Strategy for Real Estate Companies,</td></tr>
</table>

	Washington, DC: ULI – Urban Land Institute. Kaplan, R.S. & Norton, D.P., (2004) *Strategy Maps: Converting intangible assets into tangible outcomes*, Boston: Harvard Business School Press. Parker, D. (2018) *The Routledge REITs Research Handbook*, Abingdon, Oxon: Routledge. *REITs in Asia: from Concept to Completion*, Hong Kong: Asia Law & Practice (2005). Seabrooke, W., Kent, P. & How, H. (2004), *International Real Estate: An Institutioanl Approach*, Oxford, U.K; Malden, MA: Blackwell Pub. Then, D S S,, (2012) *Real Estate Asset Management: Operational Property Assets and Facilities Support Services as a Business Resource*, Saarbrucken, Germany: LAP Lambert Academic Publishing. Weatherhead, M. (1997) *Real Estate in Corporate Strategy*, MacMillan Press.

Subject Description Form

Subject Code	BRE567
Subject Title	International Real Estate: China
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil (Recommended Background Knowledge: Reliable general understanding of real estate would be a plus)
Objectives	This subject will outline structures of property rights, property markets, market-players interaction and provide analysis of user requirements, value creation and appraisal of property value, with particular reference to China. Students will be required to absorb geographically specific information and to apply this information within an analytical framework. It will bring together the 'core' themes of real estate, illustrating institutional differences in China. It will develop 'real-time' understanding of current real estate issues in the respective areas of study.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. identify sources of information concerning the major features of real estate in China; b. undertake an intensive market research and site visit to apply value improvement in selected case studies; c. apply this understanding to the requirements of developers and investors outside China; d. identify areas for further research.
Subject Synopsis/ Indicative Syllabus	This subject will take place in China and will address the following themes: a. Latest property development trend; b. China investment and property markets including systems of regulation (formal and informal rules of the game); c. Incorporating real estate into business strategy to enhance project competitiveness.
Teaching/Learning Methodology	Participants will bring to this subject their own knowledge and experience of real estate principles and practice plus some newly developed analytical frameworks for investigating national differences in the dynamics of real estate investment and management in 'other' countries. They will be provided with briefing material and a broadly structured assignment project anchored to their own practice environment in their local cities. The coursework project will focus participants' attention on the learning outcomes of the whole subject. The subject will be presented in a concentrated learning block lasting for 4/5 days of study tour (Participants MUST be present for the whole study tour in China).

<table>
<tr><td></td><td>Participants will have lectures and site visits explaining and illustrating the main themes and issues contained in the programme. Students are required to make a group presentation towards the end of the subject.</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td>d.</td><td></td><td></td></tr>
<tr><td>1.Coursework

(In-class participation and site visit, Individual performance in group presentation plus group report)*</td><td>100%</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>
</table>
*Students are required to pass all the specific assessment methods/tasks to pass the subject.

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

Assignment questions are distributed to students to apply their own knowledge and experience of real estate principles and practice plus some newly developed analytical frameworks for investigating national differences in the dynamics of real estate investment and management in ‘other’ countries. They will be required to present their findings in workshops and submitted their reports for assessment.
</td></tr>
<tr><td>Reading List and References</td><td>Most of the reading for this subject will come from real estate journals, some of which are listed below. Full details of further reading will be produced as part of the briefing information for this subject.

China Real Estate

China Real Estate Market

Foreign Urban Planning

Journal of Property Research

Journal of Real Estate Finance and Economics

Journal of Real Estate Literature

Journal of Real Estate Research

Real Estate Economics</td></tr>
</table>

Subject Description Form

Subject Code	BRE572
Subject Title	Real Estate Development
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject adopts a multi-disciplinary approach and covers both the theoretical, conceptual and essential aspects of property development. It is intended to provide an integrated, intellectual and critical framework for students to comprehend and analyze the contemporary problems of and key issues affecting the production and consumption of the built environment in our society.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. identify and describe the literature for a broad-based research topic related to land and property development; b. appraise the complex and dynamic process of real estate development, with special reference to the local context; c. evaluate the significance of all the key social, political, economic, physical and regulatory factors and their trends in affecting the operation of the property development industry; d. assess the strengths and weaknesses of the theoretical models and concepts in analyzing the current issues affecting property development in our society; e. synthesize important insights and knowledge from various intellectual disciplines and apply them in addressing contemporary problems in the production and consumption of built environment in our cities.
Subject Synopsis/ Indicative Syllabus	***Real Estate Development Features, Models and Processes:*** Models of Development Process; Transformation of Urban Built Environment. ***Public Sector Regulations and Development Potential:*** Concepts of Project Feasibility; Approaches in Development Control Decision Analysis. ***Current Issues in Real Estate Development:*** Globalization of Real Estate; Land Development in China; Property-led Urban Regeneration. ***Different Types of Real Estate Development:*** Office, Residential and Industrial Development.
Teaching/Learning Methodology	This subject will consist of a series of lectures, workshops and tutorials to introduce the theories, models and literature relevant to the subject syllabus. Students are requested to read the assigned readings and complete some directed self-learning activities to assess their understanding of the subject syllabus.

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.	
Team Project*	50%	√	√	√	√	√	
Team Paper*	50%	√	√	√	√	√	
Total	100%						

*Students are required to pass all the specific assessment methods/tasks to pass the subject.

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

The Term Paper and Final Examination cover essay-type questions and allows students to further synthesize the knowledge and apply to practical scenarios and specific situations.

Indicative Reading List and References

Brown, P. H. (2015). *How Real Estate Developers Think: Design Profit and Community.* USA: University of Pennsylvania Press.

Buitelaar, E. (2004). A transaction-cost analysis of the land development process. *Urban Studies, 41*(13), 2539-2553.

Charney, I. (2007). Intra-metropolitan preferences of property developers in greater Toronto's office market. *Geoforum*, 38(6), 1179-1189.

Cho, C.-J. (2010). An analysis of the housing redevelopment process in Korea through the lens of the transaction cost framework. *Urban Studies, 48*(7), 1477-1501.

Coiacetto, E. (2007). The role of the development industry in shaping urban social space: a conceptual model. *Geographical Research*, *45*(4), 340-347.

Fainstein, S. S. (2008). Mega-projects in New York, London and Amsterdam. *International Journal of Urban and Regional Research, 32*(4), 768-785.

Gielen, D. M., & Tasan-Kok, T. (2010). Flexibility in planning and the consequences for public-value capturing in UK, Spain and the Netherlands. *European Planning Studies, 18*(7), 1097-1131.

Gospodini, A. (2006). Portraying, classifying and understanding the emerging landscapes in the post-industrial city. *Cities*, 23(5), 311-330.

Hutton, T. A. (2004). Post-industrialism, post-modernism and the reproduction of Vancouver's central area: retheorising the 21st-century city. *Urban Studies, 41*(10), 1953-1982.

Tang, B.S., Wong, S.W. and Liu. S.C. (2011) Institutions, property taxation and local government finance in China. *Urban Studies*, 48 (5), 847-875.

Li, Y., Chen, X., Tang, B. S., & Wong, S. W. (2018). From project to policy: Adaptive reuse and urban industrial land restructuring in Guangzhou City, China. Cities. *Cities* 82, 68-76.

Wu, J. (2011). Globalization and emerging office and commercial landscapes in Shanghai. *Urban Geography, 32*(4), 511-530.

Subject Description Form

Subject Code	BRE5731
Subject Title	Managing People in Projects
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	Students are expected to possess knowledge of: a. human behavioural context of project-based industries; b. organisation culture and the role of a manager within it; c. the nature of group behaviour and conflict management; and d. personal skills in selected areas of people management.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. understand the human behavioural context of project-based industries; b. develop knowledge of organisation culture and the role of a manager within it; c. understand the nature of group behaviour and conflict management; and d. develop personal skills in selected areas of people management.
Subject Synopsis/ Indicative Syllabus	**Context:** Overview of the context and processes of management; employee resourcing; and professional ethics. **Individual Behaviour:** Motivation of project professionals; individual differences; stress management; and job design. **Small Group Behaviour:** Group formation; types of groups; interpersonal communication; and leadership of projects. **Organisation Behaviour:** Organisational culture; organisational development and the management of change; Temporary Multi-Organisations (TMO); subcontract management; joint venture management; and cross-cultural aspects of management. **Manager Skills:** Selection interviews - appraisal interviews; discipline/grievance interviews; negotiating; meetings (project/site meetings); investigation of incidents (site accidents); and team building.
Teaching/Learning Methodology	Topics are introduced through a study guide, supplemented by materials delivered through workshops and lectures. The independent study comprises individual and group work as well as guided reading. Students are part of small study groups who discuss to share views and enhance the learning through information exchange. • Face-to-face teaching: Lectures, workshops and presentation • Independent study: Assignments (Self-awareness Exercise and Term Paper) and Self study (Guided reading)

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.	
1. Continuous Assessment*		√	√	√	√	
• Self awareness Exercise	10%				√	
• Term paper	30%	√	√	√		
• Presentation	10%		√	√	√	
2. Examination*	50%	√	√	√	√	
Total	100%					

*Students are required to pass both the continuous assessment and examination to pass the subject.

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

a. to complete 'self-awareness exercise' and self-reflection report (individual work);

b. to complete the Term Paper individually. (Student presentation and reflection journal are required if in group work);

c. to complete the written examination and to demonstrate the knowledge of managing people in projects.

Reading List and References

Essential readings

Morris, P.W.G. and Pinto, J.K. (ed) (2007). *The Wiley guide to project organization and project management competencies*. John Wiley & Sons, Inc: New Jersey.

Robbins, S.P. and Hunsaker, P.L. (2014). *Training in interpersonal Skill: Tips for Managing People at work*, 6th Ed., Pearson Education Limited, England.

Recommended readings

Cheung, S.C. (2004). *Human resource management strategies and practices in Hong Kong*: research report, Hong Kong: Hong Kong Institute of Human Management.

Dainty A. et al (ed) (2007). *People and culture in construction: A reader*. Taylor & Francis: London.

Hong Kong (China), Construction Industry Review Committee (2001). *Construct for Excellent: Report of the Construction Industry Review Committee*, Report of the Construction Industry Report Committee Hong Kong, HKSAR.

ICAC (2003) *Ethics for construction professionals*, A resource portfolio for Hong Kong university, Hong Kong Ethics Development Centre, Hong Kong

Turner, J.R., Huemann, M. and Keegan, A. (2008). *Human resource management in the project-oriented organization*, Project Management Institute.

Subject Description Form

Subject Code	BRE574
Subject Title	Construction Process Management
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	The objectives of this subject focus towards the application of building/construction management techniques by integrating site operational management with strategic and project management activities.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. understand the concept and significance of construction process management in project development; b. appraise the impacts of project time, cost, resource productivity, and constructability to construction process management; c. optimize the construction process for improving project time, project cost, resource productivity; d. apply the operational functions of time, information, material, resource, contract, site environment for process management.
Subject Synopsis/ Indicative Syllabus	Process management concepts: process productivity (work cycle balancing; work sampling; method productivity delay model), process simulation (types of process simulation; Monte Carlo simulation; hand simulation; CYCLONE simulation), process optimization (linear programming technique; model formulation). Management functions and processes: time management; information management; materials management; resource management; sub-contracting management; site environment management, procurement management.
Teaching/Learning Methodology	• Lectures • Seminars • Independent study • Assignments • Self-study

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.		
1. Continuous Assessment* (Assignments and class participation)	60%	√	√	√	√		
2. Examination	40%	√	√	√	√		
Total	100%						

*Students are required to pass both the continuous assessment and examination to pass the subject.

Reading List and References

AbouRizk, S. (2010). “Role of simulation in construction engineering and management.” Journal of construction engineering and management. 136(10), 1140-1153.

Siu, M., Lu, M., and AbouRizk, S. (2016). “Resource supply-demand matching scheduling approach for construction workface planning.” Journal of construction engineering and management. 142 (1), 04015048.

Tang, S.L. (1999). Linear optimization in applications. Hong Kong University Press, Hong Kong.

Tang, S.L., Ahmad, I.U., Ahmed, S.M., and Lu, M. (2004). Quantitative techniques for decision making in construction. Hong Kong University Press, Hong Kong.

Tang, S.L., Poon, S.W., Ahmed, S.M., and Wong K.W. (2003). Modern construction project management. Hong Kong University Press.

Tatum, C.B. (2005). “Building better technical support for construction.” Journal of construction engineering and management, 131(1), 23-32.

Tatum, C.B. (2012). “Integrated construction engineering activities to satisfy challenging project objectives.” Construction research congress 2012, 139-148.

The Hong Kong Institute of Architects, The Hong Kong Institute of Surveyors. (2005). Agreement and schedule of conditions of building contract for use in the Hong Kong Special Administrative Region, Private Edition - with quantities, 2005 Edition.

The Hong Kong Institute of Architects, The Hong Kong Institute of Surveyors (2006). Agreement and schedule of conditions of building contract for use in the Hong Kong Special Administrative Region, Private Edition - without quantities, 2006 Edition.

The Hong Kong Institute of Architects, The Hong Kong Institute of Surveyors (2005). Agreement and schedule of conditions of nominated sub-contract for use in the Hong Kong Special Administrative Region, 2005 Edition.

Subject Description Form

Subject Code	BRE5751
Subject Title	Strategic Management
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	a. To provide students with in-depth understanding of the subjects relating to strategy and strategic management. b. To develop the students' ability in applying strategic management theories and techniques in practice in the area of construction and real estate.
Intended Learning Outcomes *(Note 1)*	Upon completion of the subject, students will be able to: a. understand strategy and strategic management; b. possess knowledge in strategic management techniques throughout the development and project cycle; c. apply theories and techniques in practice in the area of strategic management.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	Strategy & strategic management Organization competitiveness Eastern theories on strategy Strategy in a changing world; strategy & leadership Systems Approach to strategic management Tactics and SWOTE Analysis Strategic management in practice; strategy tools Designing organizations and strategies Sustainable development; Sustainability principle, environmental impact, environmental performance assessment and protection. Challenges of major programme management Strategic management in construction; project management: strategic time, cost & quality management Corporate strategy and real estate Risk management, Risk concept, principles of the management of risks, risk management techniques, risk attitude, decision making and application of risk management Quality management, quality management system (QMS)

<table>
<tr><td>Teaching/Learning Methodology
(Note 3)</td><td>Topics are introduced through a study guide and recommended texts supplemented by materials delivered through lectures and seminars. The independent study comprises individual and group work as well as cases for tutorials. Students are part of small study groups who use face-to-face or web-based media to share views and interact with group members.
Face-to-face teaching & learning: Lectures, Tutorials, Seminars and Discussion
Independent study: Assignments (Individual Report) and Guided-study (Cases for discussion and presentation at tutorials)</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 (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td></td><td></td><td></td></tr>
<tr><td>1. Continuous Assessments*</td><td>50%</td><td>√</td><td></td><td>√</td><td></td><td></td><td></td></tr>
<tr><td>• Individual Report</td><td>40%</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>• In-class participation</td><td>10%</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. 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>
</table>
*Students are required to pass both the continuous assessment and examination to pass the subject.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
Students are required to submit a Term Paper and to demonstrate the ability to apply theory and techniques in practice.
In examination, students are required:
to demonstrate knowledge in strategic management techniques throughout the development and project cycle;
to apply theories and techniques in practice in the area of strategic management.</td></tr>
<tr><td>Reading List and References</td><td><u>Recommended readings</u>:

Evans V (2014) Strategy Tools FT Publishing, Pearson
Galbraith J (2014) Designing Organizations Jossey-bass, Wiley</td></tr>
</table>

	Harvard Business Review *HBR's Must-Reads on Strategy* (Article Collection: Product 12601) Langford D and Male S (2001) *Strategic Management in Construction* Blackwell Science, Oxford Shen, L.Y. Lu W.S and Fan L.C.N. (2009). *Strategic Management*, The Hong Kong Polytechnic University. Sun Tze *The Art of War* (Chinese &/or English Translations) Weatherhead M. (1997) *Real Estate in Corporate Strategy* MacMillan ***Selected journal and conference papers*** CIOB (2014) "*Strategy"* in *Code of Practice for Project Management for Construction and Development* 5th ed. (85-110) John Wiley & Sons. Flanagan, R., Lu, W.S., Shen, L.Y. and Jewell, C. (2007). *Competitiveness in Construction: A Critical Review of Research, Construction Management and Economics*, Vol. 25, 989-1000. Shen L.Y. (1999). 'Risk Management', Building in Value: Pre-design Issues, (Ed., Best & De Valence) Arnold Publishers, ISBN: 0340741600, pp.248-267.

Subject Description Form

Subject Code	BRE581
Subject Title	International Construction Projects
Credit Value	3
Level	5
Pre-requisite / Co-requisite / Exclusion	Nil
Objectives	This subject aims to enrich students' knowledge and skills in procurement management and relational contracting systems used for international construction projects.
Intended Learning Outcomes	Upon completion of this subject, students should be able to: a. demonstrate an understanding of international trade and the nature of international construction. b. describe and select appropriate procurement options and management techniques used for international construction projects. c. apply concepts and principles of relational contracting to the implementation of construction projects.
Subject Synopsis / Indicative Syllabus	Keyword syllabus: **International construction:** Opportunities in local, Chinese and overseas market, managing multi-disciplinary and multi-national projects, cultural and political risks, "One Belt, One Road 一帶一路" initiative of Mainland China, cross-cultural management of international project teams. **Procurement of international projects:** Design-build, management contracting and construction management, international standard forms of contract such as the FIDIC form of contract and the New Engineering Contract (NEC). **Relational contracting:** Overview, partnering, alliancing, public-private partnerships (PPP) and joint ventures, measures of success for international projects, target cost contracting, risk assessment models, New Engineering Contract (NEC), and case studies.
Teaching / Learning Methodology	Lecture topics are introduced through a printed study guide and a recommended textbook, which are supplemented by materials delivered during the lectures. Seminars provide an opportunity for students to further explore topics in greater depth through case study analysis, and critical evaluation of established protocols. The coursework assignment comprises in-class exercise and a group term paper supported by individual guided readings and group discussions. It is the students' ultimate responsibilities to ensure that no plagiarism is committed in their coursework assignments. So students should have checked their works against plagiarism by using some common plagiarism detection and scanning tools (e.g. Turnitin program) before submitting their completed coursework assignments for assessment. Students should submit and retain their "final scanned" electronic copy of their completed assignments (with the Similarity Index and AI-text Indicators shown) at the same location of the Blackboard subject website for perusal and inspection by the subject lecturers.

As the Generative AI (GenAI) tools has become a normal part of learning, teaching and assessment as an emerging trend at PolyU to produce text and other media for the assessments, students have to submit their **completed Honour Declaration Forms (for both individual assignments and group reports)** if the assessments and assignments of the subject are primarily **based on essays or written type of works**, starting from Semester 1 of 2024/25.

Honour Declaration Form on the Use of Generative AI (GenAI) Tools in Subject Assignments

PolyU GenAI App (source: https://genai.polyu.edu.hk)

Students are required to declare the use of any Generative AI (GenAI) tools for brainstorming or generating initial ideas, literature search or writing of assignment reports (e.g. ChatGPT, DeepSeek, , Poe, Google Bard, Microsoft 365 Copilot Chat, Qwen 通义千问, etc) in preparing their submitted work, and where and how they have been used. Therefore, students need to submit their completed Honour Declaration Forms (one form for one student for individual assignment whereas one form for one group for group assignment) which should be included at the end of their submitted assignments as a kind of mandatory requirement for perusal and reference by the subject lecturers.

If students have adopted AI-generated texts or materials in their work, they must properly cite and reference them in accordance with accepted academic conventions and citation styles. Students may refer to the Guidelines for Students on the Use of Generative Artificial Intelligence (source: https://www.polyu.edu.hk/ar/students-in-taught-programmes/use-of-genai) developed by the Academic Registry (AR) of PolyU for reference.

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			
1. Coursework (In-class exercise)	10%	✓	✓	✓			
2. Coursework (Group term paper or report)	40%	✓	✓	✓			
3. Examination (2 hours)	50%	✓	✓	✓			
Total	100%						

Students must complete and pass each of the two assessment components of the subject (**both coursework and examination separately**) in order to obtain an overall pass of the whole subject.

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

Coursework (In-class exercise and Group term paper or report)

The designed term paper question attempts to test the level of students' knowledge and understanding of various procurement options and relational contracting systems used for construction projects, and then to determine the most appropriate one for implementation with strong justifications or sound recommendations.

Examination (2 hours)

The examination questions attempt to test students' knowledge and understanding of various procurement options and relational contracting systems

	used for construction projects, and then to cite relevant both local and international case study projects for proper illustration and justified arguments.
Reading List and References	**Construction Industry** Construction Industry Institute – Hong Kong (2008). *Proceedings of the CII-HK Conference 2008 – Building a Stronger Construction Industry for Hong Kong: Opportunities and Challenges* (Thomas Ng, Albert Chan, Daniel Chan and James Wong as Editors), 26 November 2008, Hong Kong, China, ISBN 978-988-99558-9-2, 185 pages. Construction Industry Review Committee (2001). *Construct for Excellence*, Report of the Construction Industry Review Committee, Hong Kong SAR, Hong Kong, 207 pages. Development Bureau (2018). *Construction 2.0 - Time to Change*, Report of the Project Cost Management Office, Development Bureau, Hong Kong SAR Government, Hong Kong on the future of the local construction industry - the challenges and how these can be addressed, September, 53 pages (URL: https://www.psgo.gov.hk/en/c20.html). **Construction Procurement** Chan, A.P.C and Yung, E.H.K. (2003). *Procurement Selection Model for Hong Kong*, Research Monograph, Department of Building and Real Estate, The Hong Kong Polytechnic University, ISBN 962-367-285-3, 143 pages. Masterman, J.W.E. (2002). *An Introduction to Building Procurement Systems*. 2nd Edition, E & FN Spon. **Construction Contracts** Bunni, N.G. (1997). *The FIDIC Form of Contract: The Fourth Edition of the Red Book*. Blackwell Science. Hills, M.J. (2001). *Building Contract Procedures in Hong Kong*, Hong Kong: Pearson Education. **Construction Partnering** Broome, J. (2002). *Procurement Routes for Partnering – A Practical Guide*, London: Thomas Telford, Chapter 2. Chan, A.P.C., Chan, D.W.M. and Yeung, J.F.Y. (2010). *Relational Contracting for Construction Excellence: Principles, Practices and Case Studies*, Spon Press of the Taylor & Francis Group: UK, 334 pages, ISBN 978-0-415-46669-1 (hardback) (URL: http://www.routledge.com/books/details/9780415466691). **Target Cost Contracting** Broome, J. (2002). *Procurement Routes for Partnering – A Practical Guide*, London: Thomas Telford, Chapter 8. Chan, D.W.M., Chan, A.P.C., Lam, P.T.I., Lam, E.W.M. and Wong, J.M.W. (2007). *An Investigation of Guaranteed Maximum Price (GMP) and Target Cost Contracting (TCC) Procurement Strategies in Hong Kong Construction Industry*, Research Monograph, Department of Building and Real Estate, The Hong Kong Polytechnic University, 152 pages, ISBN 978-962-367-593-2, October 2007. (URL: http://ira.lib.polyu.edu.hk/handle/10397/2376) Chan, D.W.M. and Chan, J.H.L. (2017). *Target Cost Contracting Strategy in Construction: Principles, Practices and Case Studies*, Routledge of the Taylor & Francis Group: United Kingdom, 172 pages, January, ISBN 978-1-138-65190-6 (hardback) (URL: https://www.routledge.com/Target-Cost-Contracting-Strategy-in-Construction-Principles-Practices/Chan-Chan/p/book/9781138651906)

	Public-Private Partnerships (PPP) Chan, A.P.C., Chan, D.W.M. and Yeung, J.F.Y. (2010). *Relational Contracting for Construction Excellence: Principles, Practices and Case Studies*, Spon Press of the Taylor & Francis Group: UK, 334 pages, ISBN 978-0-415-46669-1 (hardback) (URL: http://www.routledge.com/books/details/9780415466691). Chan, A.P.C., Lam, P.T.I., Chan, D.W.M., Cheung, E. and Ke Yongjian (2009). Drivers for Adopting Public Private Partnerships - Empirical Comparison between China and Hong Kong Special Administrative Region. *Journal of Construction Engineering and Management*, ASCE, 135(11), November, 1115-1124. Chan, A.P.C. and Cheung, E. (2014) *Public Private Partnerships in International Construction: Learning from Case Studies*. Routledge of the Taylor & Francis Group: United Kingdom, 190 pages, ISBN 978-0-415-52975-4 (hardback) (URL: https://www.routledge.com/Public-Private-Partnerships-in-International-Construction-Learning-from/Chan-Cheung/p/book/9781138233744)

Subject Description Form

Subject Code	BRE582
Subject Title	Development Finance and Investment
Credit Value	3
Level	5
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject aims to introduce the concept and practice of project financing and property investment in a portfolio context for project managers.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. articulate the roles of property as an investment asset to enhance the value of a portfolio, by assessing returns and risks, and their relationships to risk diversification; b. appraise real estate investment/development by use of capital budgeting; c. identify the sources and considerations for financing building and infrastructure projects, together with an examination of associated risks and application of mitigation measures.
Subject Synopsis/ Indicative Syllabus	**The investment environment and historical perspective** Review of financial institutions, markets and instruments. Review of historical performance of property and financial investment, capital budgeting. **Modern portfolio theory** Net present value and discounting rates, returns and risks, Markowitz model and its application in portfolio selection. Capital asset pricing model. Systematic and unsystematic risks of property investment as compared with alternative investments including bonds and equities. Capital structure. Weighted average cost of capital (WACC). Efficient Market Hypothesis. **Behavioural Finance** Limitations of classical portfolio theories and validity of their rationality assumptions. Introduction of behavioural finance, and the psychological factors of investors' decision making. **Concept of Project Financing** Interest rate spread, collateral *vs* non-recourse, debt *vs* equity, credit rating. **Financing of property and infra-structure projects** Financing instruments available, syndication, government involvement, functions of World Bank/ADB, financial institutions, financing model, innovative financing approaches (e.g., FRN, CMBS, private equity placement), lending documentation, financing for sustainable development. **Risk management in Financing** Risk identification, risk transfer and mitigation measures, loan monitoring. **Case studies**

<table>
<tr><td></td><td>Case studies of major project financing in developing and developed countries.</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>Lectures are supplemented by student-centered learning activities (reading, self-assessment questions and case studies).</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 (Please tick as appropriate)</td></tr>
<tr><td>a.</td><td>b.</td><td>c.</td><td></td><td></td><td></td></tr>
<tr><td>1. Individual assignment and group project*</td><td>50%</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. Written exam*</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>
</table>
*Students are required to pass all the specific assessment methods/tasks to pass the subject.
Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:
Assessment (50%) via individual/group assignments tests the students' ability to manipulate calculations based on the theoretical concepts as well as communication skills.
Closed book examination (50%) tests the students' ability to articulate the relationships through discussions and arguments, whilst application is tested via scenario-based questions.
</td></tr>
<tr><td>Reading List and References</td><td>
<u>Indicative reading list and references:</u>
Bodie, Z., Kane, A., & Marcus, A. J. (2013). Investments. McGraw Hill.
Brown, G.R. and Matysiak, G. A. (2000), Real Estate Investment: A Capital Market Approach, Financial Times/Prentice Hall.
Brueggeman, W.B. and Fisher, J. (2016), Real Estate Finance and Investments, 15th edition, McGraw-Hill/Irwin.
Brealey, R.A. and Myers, S.C. (2017) Principles of Corporate Finance, McGraw Hill.
Chesterton, J. & Ghose, T.K. (1998), Merchant Banking in Hong Kong, Butterworths.
Elton, E. J., Gruber, M. J., Brown, S. J., & Goetzmann, W. N. (2009). Modern Portfolio Theory and Investment Analysis. John Wiley & Sons.
Issac, D. (2003), Property Finance, 2nd Edition, Palgrave Macmillan.
Merna, T and Al-Thani, F.F. (2018), Financing Infrastructure Projects – A Practical Guide, Thomas Telford.
Nevitt, P.K. and Fabozzi, F. (2000), Project Financing, 7the ed., Euromoney.
Pretorius, F., Lejot, P., McInnis, A., Arner, D., & Fong-Chung Hsu, B. (2008).
</td></tr>
</table>

	Project Finance for Construction & Infrastructure. Principles & case studies. Blackwell Publishing. Taleb, N.N. (2010) *The Black Swan: The Impact of the Highly Improbable, 2nd edition*, Random House Trade Paperbacks. Tan, W. (2007) *Principles of Project and Infrastructure Finance*, Taylor & Francis. *Asiamoney, Trade & Project Finance, Journal of Property Finance and Investment.* *Journal of Property Research, Journal of Real Estate Portfolio Management.* *Journal of Real Estate Research, Real Estate Economics, Journal of Real Estate Finance and Economics.*

Subject Description Form

Subject Code	BRE586
Subject Title	Construction Information Technology
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	The objectives of this subject focus towards the application of IT in construction with emphasis on construction project management, construction information modeling and information technology service management.
Intended Learning Outcomes	By the end of this subject, participants should be able to: a. understand the ways of construction management workflow and dataflow analyses for the implementation of integrated construction management systems; b. understand the state of art of the information technologies and their applications in construction; c. understand the importance of disruptive technologies and information technology service management.
Subject Synopsis/ Indicative Syllabus	Unit 1. Construction Integrated Management System - Site Management. Unit 2. Construction Integrated Management System - Web-based PM and WPIS. Unit 3. BIM concept and applications. Unit 4. BIM and construction virtual prototyping technology. Unit 5. Case studies of using BIM and Construction Virtual Prototyping technology. Unit 6. Internet Technology and its Application to Construction. Unit 7. Database applications; Information Technology Service Management.

Teaching/Learning Methodology	• Lectures and seminars
	• Independent study
	  • Assignments
	  • Case study
	  • Self-study
	  • Computing

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.			
1. Assignment*	50%	√	√	√			
2. Examination*	50%	√	√	√			
Total	100%						

*Students are required to pass all the specific assessment methods/tasks to pass the subject.

Assignment requires students to work individually and submit an individual report that is focused on topics of IT applications on construction projects.

Examination will test students' understanding of fundamental knowledge of the application of IT in construction with emphasis on construction project management, construction information modeling and information technology service.

Reading List and References

ASCE Journal of Computing in Civil Engineering. www.asce.org.

Automation in Construction. An International Research Journal. www.elsevier.com/locate/autocon.

CIC, Construction Industry Council (2014), Roadmap for Building Information Modelling in Hong Kong's Construction Industry.

CIC, Construction Industry Council (2015), CIC Building Information Modelling Standards (Phase One) September 2015.

Electronic Journal of Information Technology in Construction, www.itcon.org.

Abid N, Wong K.D, Wong K.W "Bill of Quantities with 3D Views Using Building Information Modeling" in April 2015. Arabian Journal for Science and Engineering DOI 10. 1007/s13369-015-1657-2, ISSN 1319-8025.

Wong K.D. (2010) "*Attributes of Building Information Modelling Implementation in Various Country*" Journal of Architectural Engineering and Design Management", Special Issue in Integrated Design and Delivery Solutions, Page 288 to 302, Volume 6(4), November 2010, ISBN 978-1-84971-275-0.

Wong K.D. (2003) *Construction Integrated Management System for Contractors*, Journal of Building and Construction Management, Volume 8, Number 1, 2003, ISSN 102419540, pp. 12-18.

Wong K.D. (2013), "*Implementation of web-based construction project management system in China projects by Hong Kong developers*", Journal of Construction Innovation: Information, Process, Management, Jan 2013, Vol. 13 DOI/10.1108/14714171311296048 pp. 26 – 49.

Wong K.D. (2006), "*Use of Smart Card for Enhancing Construction Site Human Resources Management*" Journal of Building and Construction Management. Page 63 Volume 10 Number 1 2006 ISSN 102419540.

Subject Description Form

Subject Code	BRE587
Subject Title	Research Methods for Construction and Real Estate
Credit Value	3
Level	5
Pre-requisite/ Co-requisite/ Exclusion	Mutually exclusive with MM501
Objectives	To meet the need of those who wish to contribute to the identification of business and project problems, to select appropriate techniques for their solution and to present and communicate their findings in a logical way.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. define research and distinguish between research and other forms of enquiry; b. describe the features of the scientific method and to apply them to problems in construction and property; c. properly define and undertake a specific problem orientated research; d. formulate questions in a way which renders them amenable to rigorous investigation; e. know where and how to search for literature/information for research and consultancy work; f. assess the usefulness of research methods for particular problems using as criteria the hallmarks of good research; g. identify, collect, analyse and present information appropriate to finding a solution to the problem; h. describe broadly the strengths and limitations of basic approaches to qualitative and quantitative research; i. effectively communicate the findings of their work orally and in written form.
Subject Synopsis/ Indicative Syllabus	• Introduction to research methodologies • Formulation of a research problem • Library session on information management • Guest speakers on consultancy strategies and tactics; • Research methods in construction management

<table>
<tr><td></td><td>

Qualitative and quantitative data analysisPreparation of research proposal and research paper
Dissertation writing

</td></tr>
<tr><td>Teaching/Learning Methodology</td><td>
Students are required to attend the seminars presented by guest speakers.

They are also required to attend the library workshop and complete a quiz administered by the Faculty Librarian of the University Library.

There will be a take-home assignment in the form of a case study report. Students are required to set assumptions, collect data, decide the test methods and draw conclusions from the results.

Students are also required to present the research proposal and research findings in class.
</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="10">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><td>f</td><td>g</td><td>h</td><td>i</td><td></td></tr>
<tr><td>1. Take-home assignment: write research proposal</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>2. Take-home assignment: report research findings</td><td>40%</td><td></td><td></td><td></td><td></td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>3. Oral presentation for research proposal</td><td>10%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td><td></td><td></td><td></td></tr>
<tr><td>4. Oral presentation for research paper</td><td>10%</td><td></td><td></td><td></td><td></td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>Total
(Continuous Assessment*)</td><td>100%</td><td colspan="10"></td></tr>
</table>
*Students are required to achieve grade D or above in overall subject grade to pass the subject.

Writing research proposal will develop students' academic skill in the preparation of a research proposal for a chosen topic.

Reporting research findings will develop students' academic skill in the presentation of research findings using appropriate research methods.
</td></tr>
</table>

	Oral presentation will develop students' presentation skills, and practice their summarizing skills.
Reading List and References	**Recommended Readings:** Bell, J. and Waters, S. (2018). *Doing your Research Project*. A Guide for First-time Researchers, 7th Edition, Open University Press, London. Fellows, R. and Liu, A. (2015). *Research Methods for Construction.* 4th Edition, Blackwell, Wiley. Pallant, J. (2010) SPSS survival manual: a step by step guide to data analysis using SPSS, 4th Edition, Open University Press/McGraw-Hill, Maidenhead. Rowntree, D. (2000). *Statistics Without Tears: An Introduction for Non-Mathematicians,* Penguin Science.