

Course Outline

Course Code : RE3808/RE1706
Course Title : Design and Construction
Semester : Semester 1, Academic Year 2025/2026
Faculty : Dr Wong Khei Mie, Grace
Department : Real Estate
Email : bizgwong@nus.edu.sg

Overview

Property development is the continual reconfiguration of the built environment to meet society's needs. The choices we make about what to build, where to build and how to build influence urban sustainability, equity and resilience. The first part focuses on the fundamental principles and practice of real estate development by studying the key building components, essential services and structural systems that are involved in building design and construction. The interdependence and trade-offs between design and construction are further highlighted by the discussion on the attributes, economics and evaluation of building design. In addition, the design of the building form is examined in terms of past and present approaches and concepts that can significantly affect the building's functionality, maintainability, sustainability, aesthetics and property value. The second part covers the building construction methodology and phases, including the impact of the regulatory environment, roles of stakeholders, variety of construction methods as well as technology applied in construction. In this course, students will also acquire skills in the interpretation of building drawings and an appreciation of construction methods and materials.

Learning Outcomes

Through the course, students will be able to:

- Examine the roles and interdependence of design and construction in real estate development.
- Analyse the key determinants of building design including economic, psychological, technological and regulatory drivers.
- Appreciate building design approaches and concepts, and how they impact value outcomes in real estate developments.
- Understand building construction including the regulatory environment, construction methods, roles of stakeholders and issues arising from project complexity.

Course Prerequisite(s)

Any of the following:

- RE1701 Urban Land Use & Development
- RE1707 Real Estate, Society & Enterprise
- Suitable substitutable courses based on case-by-case approval

Course Preclusion(s)

RE1706 Design and Construction

Workload Hours

Lecture: 0 hours

Tutorial: 0 hours

Assignment: 3 hours

Workshop/Seminar/Fieldwork: 3 hours

Prep: 4 hours

Total: **10 hours**

General Guides & Readings

- (1) Ali, M. M. & Al-Kodmany, K. (2022). Structural Systems for Tall Buildings. *Encyclopedia*, 2(3), 1260. Retrieved from <https://doi.org/10.3390/encyclopedia2030085>
- (2) Design Coordination. *Designing Buildings: The Construction Wiki*. (23 Sep 2020 update). Retrieved from https://www.designingbuildings.co.uk/wiki/Design_coordination
- (3) Goldhagen, S.W. (2017). *Welcome to Your World: How the Built Environment Shapes Our Lives*. 1st Edition. New York: Harper Collins Publishers. Available in NUS Central Library NA2542.4 Gol 2017.
- (4) Goldstrong, V. Top 8 Reasons for Delays in Construction Projects. *ScheduleReader*. Retrieved from <https://www.schedulereader.com/8-reasons-for-construction-project-delays/> (14 Oct 2024)
- (5) Lin, S. & Huang, Z. (2016). "Introduction to Structural Design" in *Comparative Design of Structures*. Berlin, Heidelberg: Springer. Retrieved from https://link-springer-com.libproxy1.nus.edu.sg/chapter/10.1007/978-3-662-48044-1_2
- (6) Szolomicki, J. & Hanna Golasz-Szolomicka. (2019). Technological Advances and Trends in Modern High-Rise Buildings. *Buildings*, 9(9), 193. Retrieved from <https://doi.org/10.3390/buildings9090193>
- (7) Williams, T. (2017). The Nature of Risk in Complex Projects. *Project Management Journal*, 48(4), 55-66. Retrieved from <https://doi-org.libproxy1.nus.edu.sg/10.1177/875697281704800405>

Tentative Schedule & Outline

Week	Date	Seminar Topic	Seminar Activities
1	14 Aug 2025	Seminar 1 (in-person lecture): Introduction to Design & Construction	Group Project Brief
2	21 Aug 2025	Seminar 2 (in-person lecture): Elements of a Building	Group Assignment 1 Brief
3	28 Aug 2025	Seminar 3 (in-person lecture): Building Design Development & Typology	Group Assignment 1 Presentation & Submission
4	4 Sep 2025	Seminar 4 (in-person lecture): Building Design Attributes, Economics & Evaluation	Individual CANVAS Discussion 1
5	11 Sep 2025	Seminar 5 (in-person lecture): Building Design Approaches & Concepts	Group Assignment 2 Brief
6	18 Sep 2025	Seminar 6 (in-person lecture): Building Construction Regulatory Environment	Group Assignment 2 Presentation & Submission
RECESS WEEK			
7	2 Oct 2025	Seminar 7 (in-person lecture): Building Construction Methodology	Individual CANVAS Discussion 2
8	9 Oct 2025	Seminar 8 (in-person lecture): Building Construction Methods	Group Assignment 3 Brief
9	16 Oct 2025	Seminar 9 (in-person lecture): Building Construction Key Stakeholders	Group Assignment 3 Presentation & Submission
10	23 Oct 2025 <i>Deepavali – 20 Oct</i> <i>NUS Well-being Day – 21 Oct</i>	Seminar 10 (in-person lecture): Building Construction in Asset Enhancement Initiatives (AEI)	Individual CANVAS Discussion 3

11	30 Oct 2025	Seminar 11 (on-site): Site Visit	
12	6 Nov 2025	Seminar 12 (in-person presentation): Group Project Presentation	<ul style="list-style-type: none"> Group Project Presentation & Submission Individual Project Peer Review & Learning Journal Submission
13	13 Nov 2025	Seminar 13 (in-person lecture): Course Summary	Individual Site Visit Reflection Submission
READING WEEK			
EXAMINATION (2 WEEKS)			

Assessment

Assessment Components	Weightage (%)
<u>Group Work</u>	
• Group Project Submission	30
• Group Project Presentation	5
• Group Assignment Submission	15
<u>Individual Work</u>	
• Seminar Participation & Discussion	10
• Site Visit Participation & Discussion	5
• CANVAS Discussion	15
• Project Peer Review & Learning Journal Submission	10
• Site Visit Reflection Submission	10
Total	100

Academic Honesty & Plagiarism

Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is “the practice of taking someone else’s work or ideas and passing them off as one’s own” (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule - You have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. In case of any doubt, you should consult your instructor.

Additional guidance is available at:

- <http://www.nus.edu.sg/registrar/administrative-policies-procedures/acceptance-record#NUSCodeofStudentConduct>
- <http://nus.edu.sg/osa/resources/code-of-student-conduct>

About me

Grace K.M. WONG is a Senior Lecturer at the School of Business, National University of Singapore. Her academic qualifications include B.Sc. (Estate Management) (Honours) and M.Sc. (Property & Maintenance Management) at NUS, as well as MPhil (Housing Economics) and PhD (Housing Economics) at University of Cambridge, UK. Since 1989 when she first joined NUS, Dr. Wong has taught a wide range of core, elective and GEM modules, and has won numerous teaching awards including NUS Annual Teaching Excellence Awards, School of Design & Environment Teaching Excellence Awards as well as GEM and SS Incentive Scheme Awards. Dr. Wong is an Alumnus of the NUS Teaching Academy as well as Member of the School of Business Teaching Excellence Council. Her teaching research publications, which focus on her pedagogical initiatives, are featured in *Ideas on Teaching*, *CDTL Brief*, *CDTLink*, *Teaching Connections* as well as in conferences for teaching and learning in higher education.