

Course Content

Academic Year	2019-2020	Semester	1
Course Coordinator	DR Wong Wai Fan		
Course Code	CV4011		
Course Title	Project Planning & Management		
Pre-requisites	Year 4 Standing		
No of AUs	3		
Contact Hours	<i>Lecture: 26 hrs</i> <i>Tutorials: 13 hrs</i>		
Proposal Date	27 Feb 2019		

Course Aims

The course content comprises main body of knowledge in project planning and management with essential components in management principles, overview of Government Acts & Regulations that governs the engineers' practice in the Construction Industry, project planning and management techniques, financial planning and management, time-cost trade off, cost estimating, scheduling and resources management. The course also gives a good introduction on Law of Construction Contract.

This course aims to develop your understanding about how the Construction Industry operates and the role you would play as an engineer. It equips you with strong fundamental in project planning, management & control as well as sound industry practice. It supports and enables you to pick up quickly and make good progress with comprehensive perspectives in their career development.

Course Learning Outcomes (Course LO)

By the end of this course, you (as a student) should be able to:

1. *Explain how the industry works and engineer's role in the industry*
2. *Apply appropriate techniques to carry out a project planning schedules and program*
3. *Estimate a project duration, works out financial schedules for any new project*
4. *Perform cost estimate, resource planning and predict peak demand of key resource requirement*
5. *Optimise on project Cost-Time aspects*
6. *Recall Civil Engineering Procedures*
7. *Interpret essential contract requirement, basic law of contract and determine where you stand under different situations*

Course Content

1. *Government Acts & Regulation for Construction Practice*
2. *Project Planning & Control Techniques for scheduling including CPM, LOB, Bar-Chart*
3. *Resource Planning & Management*
4. *Project Financial Planning & Control*
5. *Project Cost estimating*
6. *Project Cost-Time analysis*
7. *Civil engineering Procedures*
8. *Basic law of Contract*

Assessment (includes both continuous and summative assessment)

Component	Course LO Tested	Related Programme LO or Graduate Attributes	Weighting	Team/ Individual	Assessment rubrics
1. Final Examination	1, 2, 3, 4, 5, 6, 7	EAB SLO* a, b, f, h, k	60%	Individual	
2. Continuous Assessment 1 (CA1): Quiz	1,2,3,4,5	EAB SLO* a, b, f, h, k	20%	Individual	
3. CA2: Quiz	6, 7	EAB SLO* a, b, d, f, h	20%	Individual	
Total			100%		

* CEE SLOs = Student Learning Outcomes for Civil Engineering Programme (per BEng Civil Engineering Accreditation)

Related Programme LO or Graduate Attributes

- a. **Engineering knowledge:** Apply the knowledge of mathematics, natural science, engineering fundamentals, and an engineering specialisation to the solution of complex engineering problems;
- b. **Problem Analysis:** Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences;
- c. **Design/development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
- d. **Investigation:** Conduct investigations of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions
- e. **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
- f. **The engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- g. **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for the sustainable development.
- h. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- i. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.
- j. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

- k. **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and economic decision-making, and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- l. **Life-long Learning:** Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

Formative feedback

1. Feedback will be through the dissemination of the student's performance in CAs as well as review of the CA questions in class.
2. Additional channel will be through individual consultation initiated by students on their particular learning needs.

Learning and Teaching approach

Approach	How does this approach support students in achieving the learning outcomes?
Lectures	Formal lectures on topics which cover the Government Legislation on engineering practice, project planning and management techniques such as project scheduling, cost estimation, financial & resource management, civil engineering procedures and basic contract law. The application of these concepts will be illustrated through discussion, analysis and problem solving.
Tutorials	Reinforces concepts of lectures with example problems. To promote peer discussion and group interaction in problem solving.

Reading and References

References :

1. Antill, J. M. and Woodhead, R.H. "Critical Path Methods in Construction Practice" 4th edition, Wiley, New York, 1990.
2. Clifford J.S. & Richard M. "Construction Management Fundamentals" McGraw Hill, Singapore 2004. – Chapter 2-4 (optional reading).
3. Thuesen, G. J. and Fabrycky, W. J. "Engineering Economy", 8th edition, Prentice-Hall, Eaglewood Cliffs, NJ, 1993.
4. Ashworth, A., "Contractual procedures in the construction industry", Longman, London, 1996.
5. Professional Engineers Act, Planning Act, and Building Control Act, Singapore, SNP.
(Note: PE Acts and Code of conducts & ethics can be read from: www.peb.gov.sg, Planning and Building Control Act can be read from website: <http://www.agc.gov.sg/>)

(Note: To use the latest edition where applicable)

Course Policies and Student Responsibilities

The standing university policy governing student responsibilities shall apply.
No special policy for this course.

Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the [academic integrity website](#) for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Course Instructors

Instructor	Office Location	Phone	Email
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Planned Weekly Schedule

Week	Topic	Course LO	Readings/ Activities
1	Gov't legislation, PE Act	1	Lectures & Tutorials
2	Building Control Act, Planning Act	1	Lectures & Tutorials
3	Construction Industry	1	Lectures & Tutorials
4	Introduction to project Planning, CPM	2, 3	Lectures & Tutorials
5	Line of Balance Planning	2, 3	Lectures & Tutorials
6	Resource Management	4	Lectures & Tutorials
7	Progress review & Control	2, 3	Lectures & Tutorials
8	Project Cost-Time planning	5	Lectures & Tutorials
9	Financial Management	3	Lectures & Tutorials
10	Cost Control, basic Contract Law	3, 7	Lectures & Tutorials
11	Civil Engineering Procedures	6	Lectures & Tutorials
12	Engineering Contract	7	Lectures & Tutorials
13	Contract Administration	7	Lectures & Tutorials