

## CV4012 Project Planning and Management

Academic Year	2023-24	Semester	1
Course Type	Core		
Pre-requisites	Nil		
AU	2		
Grading	Letter Grading		
Contact Hours	26 hours (18 hours of Lectures; 8 hours of Tutorials)		
Proposal Date	13 Feb 2023		

### 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.

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.

### Intended Learning Outcomes (ILO)

By the end of this course, student will be able to:

1. Explain how the construction industry works, various functional roles within the industry, roles of important government agency and regulatory approvals required for construction projects.
2. Apply appropriate techniques to carry out project scheduling and planning, and estimate project duration.
3. Perform project control, resource planning and predict peak demand of key resource requirement.
4. Perform cost estimate, work out financial schedules, optimise on project Cost-Time aspects.
5. Conduct cash flow analysis and profit analysis.
6. Managing framework for quality and safety management in a construction project.

### Course Content

No	Topic	Lecture Hour	Tutorial Hour
1	Overview of construction management functions and team members	2	1
2	Government Acts & Regulation for Construction Practice	2	1
3	Project Planning & Control Techniques for scheduling including CPM, LOB, Bar-Chart	4	2
4	Resource Planning & Management, Project Control	4	2
5	Project Financial planning, Cost estimating, Cost-Time analysis, Cash flow analysis	4	2
6	Project quality and safety management	2	-
<b>Total</b>		<b>18</b>	<b>8</b>

### Assessment (Includes both continuous and summative assessment)

Component	ILO Tested	EAB Graduate Attributes	Weightage	Team / Individual	Rubrics
1. CA1: Quiz 1	1 & 2	a, b, f, h, k	20%	Individual	N.A.
2. CA2: Quiz 2	3,4,5,6	a, b, f, h, k	20%	Individual	N.A.
3. Final Examination	1,2,3,4,5,6	a, b, f, h, k	60%	Individual	N.A.
<b>Total</b>			<b>100%</b>		

<b>EAB Graduate Attributes<sup>1</sup></b>	
a.	<b>Engineering Knowledge</b> Apply the knowledge of mathematics, natural science, engineering fundamentals, and an engineering specialisation to the solution of complex engineering problems.
b.	<b>Problem Analysis</b> Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
c.	<b>Design / Development of Solutions</b> Design solutions for complex engineering problems and design systems, components or processes that meet the specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
d.	<b>Investigation</b> 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.	<b>Modern Tool Usage</b> 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.	<b>The Engineer and Society</b> Apply reasoning informed by the contextual knowledge to assess societal, health,

<sup>1</sup> Reference: [EAB Accreditation Manual](#)

	safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
g.	<b>Environment and Sustainability</b> 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.	<b>Ethics</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
i.	<b>Individual and Team Work</b> Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.
j.	<b>Communication</b> 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.	<b>Project Management and Finance</b> Demonstrate knowledge and understanding of the engineering 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.	<b>Life-long Learning</b> 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

Quiz feedback will be given to students for the common mistakes during lecture class.

### Learning & Teaching Approach

Approach	How does this approach support students in achieving the learning outcomes?
Lectures	Weekly lectures to provide students with the necessary knowledge to achieve the learning outcomes
Worked examples	Worked examples are embedded within lectures and tutorials to enable the students to appreciate the application of the knowledge into practice
Quizzes	Continual assessments to enhance students understanding and ability to apply principles learned during lectures and tutorials

### Readings & References

1. Website: <https://sso.agc.gov.sg/Index>

2. URA websites

3. BCA website

- a. Guide on Construction of Industrial Developments in Singapore, BCA, 2010  
[https://www.bca.gov.sg/Publications/others/Guide\\_on\\_Construction\\_of\\_Industrial\\_Developments\\_in\\_Singapore.pdf](https://www.bca.gov.sg/Publications/others/Guide_on_Construction_of_Industrial_Developments_in_Singapore.pdf)
4. Saleh Mubarak, *Construction Project Scheduling & Control*, 3rd Ed, Wiley, 2015
5. Jimmie W. Hinze, *Construction Planning and Scheduling*, 3rd Ed, Pearson Prentice Hall, 2008

## Course Policy & Student Responsibility

As a student of the course, you are required to abide by both the University Code of Conduct and the Student Code of Conduct. The Codes provide information on the responsibilities of all NTU students, as well as examples of misconduct and details about how students can report suspected misconduct. The university also has the Student Mental Health Policy. The Policy states the University's commitment to providing a supportive environment for the holistic development of students, including the improvement of your mental health and wellbeing. These policies and codes concerning students can be found in the following link.

<https://entuedu.sharepoint.com/sites/PolicyPortal/SitePages/student.aspx>

## 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 recognise 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 about the definitions of any of these terms, you should refer to the [Academic Integrity Handbook](#) 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	Phone	Email
Teoh Bak Koon	N1-1b-46	67906936	bakkoon.teoh@ntu.edu.sg
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## Planned Weekly Schedule

<b>Week</b>	<b>Topic</b>	<b>Course ILO</b>	<b>Readings/Activities</b>
1	Introduction to Construction Management & Construction Industry	1	Lectures & Discussions
2	Gov't legislation, PE Act, Building Control Act, Planning Act	1	Lectures & Discussions
3	Project Planning tools – bar chart, network diagram, CPM	2	Lectures & Examples
4	Other tools – PDM, Line of Balance	2	Lectures & Examples
5	Resource Management	3	Lectures & Examples
6	Progress review & Control	3	Lectures & Examples
7	Project cash flow, Cost-Time planning,	4,5	Lectures & Examples
8	Financial Management, Cost Control	4,5	Lectures & Examples
9	Project Quality and Safety management	6	Lectures