



Shanghai Jiao Tong University

TR401 Engineering Project Management (Online)

Instructor Information	Xiaosong Zheng Home Institution: Shanghai University Email: xiaosong.zheng@shu.edu.cn		
Term	December 17, 2020 - January 8, 2021	Credits	4 units
Course Delivery	The class will be delivered in the format of online. Other than recorded lecture videos, the instructor will arrange 6 hours' real-time interactions with students per week (via discussion forum, zoom meeting, and WeChat). The workload students are expected to complete to properly pass this course is about 20 hours per week.		
Required Texts (with ISBN)	Project Management – The Managerial Process (7th E), by Erik W. Larson, Clifford F. Gray, ISBN: 9781259666094, McGrawHill Engineering Project Management by Nigel J. Smith, ISBN- 13: 978-1405168021		
Prerequisite	N/A		



Course Overview

This unit provides a comprehensive understanding of project management considering different aspects throughout a project life cycle. The unit is designed to cover the duties and deliverables of engineering managers from the project's initiation to successful completion. It will provide learning modules from basic understanding to advanced project management fundamentals considering an interdisciplinary and relevant to all fields of engineering practice. Topics to be covered include project management fundamentals and practices, project delivery with timing, costing and planning, risk mitigation and resources scheduling; progress, performance, and evaluation, building managerial and leadership skills, interorganizational relations, environmental and cultural considerations, agile project management and future of project management.

Learning Outcomes

Upon successful completion of this unit, the students will be able to

1. Develop a comprehensive understanding of project management in engineering practices
2. Identify the responsibilities and deliverables of engineering managers from the project's initiation to successful completion
3. Compare different project delivery methods, assess the associated risks, and follow standard procedures for risk mitigation
4. Estimate project timelines and scheduling resources within required budgets
5. Evaluate progress and performance, and take necessary measures for optimum output
6. Develop concept and knowledge of various project management techniques project development, design, optimization, budgeting, planning scheduling, monitoring, supervising, recruiting, procurement
7. Build knowledge and skills on environmental and cultural factors for large scale international projects
8. Learning agile project management and the future of engineering project management



Grading Policy

Case studies (4 x 7.5 marks each)	30%
Team Project	30%
Final Exam	40%

Grading Scale is as follows

Number grade	Letter grade	GPA
90-100	A	4.0
85-89	A-	3.7
80-84	B+	3.3
75-79	B	3.0
70-74	B-	2.7
67-69	C+	2.3
65-66	C	2.0
62-64	C-	1.7
60-61	D	1.0
≤59	F (Failure)	0



Class Schedule

Date	Lecture	Readings
Day 1	Introduction, Engineering Project Management Overview and definitions, Modern Project Management	Chapter 1: Project Management by Erik Larson Chapter 2 – Nigel Smith
Day 2	Organization Strategy and Project Selection, Organization Structure and Culture	Chapter 2 and 3: Project Management by Erik Larson, Chapter 13 – Nigel Smith
Day 3	Defining the project, Project Appraisal - Estimating Project Time and Cost	Chapter 4 and 5: Project Management by Erik Larson
Day 4	Developing a Project Plan, Risk Management, Risk Evaluation, Engineering Risks, Uncertainty Management	Chapter 6 and 7: Project Management by Erik Larson
Day 5	Scheduling Resources and Cost – Overview, Types of Resource Constraints, Scheduling problem, Resource allocation methods, Multiproject Resource Schedules	Chapter 8: Project Management by Erik Larson
Day 6	Reducing Project Duration – Accelerating Project Completions, Project Cost-Duration Graph, Practical Considerations	Chapter 9: Project Management by Erik Larson
Day 7	Case study 1: Teradyne Corporation – Review of Project Management Tools Team formation and project allocation	In class case study discussion and Assign questions
Day 8	Building Managerial Skills, Managing Project Stakeholders, managing vs Leading, Ethics and Project Management, Qualities of an Outstanding Project Manager	Chapter 10: Project Management by Erik Larson
Day 9	Managing project teams, Five stage team development model, Building high performance project teams, Minimizing risks and pitfalls	Chapter 11: Project Management by Erik Larson
Day 10	Managing Interorganizational relations, Outsourcing, Negotiations, Customer relations, Accounting and Contract Management	Chapter 12: Project Management by Erik Larson
Day 11	Case study 2: Turner Construction Company	In class case study discussion and Assign questions
Day 12	Project Evaluation, Progress and Performance Measurement, Monitoring time and resources allocation,	Chapter 13: Project Management by Erik Larson, Chapter 10 – Nigel Smith
Day 13	Indexes to monitor progress, Project control using Earned Value Technique	Chapter 13: Project Management by Erik Larson, Chapter 10 – Nigel Smith



Day 14	<i>Case study 3:</i> AtekPC Project Management Office	In class case study discussion and Assign questions
Day 15	Project Closure, Audits, Post Implementation Evaluation, Wrap up	Chapter 14: Project Management by Erik Larson
Day 16	Introduction to Agile Project Management, Traditional vs Agile, Cross-cultural considerations, Managing international projects <i>Case study 4:</i> American Constructions Inc.	Chapter 16: Project Management by Erik Larson, Chapter 20 – Nigel Smith, Chapter 15: Project Management by Erik Larson, Chapter 5 and 10 – Nigel Smith
Day 17	Summary, review and conclusion. Final Project Presentation and Discussion	
Day 18	Final Examination	