TR401 Engineering Project Management

Instructor Information	Xiaosong Zheng Home Institution: Shanghai University Email: xiaosong.zheng@shu.edu.cn Office Hours: Determined by Instructor		
Term	December 13, 2021 - January 7, 2022	**Credits**	4 units
Class Hours	Monday through Friday, 120 mins per teaching day		
Discussion Sessions	2.5 hours each week, conducted by teaching assistant(s)		
Total Contact Hours	66 contact hours (1 contact hour = 45 mins, 3000 mins in total)		
Required Texts (with ISBN)	Project Management – The Managerial Process (7th E), by Erik W. Larson, Clifford F. Gray, ISBN: 9781259666094, McGraw Hill Engineering Project Management by Nigel J. Smith, ISBN- 13: 978-1405168021		
Prerequisite	N/A		

Course Overview

This course provides a comprehensive understanding of project management considering different aspects throughout a project life cycle. The course 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 course, 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

Midterm exam	20%
Group project	30%
Case studies	20%
Final exam	30%

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	Case study 1	In class case study presentation and discussion
Day 5	Developing a Project Plan, Risk Management, Risk Evaluation, Engineering Risks, Uncertainty Management	Chapter 6 and 7: Project Management by Erik Larson
Day 6	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 7	Case study 2	In class case study presentation and discussion
Day 8	Reducing Project Duration – Accelerating Project Completions, Project Cost-Duration Graph, Practical Considerations	Chapter 9: Project Management by Erik Larson
Day 9	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 10	Case study 3	In class case study presentation and discussion
Day 11	**Midterm exam**	N/A
Day 12	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 13	Managing Interorganizational relations, Outsourcing, Negotiations, Customer relations, Accounting and Contract Management	Chapter 12: Project Management by Erik Larson
Day 14	Project Evaluation, Progress and Performance Measurement, Monitoring time and resources allocation, Indexes to monitor progress, Project control using Earned Value Technique	Chapter 13: Project Management by Erik Larson, Chapter 10 – Nigel Smith
Day 15	Project Closure, Audits, Post Implementation Evaluation	Chapter 14: Project Management by Erik Larson
Day 16	Case study 4	In class case study presentation and discussion
Day 17	Environmental considerations, Legal/Political, security and Geographic considerations, Cross-cultural considerations, Managing international projects	Chapter 15: Project Management by Erik Larson, Chapter 5 and 10 – Nigel Smith
Day 18	Introduction to Agile Project Management, Traditional vs Agile	Chapter 16: Project Management by Erik Larson, Chapter 20 – Nigel Smith
Day 19	Final Project Presentation and Discussion	N/A
Day 20	**Final exam**	N/A