

# Project Management in Engineering

**Lecturer:** Dr. Selin METİN

Orion Innovation Türkiye

Email : [smetin@netrd.com.tr](mailto:smetin@netrd.com.tr) / [selin.metindogu@orioninc.com](mailto:selin.metindogu@orioninc.com)

Office hours: Only during lecture hours, otherwise via e-mail

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## ORGANIZATION OF THE COURSE

### Scope, Purpose and Description

This course is aimed to help the student to learn the competencies and skills for planning and controlling projects and how it relates to business operations. The course introduces the fundamental procedures, tools and techniques and focuses on project management life cycle and the role of a project manager. Students will explore project management with a practical, hands-on approach through business examples and class assignments. Topics will include schedules, risks, resources, as well as project stakeholders. The course will also mention the behavioral skills of a project manager and show hints to resolve interpersonal issues encountered during a project schedule. A special emphasis will be given to software projects and Waterfall and Agile methodologies. The course will explore Capability Maturity Model (CMM) and its impacts on project success. Another bonus topic which is essential for software engineers will be software configuration management (and its relationship with Dev-Ops fundamentals).

### Objectives and Goals

This course focuses on project management methodology. At the end of this course, students will be able to

- Understand concepts of project management design, development, and deployment
- Define project scope, schedule budget and typical project phases
- Use project management tools, techniques, and skills
- Understand how to manage project cost, quality, and delivery
- Optimize critical resources in case of conflicting interests or tight schedules
- Understand the implications, challenges, and opportunities of organizational dynamics in project management
- Recognize and mitigate risks and challenges throughout project life cycle
- Define communication strategy with stakeholders
- Understand most used software project management methodologies
- Gain familiarity with processes and maturity models
- Understand the importance configuration management and see examples and its relationship with Dev-Ops models.

## **Required Readings**

Wysocki, Robert K., (2009). "Effective Project Management: Traditional, Agile, Extreme", Wiley Publishing, Indiana

Project Management Institute (2021). A Guide to the Project Management Body of Knowledge (PMBOK Guide) – Seventh Edition. Project Management Institute, Pennsylvania, USA.

Project Management Institute (2013). A Guide to the Project Management Body of Knowledge (PMBOK Guide) – Fifth Edition. Project Management Institute, Pennsylvania, USA.

McConnell, Steve (1998) – Software Project Survival Guide, Microsoft Press

Biafore B. (2010) Microsoft Project 2010: The Missing Manual , O'REILLY

DevOps Foundations, By Ernest Mueller and James Wickett – LinkedIn Learning (though this is not a free course, I highly recommend it if you have the means for membership)

<https://www.atlassian.com/project-management>

<https://www.scrum.org>

<https://www.sei.cmu.edu/cmmi/>

<https://www.ibm.com/support/knowledgecenter/SSSH27>

<https://git-scm.com/book/en/v2>

## **Grading Criteria**

Students will be evaluated using the following criteria:

HWs /Assignments / Projects	30%
Attendance & class participation & quizzes	5%
Midterm	25%
Final	40%

VF pass criteria:

- Hand in minimum 2 homework
- Total average grades for homework and attendance: 14/100
- Minimum grade for midterm: 8/100
- Minimum average grade at the end of the term: 20/100

### Tentative Course Schedule

<u>Week</u>	<u>Topic</u>
<b>Week 1:</b> Feb 24	<b>Course Introduction and Overview</b> <b>Introduction to Project Management</b> <b>Project Stakeholders</b> <b>Leadership in Project Management</b>
<b>Week 2:</b> Mar 3	<b>Project Management Standards and Performance Domains</b> <b>Project Phases and Project Life Cycle</b>
<b>Week 3:</b> Mar 10	<b>How to Plan and Scope a Project</b> <b>Project Cost Management</b>
<b>Week 4:</b> Mar 17	<b>Project Time Management</b> <b>Project Risk Management</b> <b>Project Human Resource Management</b>
<b>Week 5:</b> Mar 24	<b>Project Quality Management</b> <b>Project Scheduling</b>
<b>Week 6:</b> Mar 31	<b>Project Communications Management</b> <b>Project Progress, Reporting, Issue Tracking Management</b> <b>Closing a Project</b>
<b>Week 7:</b> Apr 7	<b>Capability Maturity Model Integrated</b> <b>Software Project Management Methodologies: Waterfall</b>
<b>Week 8:</b> Apr 14	<b>Software Project Management Methodologies: Agile and Kanban</b>
<b>Week 9:</b> Apr 21	<b>Ramadan Holiday</b>
<b>Week 10:</b> Apr 28	<i>Midterm</i>
<b>Week 11:</b> May 5	<b>DevOps Fundamentals &amp; Software Configuration Management</b>
<b>Week 12:</b> May 12	<b>Final Projects Presentations</b>
<b>Week 13:</b> May 19	<b>Atatürk Memorial &amp; Youth and Sports Day</b>
<b>Week 14:</b> May 26	<b>Final Projects Presentations</b>