ENG-648

Project Management and Effective Leadership

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Cursus	Sem.	Type
EDOC General and external courses		Opt.

Language of teaching	English
Credits	2
Session	
Exam	Project report
Workload	60h
Hours	**30**
Courses	16
Exercises	2
Project	12
Number of positions	**15**

Frequency

Every year

Remark

The course will take place in Spring 2027, see Note section for the specific dates and times of the course sessions

Summary

This course provides a foundational understanding of project management and leadership, typically in any professional environment, including while not limited to industry and academics.

Content

Considering the PhD student already having direct experience with the academic professional environment, the course will start with an introduction of the typical organization structure in industries, by also introducing to the typical processes, culture, and essential concepts and methodologies for future leaders in engineering fields. The course emphasizes the importance of Lean and Agile methodologies in modern project-oriented environments, particularly in driving innovation, efficiency, and team collaboration. Reference to effective management and the concept of motivational management of people, will be introduced and discussed at the course.
1. Fundamentals of Company Organization:
Organizational Structures: Explore different types of organizational structures (hierarchical, matrix, flat, etc.) and their impact on company operations and decision-making.
Processes and Procedures: Learn about the standardization of processes to ensure consistency, quality, and efficiency across project-development operations.
Human Resources Management: Study the strategies for recruiting, developing, and retaining talent, focusing on the role of HR in fostering a positive work environment.
2. Introduction to Lean Principles:
Lean Methodology: Understand the core principles of Lean, including the elimination of waste, continuous improvement (Kaizen), and maximizing value to the customer.
Lean Tools and Techniques: Dive into practical Lean tools such as 5S, Value Stream Mapping, and Just-In-Time (JIT) production, and how they are applied to streamline operations.
Examples of Lean in Action: Analyze real-world examples of Lean implementation in various industries, examining successes and challenges.
3. Introduction to Agile Methodology:
Agile Fundamentals: Learn about the principles of Agile, focusing on flexibility, iterative development, customer collaboration, and responsiveness to change.
Agile Frameworks: Explore popular Agile frameworks like Scrum and Kanban, understanding their roles, processes, and how they drive project success.
4. Project Management Office (PMO) and Governance:
PMO Fundamentals: Introduction to the role of the Project Management Office in providing structure, governance, and oversight to ensure project alignment with business objectives. Concept of the change management, risk and uncertainty in projects, particularly in research projects, and the impact in planning, with difference in between projects in academia

and in industry.
Project Governance and Standards: Learn about the standards and processes established by PMOs to ensure consistency in project execution and delivery. Moral and ethical compliance.
Tools and Techniques for Project Management: Study the various tools used by PMOs, such as Gantt charts, project management software, and key performance indicators (KPIs), to monitor and control projects.
5. Integration of Lean, Agile, and PMO in R&D Management:
Strategic Alignment: Understand how Lean and Agile methodologies can be integrated into R&D management to drive innovation, efficiency, and adaptability.
Leadership in R&D: Develop the leadership and management skills necessary for guiding R&D teams, fostering innovation, and ensuring successful project outcomes.
Business Plan Simulation: Participate in a simulation of developing a business plan for launching a new product, incorporating market analysis, financial planning, and strategic execution.

Note

Course sessions:
- Tuesday 20th April 2027 to Thursday 29th April 2027, from 14:15 to 17:00
- Friday 30th April 2027, from 9:15 to 17:00

Keywords

Project Management; R&D Management, People Management, Value Stream Mapping, Just-In-Time Production, Agile Methodology, Agile frameworks

Learning Outcomes

By the end of the course, the student must be able to:

- Hard Skills: Basic Tools for People Management (e.g., Performance Review and Smart Goals Definition)
- Strategic Deployment (e.g., Hoshin Kanri)
- Soft Skills: Conflicts Management; Gap Assessment (e.g., CliftonStrengths); Motivational Leadership

Resources

Bibliography

1. Course slides
2. Book: Why Do So Many Incompetent Men Become Leaders, Tomas Chamorro-Premuzic, 2019
3. Book: Emotional Intelligence: Why It Can Matter More Than IQ, Daniel Goleman, 2005
4. Book: The Compass and the Radar: The Art of Building a Rewarding Career While Remaining True to Yourself, Paolo Gallo, 2018
5. Book: Organizational Behavior, Stephen P. Robbins and Timothy A. Judge, 2018
6. Principles of Management, Peter Drucker, 2006
7. Book: Lean Thinking: Banish Waste and Create Wealth in Your Corporation, James P. Womack and Daniel T. Jones, 2003
8. Book: The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses, Eric Ries, 2011
9. Book: Agile Project Management with Scrum, Ken Schwaber, 2004
10. Recommended readings from books and articles Sections available from EPFL library online

Ressources en bibliothèque

- Find the references at the Library

Moodle Link

- https://go.epfl.ch/ENG-648