



**KTH Industrial Engineering
and Management**

ME2016

Project management: Leadership and control

Course plan, ver 1 (190826)

Period 1, fall semester of 2019

Course description

Projects are an increasingly prevalent work form in all societal sectors, they are used for handling tasks that are not effectively executed through permanent organizational structures, in both ongoing operations and in research and development work. In practice, most students in engineering and science will be involved in advanced project-based work within a few years from graduation. Many of the main employers for engineering graduates have become project-based organizations over time, which means that also daily operations are organized in projects.

The emergence of projects as a central industrial work form also corresponds to a gradual 'professionalization' of the roles of project managers. Those who are entrusted the responsibility for large industrial projects often have project management as their occupation, and they have, in addition to their basic academic training, also significant insights in project research, i.e. the theoretical base of project-based work. Project management contains a series of models that can be used for effective initiation, organizing, leadership and team building of/in projects. These models must, however, be used with judgement and reflection, and contemporary project research – where KTH Industrial Economics and Management has an international reputation – also emphasizes the importance of leadership, ethics and sustainable work organizations in the development of industrial project work practices.

The course is focused on planning and control activities in contract-based projects and change projects in technology-intensive organizations. The established research-based project management discipline is compared to the practicalities of project-based industrial operations and research-intensive environments through a series of cases. Environmental and contextual aspects of project management are emphasized, as is the role of project sponsors in the project process.

Course design

Based on an analysis of the current state of knowledge in project management and relevant developments in research, the course focuses on concepts like project planning, project organizing, project execution, staffing and resource allocation, calculation and budgeting, project manager's leadership and some case studies of projects in different industrial activities. The course is based on "live" lectures, video lectures, guest lectures, seminars and a case-based assignment.

The aim is that all students, after having passed the course with an approved grade, should be able to formulate and analyze practical problems in industrial operations by means of project management models and theories, and use these models and theories to provide recommendations on how the management of a project can be prepared, implemented and improved.

Eligibility

Minimum 6.0 credits in a basic course in Industrial Management, or equivalent, and documented proficiency in English B or equivalent.

Learning objectives

After passing the course, the participant should be able to:

For an E grade (Pass), you should show that you can...

- LO1 Describe the general ideas of the project management doctrine, both as an emerging practice as well as an emerging research-based knowledge field in which the practitioners must be able to manage complex tasks in relation to technology, economics, sustainability, ethics and societal development.
- LO2 Formulate project goals that are specific, measurable, achievable, realistic and time-bound.
- LO3 Describe, choose and use tools/methods for time management of projects
- LO4 Describe, choose and use risk management tools/methods
- LO5 Describe, choose and use tools for project budgeting and benefits realization.
- LO6 Describe the relationship/interplay between a project and its external environment as well as performing a stakeholder analysis of a specific project
- LO7 Enunciate practical problems of industrial management with the help of theoretical project management tools and methods, as well as using these tools and methods for giving recommendations about how to prepare, perform and improve the management of a project
- LO8 Describe the main tasks and responsibilities of a project manager over the entire project lifecycle in industrial and technology intensive environments, as well as analyzing the project manager's learning and knowledge development in relation to this.

Learning objectives 1-8 will be examined by two partial exams (KON1 and KON2) scheduled during the ongoing course as well as by a case-based assignment (INL1).

The mandatory guest lecture with a guest speaker from industry covers learning objective 8.

For a higher grade (A-D) you should also be able to show that you can...

- LO9 Describe the main characteristics amongst different kinds of technology-intensive projects; business projects, development projects and change projects
- LO10 Describe why and how project management knowledge/skills may be used to increase the competitive edge in modern industrial organizations
- LO11 Describe the structure and content of standardized project models and their use in industrial and technology-intensive operations
- LO12 Describe the structure and content of methods for agile project management and their use in industrial and technology-intensive operations

LO13 Describe the relationship/interplay between project organizations and permanent organizations in industrial and technology-intensive environments, as well as describe established solutions for the problems that are inherent to this relation

LO14 Describe the advantages and disadvantages of organizing work in projects for the individual, as well as describe how these may be handled in an efficient manner

Learning objectives 9-14 will be examined by a voluntary open book exam scheduled in the exam period in October. The grading criterias for the exam are:

A student that displays knowledge of 1 of these learning objectives will be graded with an E

A student that displays knowledge of 2 of these learning objectives will be graded with a D

A student that displays knowledge of 3 of these learning objectives will be graded with a C

A student that displays knowledge of 4 of these learning objectives will be graded with a B

A student that displays knowledge of 5 or 6 of these learning objectives will be graded with an A

Requirements for final grade

The examination and grading in this course are based on four different parts:

- KON1: Partial exam that examines parts of LO 2,3,4 & 5, graded with P/F, 1,5 credits
- KON2: Partial exam that examines LO 1 & 8, graded with P/F, 1,5 credits
- INL1: a case-based assignment executed in groups of 4 students, graded with A-F, 3 credits. Covers LO 2,6 & 7 as well as parts of 3,4,5
- TEN1: an open book exam, graded with A-F (0 credits). This exam is voluntary for those students that wishes to reach a higher course grade then E. Covers learning objective 9-14.

The final grade of the entire course is A, B, C, D, E (all implying a pass) or F (fail), assuming that the student has achieved grade P (pass) on KON1 and KON2, grade A-E on INL1, as well as participated in the mandatory guest lecture.

The grade in the course will be E if you have the grade P (pass) on KON1 and KON2 as well as A-E on INL1. If a student also chooses to take the open book exam (TEN1) and received the grade A-E, the final course grade will be a combination of the grade of INL1 and TEN1 (according to the matrix):

Grade TEN1 => Grade INL1	A	B	C	D	E	F
A	A	A	B	B	C	E
B	A	B	B	C	C	E
C	B	B	C	C	D	E
D	B	B	C	D	D	E
E	C	C	C	D	D	E

If a student chooses to take the exam (TEN1) and receive the grade F, the final course grade will still be E if the student has the grade P (pass) on KON1 & KON2 as well as A-E on INL1.

According to KTH policy, a student that has achieved grade E or higher is normally entitled to take exams anew in order to raise the grade (so called *plussning*). This can be done earliest at the next regular period of examination. A “plussning” effort can never result in a lower grade.

Requirements for an approved grade for INL1

The grade P (pass) is given when the submission of the case-based assignment:

1. shows that you have managed to formulate project goals that are specific, measurable, achievable, realistic and time-bound
2. shows that you have managed to use tools such as WBS/PBS, OBS, Gantt and PERT/CPM for detailed time planning of a project
3. shows that you have managed to perform a risk management process and use simplified risk analysis tools
4. shows that you have managed to describe a project budgeting process and explain the usage of Earned Value Management
5. shows that you manage to apply a stakeholder management process to a specific project
6. shows a solid and correct interpretation of the course literature. With clear links to the entire course material (course literature, lectures/seminars) with the help of references in a very good way.
7. displays a good ability to implement your theoretical knowledge in practice, as well as both scrutinize and evaluate your own proposals.
8. displays a well-developed formal structure, correct language handling and a coherent referencing system

If a submission of the INL1 assignment only fulfills 70-99% of the grading criteria's (for the grade Pass), then the grade will be Fx and the group will get another chance of complementing

and correcting the weaknesses in your submission. If this is done in a proper way, the grade Fx can be changed into the grade E. But if your submission only fulfills less <70% of the grading criteria's the grade will be F and the next possibility to fulfill INL1 will be next time the course is given.

Literature

- Course book: Project Management by Bo Tonnquist. Fourth Edition.
 - ISBN 978-91-523-5599-2
- Scientific articles from the international project management research scene, published in Canvas.
- In addition, there are four video lectures for individual studies available at Canvas. These movies cover project scope management, project planning, risk management and stakeholder analysis.
- If there is any additional electronic course material distributed through the course homepage it's included in the course literature and thus also subject to examination.

Course registration

In order to get access to the course web on Canvas and to receive your grades reported in Ladok, you need to register for the course, this is done through web registration. All questions regarding course registration are answered by: gru@itm.kth.se

Students at KTH with a permanent disability can get support in their studies

<https://www.kth.se/en/student/studentliv/funktionsnedsattning/stod-for-studenter-med-funktionsnedsattning-1.39736>

Compensatory support for students with disabilities during examination

For students with disabilities who have a statement from KTH's FUNKA unit on recommended support during examination, the following applies in this course:

- All support under code R (i.e. adjustments relating to space, time and physical circumstances) are granted without special decision by the examiner
- Support under code P (educational adaptation) must be actively granted or rejected by the examiner after contact has been made by the student in accordance with KTH's rules. Normally, support actions under code P will also be approved.

Examinator

Anna Jerbrant, *Ph.D. In Industrial Economics and Management, M.Sc. Mechanical Engineering, Associate Professor at the Department of Industrial Economics and Management, KTH*

Course responsible teacher

Charlotta Linse, *Ph.D. In Industrial Economics and Management, M.Sc. in Design and Product Realization, Researcher at the Department of Industrial Economics and Management, KTH*

The easiest way to contact the teachers is at the scheduled lectures, through Canvas discussions where all questions about i.e. assignments or exam should be addressed, which ensures that all course participants get the same information. E-mails will only be answered when time permitting.

Indek student office

The INDEK student office is situated in Sing Sing, Lindstedtsvägen 30. The office is usually open workdays from 9:00 AM to 4.30 PM (Fridays 9:00 am to 3:00 pm).

Avoid Plagiarism!

The course is based on individual and group work with submission of different assignments and plagiarism is not allowed. More information on what constitutes plagiarism and how to avoid plagiarism, can be found at www.kth.se/plagiarism and the course supervisors will discuss what constitutes plagiarism for the specific examination parts during the first and final lecture. Measures include an automatic control of all submissions (with the help of Canvas URKUND), so that the submissions will be compared to both previous years' submissions as well as the submissions of your fellow classmates. **This demands a great responsibility for individualized responses in the submissions of the open-book exam (e.g. responses based on your own examples, descriptions, reflections, analysis, reasoning and so on).**

*Welcome to the course
Charlotta & Anna*