



**KTH Industrial Engineering  
and Management**

ME2016

Project management: Leadership and control

Course plan, ver 24-01-09

Period 3, Spring semester of 2024

## ***Course content***

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 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 leading 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's Department of Industrial Economics and Management has an international reputation – also emphasizes the importance of leadership, ethics and sustainable work environment in the development of industrial project work practices.

This 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 discussions.

The aim is that, after having passed the course with an approved grade, all students should be able to formulate and analyze practical problems in industrial operations utilizing project management models and theories as well as to 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.

## ***Course pedagogical design***

The course focuses on giving knowledge on the current state of project management practice and relevant developments in research. This is done through lectures and seminars which address a range of themes such as project planning, project organizing, project execution, risk and uncertainty management, cost engineering and project leadership. The course is based on "live" lectures, video lectures, guest lectures, seminars and a group assignment. An emphasis is put on the practical application of PM tools and concepts (esp. in seminars). The tools, concepts and

models are covered during the seminars that aim at preparing students for two partial exams and a group assignment. In turn, lectures, seminars, and readings serve the purpose of deepening the students' knowledge of theoretical perspectives in project studies. Guest lecture(s) provides an opportunity to get more practical insights into project management and **is mandatory to attend**. In the cases, where students will not be able to attend the guest lecture due to objective reasons, a complementary assignment (available via Canvas after the guest lecture) will need to be submitted in due time. The teaching format for each session is specified in the detailed course schedule uploaded on Canvas. The zoom link is available on Canvas.

## **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 how project managers and teams must be able to manage complex tasks in relation to technology, economics, sustainability, ethics, and societal development.
- LO2 Describe, choose, and use tools/methods to define projects and formulate project goals.
- LO3 Describe, choose, and use tools/methods for detailed project scheduling.
- LO4 Describe, choose, and use tools/methods for risk and uncertainty management.
- LO5 Describe, choose, and use tools/methods for project budgeting, progress monitoring, and benefits realization.
- LO6 Describe a project organization, the relationship/interplay between a project and its external environment, as well as perform stakeholder analysis of a specific project.
- LO7 Formulate and analyze practical problems of industrial management with the help of theoretical project management tools and models, as well as use these tools and models 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 analyze the project manager's learning and knowledge development in relation to this.

Learning objectives 1-8 will be examined by two partial exams (KON7 and KON8) scheduled during the ongoing course as well as by a group assignment (INL2).

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

- LO9 Describe project management as both a practical and theoretical growing knowledge area, and use research-based knowledge to analyze complex issues in project organizing.
- LO10 Discuss the main characteristics and consequences of different kinds of technology-intensive projects; for instance, business projects, development projects and change projects, as well as other project typologies.

LO11 Discuss the advantages, disadvantages, and limitations of different project management models, such as the waterfall model or agile project management, concepts, frameworks, and tools, and their use in industrial and technology-intensive operations.

Learning Objectives 9-11 will be examined by a voluntary open book exam scheduled during the exam period (you can skip the open book exam if you just want to pass the course with an 'E' grade). The grading criteria for the exam are:

Displaying knowledge on each of the three LOs can give a student from 0 to 2 'examination points':

- no or insufficient knowledge displayed (basic, shallow answer) - 0 points,
- good knowledge displayed (competent answer) - 1 point,
- advanced knowledge displayed (excellent answer) - 2 points.

The overall home exam grade will be determined by the total number of points achieved for the three LOs (1 point - 'E', 2 points - 'D', 3 points - 'C', 4 points - 'B', 5 or 6 points - 'A').

More details on what qualifies as a basic, competent, or excellent answer (in terms of the depth, accuracy, quality of argumentation, scope of the answer etc), will be provided in due course ahead of the home exam.

## **Examination**

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

- KON7: Partial exam that examines parts of LO 2, 3 & 4, graded with P/F, 1.6 credits
- KON8: Partial exam that examines LO 5 & 8, graded with P/F, 1.6 credits
- INL2: a group assignment executed in groups of not more than 5 students, graded with A-F, 2.8 credits. Covers LO 1, 2, 6 & 7 as well as parts of 3, 4 & 5.
- TEN2: an open book exam, graded with A-F (0 credits). This exam is voluntary for those students who wish to achieve a higher course grade than E. Covers LO 9-11.

Each group member **must** contribute significantly to the group work to pass this examination component. The level of and quality of contribution might be taken into account for setting the individual grade.

KON7 and KON8 are examined through two partial exams carried out in computer rooms on campus. There will be dedicated Canvas pages for each of the partial exams. **In order to participate in a partial exam, students must give a notice through LADOK in advance** (at least 10 working days before the exam):

There are detailed study instructions provided for each partial exam on Canvas.

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

In case a student does not take or fails a partial exam, there is a re-exam opportunity in the re-exam period.

The examiner may apply another examination format when re-examining individual students.

## Grading scale

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 on KON7 and KON8, grade A-E on INL2 (group assignment), and attended the guest lecture.

The grade in the course will be E if you have the grade P (pass) on KON7 and KON8 as well as A-E on INL2. If a student also chooses to take the open book exam (TEN2) and receives the grade A-E, the final course grade will be determined by the combination of the grades INL2 and TEN2 (according to the matrix below):

Grade TEN2 => Grade INL2	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	B	C	C	D	E	E

If a student chooses to take the exam (TEN2) and receives the grade F, the final course grade will still be E if the student has the grade P (pass) on KON7 and KON8 as well as A-E on INL2 and has attended the guest lecture.

## *Opportunity to raise an approved grade via renewed examination*

According to KTH policy, a student that has achieved grade E or higher is normally entitled to re-take exams in order to raise the grade (so called *plussning*). In this course it is only possible to plussa the open-book exam and that can be done earliest at the next regular period of examination. A “plussning” effort can never result in a lower grade.

## Literature

- Course book: Project Management by Bo Tonnquist. Fifth Edition. Sanoma Utbildning AB.
  - ISBN 978-91-523-6079-8
- Scientific articles from the international project management and general management journals, available on Canvas.
- In addition, there will be several video lectures available on Canvas.
- If there is any additional electronic course material distributed through the course homepage it is 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](mailto:gru@itm.kth.se)

## Compensatory support for students with disabilities

Students at KTH with a permanent disability can apply for support during studies from Funka: <https://www.kth.se/en/student/stod/studier/funktionsnedsattning/funka-1.953214>

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.

## Teaching team

Evelina Håden, *MSc, PhD Candidate at the Department of Industrial Economics and Management, KTH. Teacher.*

Elina Gobena, *MSc, PhD Candidate at the Department of Industrial Economics and Management, KTH. Teacher.*

Hannes Kristofersson, *MSc, PhD Candidate at the Department of Industrial Economics and Management, KTH. Teacher.*

Maxim Miterev, *Ph.D., Assistant Professor at the Department of Industrial Economics and Management, KTH. Examiner and course responsible lecturer.*

... *As well as guest lecturers and teaching assistants.*

## ***Avoid Plagiarism!***

This course is based on individual and group work with submission of different assignments and plagiarism is not allowed!

Neglect, stress and ignorance of how source material should be used can lead to students copying other people's material into reports and essays, but that is not a valid reason if it becomes a disciplinary matter. The measures we take for controlling that plagiarism is includes an automatic control of all submissions (with the help of Canvas-embedded Ouriginal/URKUND). This means that all of your submissions will be compared to internet sources, previous years' submissions and the submissions of your fellow classmates to make sure that the answers are not similar.

More information on what constitutes plagiarism and how to avoid plagiarism, can be found at KTHs webpage and the course supervisors will discuss what constitutes plagiarism for the specific examination parts during the first and final lecture. If you have any thoughts or questions on what constitutes cheating or plagiarism you can find much more information here:

<https://www.kth.se/en/student/stod/studier/fusk-1.997287>

And KTH also provides a Handbook in "*Guiding students away from plagiarism*" available at KTH webpage.

This demands a great responsibility for individualized responses in the submissions of your answers in all of the examination. So, you are obliged to make sure that your responses are based on your own knowledge in your examination (examples, descriptions, reflections, analysis, reasoning and so on). Students who, with unauthorized aids or otherwise attempt to mislead the exam or when a student's performance is otherwise to be assessed, may lead to disciplinary action.

## ***Ethical approach***

- When executing the group assignment everyone in the group is responsible for the whole of the group's work.
- During the examination in the partial and open-book exam each student must honestly follow the instructions from the examiner regarding approved tools (aids).
- During all of the examination each student must honestly report the help received and sources used.
- After submission of any of the examination parts each student must be able to account for the entire assignment and the entire solution if being asked by the examiner.

Welcome to the course!

Your teaching team