Industrial Economics and Management

Book of Instructions

Perspectives on Industrial Management

ME2501, PIM

2024

Content

Course PM

ME2501, Perspectives on Industrial Management, Period 1

The aim of the course is to provide the students with an overview of the field of Industrial management, introduce central theoretical concepts, and illustrate the dynamics and challenges related to the field. By applying a number of perspectives on Industrial management this course will offer insights into the variety and the cohesion among different areas of this field as well as clarify the links between technology and management.

Three main perspectives will be applied in the course – the individual, the functional, and the industry perspective. Based on these perspectives the area of Industrial management will be covered using a combination of hybrid lectures, guest lectures from the industry, case studies, seminars, and a study visit.

The pedagogic approach could be characterized as "problem-based learning" (PBL), which serves as a foundation for the structure of the course. This approach is not only chosen in order to achieve the aim of this course, it also relates to the particular role of this course in the Industrial management master program. Therefore, the content and approaches used in this course also supports the objectives of, and effective learning throughout, the program e.g. the transition in mindset from engineering "problem solving" to managerial "problem formulation", the development of collaborative and communication skills, and interactive teaching methods.

Students should therefore expect a somewhat broader scope, less details in instructions related to the assignments, and variety in readings compared to a "textbook-based" curriculum within a narrower subject area. Hence, high requirements will be put on students in terms of classroom/on-line attendance and interaction, planning for non-scheduled work in groups, and understanding the examination criteria.

Goals

The main goal of the course is to provide the student with the ability to investigate and characterize the field of Industrial management. Second, the goal is to give the student the abilities to formulate problems in order to approach challenges related to this field – with a specific focus on the interplay between technology and management. Third, students should learn to apply theoretical concepts, models and methods in order to analyze and suggest solutions to industrial challenges. The fourth goal is for students to be able to investigate, analyze, assess and propose solutions to specific challenges, such as diversity and the effects of globalization. Finally, the specific content of the course is also aimed at challenging the students to reflect over their own learning and how their studies within the Industrial management master program relates to the requirement of future managerial positions in Industrial and technology intensive organizations.

This means that after the course the student should be able to:

- Discuss key theoretical areas and different levels of analysis in the field of industrial management from a systems perspective
- Formulate and define problems to address complex management problems in industrial and technology intensive activities using knowledge and data from different types of sources.
- Evaluate and apply theoretical concepts, frameworks and methods related to the field of industrial management on activities in different industries in order to analyze and propose solutions to industrial challenges

- Investigate, analyze, make judgements, and propose solutions for specific challenges and circumstances related to: management, gender, diversity, globalization and technology development in industrial and technology intensive activities.
- Discuss and critically analyze the implementation of sustainable development in industrial and technology intensive activities
- Present in writing and orally findings and recommendations towards different audiences.
- Evaluate their own work and reflect on their own learning in the course, also in relation to future roles and management positions in industry.

Content

The course consists of lectures (a few hybrid) and seminars structured around theoretical and practical approaches to challenges within the field of Industrial management. In addition, central elements related to the goals of the course are also guest lectures from the industry and a study visit. The course consists of seven building blocks (see also course schedule):

1. Introduction to the field industrial management (Lecture 26/8 and 28/8)

2. The Functional perspective (Lecture 28/8, 30/8 and Case A)

3. The Individual perspective (Lecture 9/9, 16/9, 20/9 and Case B)

4. The Industry perspective (Lecture 25/9, 26/9 and Case C)

5. An introduction to Sustainable development (4/9, 25/9 and 4/10 for video lectures and case)

6. A study visit to ICA (27/9). The study visit is connected to the Case C and the Industry perspective

7. The management perspective and reflections on students' own future managerial roles is represented by a specific guest lecture (Lecture 12/9) and a alumni panel discussion (Lecture 9/10), but is also related to the other two guest lectures (20/9 and 26/9) as well as an individual "learning paper" (included in the final examination)

Activities and outline

For each of the three perspectives, the course will cover historical development and theoretical foundations, exemplifications from people with managerial experience, as well as hands-on training in applying theory on problems through case assignments. The casework aims particularly on providing learning opportunities related to the variety and cohesion of different areas within Industrial management as well as training of skills.

Learning and reflection

An introduction to PBL (Lecture 4/9) will introduce students to this pedagogic approach and clarify why it is important in management education. Moreover, the work with the case study assignments will put this pedagogical approach into practice.

Lecture on 12/9 will offer a management perspective on the challenges faced by young professionals with an MSc in Industrial Management. In addition to this guest lecture on 12/9, the alumni panel discussion on 9/10 and the guest lectures on 20/9 and 26/9 (to some extent) are also relevant and can be used in the final examination. This examination is represented by a "learning paper" (included in PRO 1), where students will reflect on how the knowledge and skills gained through the course will help them create value in industrial and technology-intensive organizations.

Examination

The examination consists of three group-based case assignments Case A-C (INL 1-3). INL 4 represents the sustainability module and its assignment. SEM1 will be reported upon each student's participation in seminars, presentations, and the study visit.

INL 1-3 will be examined on the result of the group's reporting according to the examination criteria for each assignment (see INL 1-3 under the section "Appendix: Goal oriented grading criteria" in this document). Dates for submission of the assignments are:

INL 1 2024-09-05, at 17:00

INL 2 2024-09-24, at 17:00 *(2024-09-17, at 17:00 for Prototype Case B)*

INL 3 2024-10-10, at 17:00

INL4 2024-10-18, at 17:00

The final examination of the course is based on PRO 1, which consists of each student's "examination portfolio" and "learning paper". This assignment covers individual reflections on INL 1-3, as well as an individual paper focusing on the learning throughout the course in relation to the student's future managerial role in industrial and technology intensive organizations. In addition, Case A-C should be analyzed individually from a sustainability perspective. The "examination portfolio" and the "learning paper" will be introduced at Lecture 4/9. Submission date for PRO 1 is:

PRO 1: 2024-10-18, at 17:00

Summary: pass grading on all assignments, participation in the study visit, and final examination portfolio report according to the following number of credits.

- INL1 - Written Assignment I, 1,0 credits, grading scale: P, F
- INL2 - Written Assignment II, 1,0 credits, grading scale: P, F
- INL3 - Written Assignment III, 1,0 credits, grading scale: P, F
- INL4 - Written Assignment IIII, 1,0 credits, grading scale: P, F
- SEM1 - Seminars, 1,0 credits, grading scale: P, F
- PRO1 - Project Work, 1,0 credits, grading scale: P, F

Moreover, the requirements cover active participation in discussions and seminars regarding case studies as well as participation of the study visit. An overview of the criteria for P/F grades is presented in Appendix 1: Goal-oriented grading criteria, below.

Pre-requisites

The course consists of a combination of lectures, guest lectures given by people from both the academia and the industry. Attendance and active participation in class discussions are expected. Participation and contribution in all assignments are mandatory, which requires participation in related lectures, guest lectures, the study visit, group preparations, execution, as well as written and oral presentations.

Literature

The literature in the course is based on one textbook, articles related to the specific lectures, the three perspectives, and the case assignments. The articles will be distributed during the course (most included as clickable URLs in this document).

Plagiarism

The course builds on individual and group work with questions, seminars, and homework assignments. Plagiarism is not allowed. Information about plagiarism can be found at: https://www.kth.se/en/student/stod/studier/fusk-1.997287. Information about plagiarism and how control of plagiarism will be executed will be presented during the course. Amongst the measures taken, automatic control of plagiarism will be done on all assignments (group and individual).

Eligibility

1. Specific entrance requirements according to educations at KTH
2. Basic course in Industrial management (e.g. ME1003, or corresponding)
3. Registration on the Industrial management master program

Offered by

ITM/Industrial Economics and Management

Course coordinator and examiner

Course coordinator:

Lars Uppvall, lars.uppvall@indek.kth.se

Appendix: Goal oriented grading criteria

The relation between each of the intended learning outcomes (ILOs) is shown in Table 1, below.

Table 1. Relationship between ILOs and examination

ILO#	ILO (2019)	INL1	INL2	INL3	INL4	SEM1	PRO1
1	Discuss key theoretical areas and different levels of analysis in the field of industrial management from a systems perspective .						
2	Formulate and define problems to address complex management problems in industrial and technology intensive activities using knowledge and data from different types of sources.						
3	Evaluate and apply theoretical concepts, frameworks and methods related to the field of industrial management on activities in different industries in order to analyze and propose solutions to industrial challenges.						
4	Investigate, analyze, make judgements, and propose solutions for specific challenges and circumstances related to: management, gender, diversity, globalization and technology development in industrial and technology intensive activities.						
5	Discuss and critically analyze the implementation of sustainable development in industrial and technology intensive activities.						
6	Present in writing and orally findings and recommendations towards different audiences.						
7	Evaluate their own work and reflect on their own learning in the course, also in relation to future roles and management positions in industry.						

Comments to Table 1. above: Several course components cover the same ILO, in particular INL 1-3. The reason for this is two-folded. *Most important, each of these course components focus on one of the three perspectives covered in the course (individual, functional, and industrial perspective). Hence, INL 1-3 cover the same ILOs for different parts of the content in the course and all needs to be passed in order to pass the course.* In addition, there is also a progression of the knowledge and skills that are assessed related to ILO 1-4, 6 based on the assignments covered in INL 1-3 (see following sections in this document for details of Case A-C). Substantial feedback is also given between each of the learning activities linked to these course components.

SEM 1: Examines the active participation in all scheduled seminars, including, the hand-ins of peer-review material, the group's presentations, and the participation in the study visit.

Sanctions: Absent or failed seminar hand-in, without valid reason, will be investigated. If students do not show valid reason, they will receive F, and, therefore, have to re-participate in the missed activity the following year.

INL 1: Harvard Case that describe an industrial company's situation where students have to decide on a sourcing solution (three basic outcomes: no action, out-source, or offshore).

Grading criteria for P

Students should describe the background and define the case company's problem based on the given information. [ILO2]

Students should demonstrate the ability to apply financial analysis on their defined problem as well as apply (at least) one theoretical framework in order to cover non-financial aspects in their analysis. Judgments and assumptions should be argued for. [ILO3]

Present and argue for a solution for the case company based on the combined financial and non-financial analysis. The oral and ppt presentation should, at least partly, following the "Speech Template" [ILO4] [ILO6]

INL 2: Students act as consultants for a company (students decide which company) needing to deal with diversity issues and strategies. The assignment is to evaluate theories from the field or gender and diversity that could be applied in order to analyze and formulate a strategy (recommendations and advises on a plausible strategy and promising areas for further investigations.

Grading criteria for P

Based on students' own choice of company and, at least parts of, the provided literature, students should describe a short background, problem and a research question. [ILO2]

Students should demonstrate the ability to evaluate and apply theoretical concepts or models relevant to the situation in the selected company that will be used in the analysis. In addition, students should briefly describe the method used and the prime sources of their investigation. [ILO3]

Present a strategy and give recommendations for promising areas of further investigations based on the performed analysis of gender or diversity in the format of a short academic report. At least, the report should present recommendations and suggest promising areas of further investigations. [ILO4] [ILO6]

INL 3: Students are to act as consultants/researchers working with an authentic organization (client). Students are given a focus area of their investigation based on an emerging technology that could radically change aspects of the industry of the company/client. Based on guest lectures and a study visit (with opportunity brief data collection through informal interviews) students should evaluate theoretical concepts and models in the area of industrial dynamics in order to investigate possible effects of the new technology of the client and suggest recommendations for change. In short, students are provided with a vaguely defined assignment in order to facilitate a comprehensive problem formulation process: 1) Define a problem that is not trivial 2) Suggest a plausible solution to this problem (your proposition).

Grading criteria for P

Students should formulate a problem related to an authentic industrial organization, the provided literature and the development of a specific new technology. Based on the problem students should formulate a purpose and, at least, one research question for their investigation. In addition, students should briefly describe the method used, their prime sources, and comment on the validity and reliability of their results. [ILO2]

Students should demonstrate the ability to evaluate and apply theoretical concepts or models relevant to the situation in the authentic industrial organization that will be used in the analysis. [ILO3]

Provide a proposition based on their investigation including recommendations for actions in the authentic organization, including brief arguments for the associated resources/cost involved. Briefly comment on the limitations of their study and their recommendations. The oral and the ppt presentation should follow the "Speech Template", while the intellection document should briefly describe the research process, including the problem, research question, method, sources, reliability and validity. [ILO4] [ILO6]

INL 4: In order to ensure a common level of knowledge and skills regarding sustainable development among students with different educational background, this assignment utilized the web-based resources given by KTH for this assignment. The learning activity is divided in two parts: 1) students watch video lectures online, and 2) students write a short report where they are to formulate a critical point of view regarding fossil-free steel production.

Grading criteria for P

In the short paper (max one page, A4, 12p), the students should: 1) briefly describe the implementation of sustainability in the presenter's organization and the main argument of its effect, 2) formulate, at least, one critical aspect (a relevant and underbuilt challenge/aspect regarding fossil-free steel production), substantiate your chosen challenge with at least one source and link the challenge/aspect to the content in one of the video lectures (video 1-13). [ILO5]

PRO 1: This course component is based on an individual assignment in two parts. First, in the "examination portfolio" students should systematically evaluate and reflect upon their learning using the "portfolio" of work done in Case A-C. In addition, students should discuss how their solutions (or recommendations in Case A-C) could be argued to contribute to sustainable development. Secondly, students should reflect on their learning in relation to some of the ILOs in the course and also provide some reflections regarding skills that they have been developed within the course that relates their future work life as a MSc in Industrial management.

Grading criteria for P

Part 1.1 Provide and argue for one example of a strength and a weakness in the results (the actual result of your investigation – not the group process/dynamic) of each case [ILO7] [Partly ILO2-4]

Part 1.2 Provide one relevant argument for the contribution to sustainable development for the results of each case (either socially, economically, or environmentally). [ILO5]

Part 2.1 For all four ILOs provide separate examples from your case work. For ILO1, the need for more than one level of analysis should be provided; for ILO2, one aspect of the problem formulation process should be exemplified; for ILO3, example of evaluation of theory and models should be provided; for ILO4, one of the specified areas within industrial management should be stated. For all reflections the interpretations of the ILO must be correct. [ILO1-4, by reflection]

Part 2.2 Reflections on students' future work life should contain, at least, one aspect discussed or presented by any of the guest lectures or at the study visit. [ILO7]