IEM (Industrial Engineering and Management): Research Frontiers and Theoretical Foundations, 7,5 credits

["Industriell ekonomi: forskningsfronter och teoretiska grunder"], 7,5 högskolepoäng

Course code:	FOES021
Third-cycle subject:	IEO Industrial Economics and Organization
School:	EST
Valid from:	240301
Established by:	EST
Decision date:	240319
Last modified:	YYMMDD
Level of education:	Third cycle level

Course objectives

The course is a joint introduction and orientation course to research in Industrial Engineering and Management (IEM) in the broad sense in the Nordic region. The course aims:

- To provide an orientation on the ongoing research in the subject area at Mälardalen University (MDU), Royal Institute of technology in Stockholm (KTH) and Uppsala University (UU).
- To show important theoretical foundations and new perspectives on which the ongoing research is based.
- To create a common identity of industrial engineering and management as a postgraduate subject
- To strengthen the regional network within the subject of industrial engineering and management

Course content

The course consists of three two-day workshops and one one-day seminar. Each workshop takes place on site at one of the three universities and deals with current research in industrial engineering and management at KTH, MDUs, and UU within two themes (see below). One of the universities functions as host, but researchers from at least two universities participate on each occasion.

Each theme begins with examples of ongoing research. Based on this, the background to the ongoing research is discussed, e.g. what is the previous research in the field? what are the theoretical starting points of the research? and what are possible future lines of development? Occasionally, study visits can be arranged to illustrate the empirical context of the research.

Here below the content of each session

Workshop 1 @ KTH:
Introduction - IEM as an academic field
Theme 1 - Innovation Management
Theme 2 - Industrial dynamics and technological transitions

Workshop 2 @ MDU:
Theme 3 - Entrepreneurship
Theme 4 - Management and organizing

Workshop 3 @ UU:
Theme 5 - Operations and supply chain management
Theme 6 - Industrial marketing and market systems

Final seminar @ KTH
Final seminar - Presentation of course paper.

Intended learning outcomes

- After passing the course, the student shall have acquired skills and knowledge:
- To be able to describe the subject area of Industrial Engineering and Management (IEM), in Swedish “Industriell ekonomi”, and its historical development.
- To be able to describe the ongoing research in IEM at the participating institutions.
- To understand which central theoretical foundations and new perspectives this research is based on.
- To reflect independently on IEM as an academic subject area and its relationship to other related fields
- To relate and connect own research with IEM as an academic subject area.

The intended qualitative targets in relation to the Higher Education Ordinance, appendix 2.

Knowledge and understanding

For the Degree of Doctor, the doctoral student shall demonstrate:

- A1: broad knowledge and systematic understanding of the research field as well as advanced and up-to-date specialised knowledge in a limited area of this field, and
- A2: familiarity with research methodology in general and the methods of the specific field of research in particular.

Competence and skills

For the Degree of Doctor, the doctoral student shall demonstrate:

- B1: the capacity for scholarly analysis and synthesis as well as to review and assess new and complex phenomena, issues, and situations autonomously and critically,
- B2: the ability to identify and formulate issues with scholarly precision critically, autonomously, and creatively, and to plan and use appropriate methods to undertake research and other qualified tasks within predetermined time frames and to review and evaluate such work,
- B5: the ability to identify the need for further knowledge.

Judgement and approach

For a Degree of Doctor the doctoral student shall demonstrate

- C1: intellectual autonomy and disciplinary rectitude as well as the ability to make assessments of research ethics, and
- C2: specialised insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used.

Teaching formats

Workshops, lectures, study visits.

Examination

Examination	• *SEM1 – Active participation in the seminar series, 3 ECTS, grading scale: P, F* • *SEM2 – Oral presentation and opposition, 2 ECTS, grading scale: P, F*

	• *INL1 – Presentation of course essay and opposition to another participant's essay, 2.5 ECTS, grading scale: P, F*

Grade

Examinations included in the course are assessed according to a two-grade scale, fail or pass.

Grades are to be decided by a teacher specially appointed by the university.

A person who has not passed the regular examination shall be given the opportunity to retake the test.

Requirements

The course requirement is to be enrolled in a doctoral studies program.

Selection criteria

Doctoral students admitted to other subjects at Mälardalen University may be admitted to the course, subject to availability. The same applies to doctoral students admitted to other higher education institutions within and outside of Sweden.