EH2050 Industrial Information Systems, Case Studies 7.5 credits

Industriella informationssystem, fallstudier

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for EH2050 valid from Autumn 2007

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

EH2040 is a requirement to take this course

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The objective of Industrial Information Systems is to provide knowledge and skills in software system management, i.e., the planning, procurement, development and integration of software systems in an organizational context. The course also considers the underlying industrial processes, e.g. telecommunication systems, power systems or process industries. The course prepares the student both for technology intensive professions, e.g. system development, and project management within organizations supplying or the acquiring industrial information and control systems.

After the course the participants should be able to:

- Carry an evaluation project through in a practical way under realistic circumstances.
- Specify and model information systems and their organizational context.
- Analyze information system management issues such as information system security, modifiability, interoperability, data quality, reliability and usability, IT-Governance and IT business value.
- Critically evaluate and discuss the outcome of analyses related to complex decision situations in information systems management.
- Present the information system evaluation, both orally and in written form, with regards to the different stakeholders involved.

Course contents

The course consists of the following content:

- Practical aspects of IT-management issues - The students should, based on existing research, analyze an information system management issue for instance information system security, modifiability, interoperability, data quality, reliability and usability, IT-Governance and IT business value. The analysis will be performed on a real industrial problem.
- Bayesian analysis - The students should employ Bayesian mathematics for the analysis of a given information system management issue. For instance, calculating the result of information security based on empirical data collected at a given company.
- Enterprise architecture modeling - The students should, given a previously created enterprise architecture modeling language, create instantiated models based on empirical data collected at a given company.
- Case study methodology - The students should, based on the planned case study of EH2040, carry an information system evaluation project focusing on a specific management issue in a given decision situation through. Each case study will be carried through at a real company.

The main outcome of the course Industrial Information Systems, Systems Engineering (EH2040) serves as input for this course. This means that the students are supposed to carry a case study through at a real company based on the investigation plan written in the former course. The most central part of this investigation plan is a framework for analysis

of an IT-decision making problem. The framework consists of a Bayesian network coupled with an Enterprise Architecture modeling language (i.e. metamodel). Based on the analysis framework the students collect empirical data and perform the Bayesian analysis for their specific problem. The outcome of the course is therefore decision support in a real life IT-problem. The results are presented orally and in written form, for both fellow students and teachers at KTH and at the company where the case study was conducted.

Course literature

Johnson, P. and Ekstedt, M.: Enterprise Architecture – Models and Analyses for Information Systems Decision Making, Studentlitteratur, 2007, ISBN 978-91-44-02752-4.

Yin, Robert K., Case Study Research, Design and Methods, Edition 3 (4), Sage Publications, 2003, ISBN 0-7619-2553-8.

For those who have not studied Project Management, the Handbook for small projects by Eriksson, M. and Lilliesköld, J. may come to use.

For those who have not studied Enterprise Architecture, Lankhorst et al., Enterprise Architecture at Work: Modeling, Communication, and Analysis, Springer, 2005, may come to use.

Examination

- SEM1 - Seminar Exercise, 1.5 credits, grading scale: P, F
- PRO1 - Project, 6.0 credits, grading scale: P, F

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

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

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

The grade is based on written and oral presentations. No written exam.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.