EH2040 Industrial Information Systems, Systems Engineering 7.5 credits

Industriella informationssystem, systemteknik

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

Establishment

Course syllabus for EH2040 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

For single course students: 120 credits and documented proficiency in English B or equivalent

Students from all master programs are welcome!

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 acquiring industrial information and control systems.

After the course the participants should be able to:

- Characterize information system management issues such as information system security, modifiability, interoperability, data quality, reliability and usability, IT-Governance and IT business value.
- Compare, choose and motivate the usage of appropriate methods for evaluation of information systems management issues.Plan information system evaluation projects in a practical way under realistic circumstances taking different stakeholder requirements in to consideration.
- Present the information system evaluation plan, both orally and in written form, with regards to the different stakeholders involved.

Course contents

The course consists of the following content:

- Theoretical aspects of IT-management issues – The students should, based on previous research, characterize information system management issues such as information system security, modifiability, interoperability, data quality, reliability and usability, IT-Governance and IT business value. The course consists of a larger project aiming to conduct a case study. Each case study will focus on a specific issue related to a real problem at a company.
- Bayesian networks – The students should design a Bayesian network for the analysis of a given information system management issue. For instance, breaking the goal information security down into measurable and well-defined parts with a causal effect on the goal.
- Enterprise architecture modeling – The students should, given previously gained knowledge in the area of enterprise architecture modeling, create a modeling language specifically designed to provide the proper information for the analysis at the given company.
- Case study methodology – The students should, based on case study methodology, plan an information system evaluation project focusing on a specific management issue in a given decision situation at a real company.

The main outcome of the course 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) and it is a central part of the case study investigation

plan, which is the most important part of the examination. The outcome (the case study investigation plan) of this course serves as input for the course Industrial Information Systems, Case Studies (EH2050).

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

- PRO2 - Project, 6.0 credits, grading scale: P, F
- PRO1 - Project, 1.5 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

Announced at start of course.

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.