School of Economics and Management

SYSA14, Informatics: IT Architecture and Software Systems, 30 credits

Informatik: IT-arkitektur och mjukvarusystem, 30 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus is an old version, approved by The Board of the Department of Informatics on 2013-09-20 and was valid from 2014-01-20 , spring semester 2014.

General Information

The course makes up the fourth semester of the BSc programme in Design of Information Systems.

Language of instruction: Swedish
Required reading in English may be included.

Main field of studies	*Depth of study relative to the degree requirements*
Information Systems	G2F, First cycle, has at least 60 credits in first-cycle course/s as entry requirements
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Learning outcomes

On completion of the course, the student shall have obtained specialised knowledge of and skills in the architectural structuring of software systems, integration and configuration of software components, and systematic quality input in software development and delivery of IT-based services.

Knowledge and understanding

For a pass on the course, students shall demonstrate knowledge and understanding of

- different quality properties and quality definitions for the assessment and description of software
- testing as a means of determining and achieving software quality
- how integration technologies can support the level of technology in Enterprise Architecture (EA)
- modern software architectures for distributed and component-oriented systems
- component-oriented development of distributed software systems
- plug-in development as a configuration of software systems
- Software Process Improvement (SPI) as a paradigm and model for software development
- models and frameworks for SPI
- advantages and disadvantages of SPI within software development
- IS/IT governance as an approach to service delivery
- standards for IS/IT governance and their advantages and disadvantages

Competence and skills

For a pass on the course, students shall demonstrate competence and skills individually or in groups to

- analyse software configuration of standard systems and design change through supplementary programming
- design architectures for software systems that achieve certain quality properties
- utilise some or several integration technologies for the technology level in EA
- use web technologies for the design and realisation of IT architecture
- plan assignments for development projects
- present concepts and support for service delivery within IS (IS/IT governance) and provide examples of how they can be used for improvements
- present problems and solutions in speech and writing
- design and present models and plans as documentation for change management
- draw up their own design proposals in accordance with the standard/s for IS/IT governance

Judgement and approach

For a pass on the course, students shall demonstrate the ability to

- compare models, methods and tools for the design of software systems and how they complement, overlap or contradict each another
- assess different architectures for the realisation of component-oriented and distributed software systems
- assess different technologies for the realisation of component-oriented and distributed software systems
- assess design proposals from different quality perspectives
- assess plans for project work and the working group's internal process
- assess, reflect on and document their own learning process and goal attainment

Course content

The course includes

- the SPI paradigm
- frameworks for SPI
- frameworks for IS/IT governance
- delivery of IS/IT services
- integration technologies for EA
- software system quality
- modern object-oriented programming languages
- modern component and web service technologies
- IS project, throughout the course

Modules

Software Architecture, Integration and Configuration of ERP Systems, Quality Assurance of Software Systems, Program Design, Web Architecture, Integration Technologies, IS/IT Governance, Software Process Improvement, IS Project.

Course design

The teaching consists of lectures, lessons, seminars and laboratory exercises.

The course may include compulsory components. They are stated in the timetable.

Assessment

The assessment is based on written exams, written assignments and an IS project report.

Assessed components including documentation and written reflections are compiled in the student's learning portfolio (subject examined 1112).

Re-examinations are offered in close conjunction with the first examination.

Cheating such as plagiarism, fabrication and falsification is considered a serious offence in higher education (see Chapter 8 of the Higher Education Ordinance). The disciplinary measures that may be taken as a result of such offences are caution or suspension for a limited period of time from the University.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, E, D, C, B, A.
Grades (Designation) Points or percentage of maximum points. Definition.

A (Excellent) 85-100. An excellent result in terms of theoretical depth, practical relevance, analytical ability and independence.

B (Very good) 75-84. A very good result in terms of theoretical depth, practical relevance, analytical ability and independence.

C (Good) 65-74. A good result in terms of theoretical depth, practical relevance, analytical ability and independence.

D (Satisfactory) 55-64. An satisfactory result in terms of theoretical depth, practical relevance, analytical ability and independence.

E (Acceptable) 50-54. A result that satisfies the minimum requirements with regard to theoretical depth, practical relevance, analytical ability and independence.

Fail (Inadequate/Fail) 0-49. An inadequate result in terms of theoretical depth, practical relevance, analytical ability and independence.

To pass the course, the students must have been awarded the grade of E or higher.

Grading rules

Exam assessment

The grades A to E and U are applied to exams which are awarded *different passing grades*.

The grades U and G (Fail and Pass) are applied to exams which are *not awarded different passing grades*.

Course assessment

A grade for the entire course is awarded when all exams included in the course have been passed. The assessment is based on all the exams that have been awarded the grades A to E and U and the numbers assigned to the letters according to the following list: A = 15, B = 14, C = 13, D = 12, E = 11.

The exams with different passing grades are weighted according to the following formula:

The number of credits for the exam is multiplied with the value of the grade according to the list above. The total value is then divided by the total number of credits for the exams included. The resulting average is then rounded off to the nearest whole number and the number indicates the relevant course grade in the list above.

Exams awarded the grades of U and G are not included in the calculation of the course grade.

Entry requirements

To be admitted to the course, students must have passed SYSA11, SYSA12 and SYSB13 or the equivalent.

Further information

SYSA14 is a programme-specific course and only students on the BSc in Design of Information Systems are admitted.

SYSA14 may not be included in a degree together with SYSA04 or the equivalent.

For transitional provisions with regard to previous courses, please contact the study adviser for an individual assessment.

If the course is discontinued, there may be limited opportunities for re-examination. Please contact the study adviser for information.

Amendments

18 January 2013: Updated reading list.

Subcourses in SYSA14, Informatics: IT Architecture and Software Systems

Applies from V12

1101 Software Architecture, Assignments, 3,0 hp
Grading scale: Fail, Pass
Individual and group assignment.

1102 Software Architecture, Written Exam, 3,0 hp
Grading scale: Fail, E, D, C, B, A
Individual exam.

1103 Integration and Configuration of ERP Systems, Assignments, 3,0 hp
Grading scale: Fail, Pass
Individual and group assignment.

1104 Quality Assurance of Software Systems, Assignments, 2,0 hp
Grading scale: Fail, Pass
Individual and group assignment.

1105 Program Design, Assignments, 3,0 hp
Grading scale: Fail, Pass
Individual and group assignment.

1106 Program Design, Written Exam, 1,5 hp
Grading scale: Fail, E, D, C, B, A
Individual exam.

1107 Web Architecture, Assignments, 4,5 hp
Grading scale: Fail, Pass
Individual and group assignment.

1108 Integration Technologies, Assignments, 3,0 hp
Grading scale: Fail, Pass
Individual and group assignment.

1109 IS/IT Governance, Assignments, 1,5 hp
Grading scale: Fail, Pass
Individual and group assignment.

1110 Software Process Improvement, Assignments, 1,5 hp
Grading scale: Fail, Pass
Individual and group assignment.

1111 IS Project, Report, 3,0 hp
Grading scale: Fail, E, D, C, B, A
Individual and group assignment.

1112 Learning Portfolio, 1,0 hp
Grading scale: Fail, Pass
Individual assignment.