

COURSE PLAN

Vetenskaplig teoribildning inom informationsteknologi A1N Scientific Theory in Informatics A1N 7.5 credits/ECTS

Course Code: IT706A

The Course Plan Applies from: Jul 1, 2014

Date of Approval: Feb 25, 2014

Version Number: 2

Subject: Informatics

Main Field of Study: Informatics

Disciplinary Domain: Technology

Academic Level: Advanced level

1 Name, Scope and Level of the Course

The course is provided by the University of Skövde and is named Scientific Theory in Informatics A1N. It comprises 7.5 credits and is on Advanced level, the level of progression of the course is A1N.

2 Objectives

Upon completion of the course, a student should have accomplished the following learning outcomes and be able to:

- Explain the scientific method of problem abstraction, hypothesis formation and test, experimentation, and analysis;
- Explain the distinction between modelling methodology and instances of specific theories and models;
- Explain the difference between descriptive and normative models;
- Apply a working knowledge of a representative sample of core theories and fundamental techniques in informatics, in general, and in computational, cognitive, and socio-technical systems, in particular;
- Compare and contrast competing theories and complementary techniques in the context of typical computer-based information systems.

3 Course Content

The course addresses central scientific theories in informatics. At the University of Skövde, informatics is

defined as the discipline that addresses how information is represented, processed, and communicated in artificial and natural systems. As such, it is the study of the design and development of systems that effect the timely, effective, and efficient provision of information for individuals, organizations, and society.

A representative sample of core theories and fundamental techniques are drawn from the body of knowledge in the discipline of informatics. These topics may include the following.

- The scientific method
- Modelling methodology
- Complexity theory
- Computability & automata theory
- Basic cognitive psychology
- Intelligent systems
- Organizational theory
- Serious games
- Game theory
- Discrete probability

- Information theory
- Decision theory
- Cognitive systems
- Management theory
- Algorithmic strategies
- System and software quality

This list of topics will be revised periodically to optimize the student learning experience.

4 Teaching

The teaching comprises lectures, seminars, and tutorials. Group discussion features in all three modes of delivery.

The teaching is conducted in English.

5 Examination

The course is graded Fail (U), Pass (G) or Pass with Distinction (VG).

The grade is translated to the ECTS grading scale (A, B, C, D, E, Fx or F).

Registration of examination:

Name of the Test	Value	Grading
Assignments	7.5 hp/ECTS	U/G/VG

6 Admission Requirements

To be eligible for the course a Bachelor's Degree in Informatics, or from an area related to Informatics, or the equivalent, is required.

A further requirement is proof of skills in English equivalent of studies at upper secondary level in Sweden, known as English course B. This is normally demon-

strated by means of an internationally recognized test, e.g. IELTS, TOEFL or the equivalent.

7 Subject, Main Field of Study and Disiplinary Domain

The course forms a part of the academic subject area of Informatics. The course is a part of the main field of study in Informatics at the University of Skövde. The course can also be a part of the main field of study in Informatics. The disciplinary domain of the course is Technology.

8 Decision on the Course and Ratification of the Course Plan

This course is approved by the Course Syllabus Committee for Informatics Jun 19, 2012. This course plan was ratified by the Curriculum Committee for Informatics Feb 25, 2014. It is valid from Jul 1, 2014 and replaces the course plan ratified Jun 19, 2012.

9 Provisos

This course can not constitute a part of a degree also containing a course, the content of which is totally or partly equivalent to the content of this course.

10 Additional Information

Further information will be available on the university's web pages before a course is provided.

National and local regulations for higher education are available on the university's web site.

During and after the course there will be a follow-up concerning the learning outcomes. The main objective of the follow-up is to contribute to improving the course. The students' experience and points of view constitute one part of the scrutiny and is obtained through written group course evaluation/discussions. The students will be informed about the outcome of these as well as of possible decisions concerning steps to be taken.

11 Course Literature and Other Educational Materials

The course literature consists of a set of chosen scientific articles and book chapters. A list of these are provided by the course director and are listed on the course home page for each time the course is given. Further, the students choose additional relevant literature for the individual essay, the individual written assignment and the oral presentation.