This course syllabus is discontinued or replaced by a new course syllabus.

ÖREBRO UNIVERSITY

Course Syllabus

School of Science and Technology

Computer Science, Planning and Scheduling, Second Cycle, 7.5 Credits

Course Code:	DT4047	**Subject Area:**	Field of Technology
Main Field of Study:	Computer Science	**Credits:**	7.5
		Subject Group (SCB):	Computer Science
Education Cycle:	Second Cycle	**Progression:**	A1N
Established:	2013-10-23	**Last Approved:**	2014-09-24
Valid from:	Spring semester 2015	**Approved by:**	Head of School

Aims and Objectives

General aims for second cycle education

Second-cycle courses and study programmes shall involve the acquisition of specialist knowledge, competence and skills in relation to first-cycle courses and study programmes, and in addition to the requirements for first-cycle courses and study programmes shall
- further develop the ability of students to integrate and make autonomous use of their knowledge
- develop the students' ability to deal with complex phenomena, issues and situations, and
- develop the students' potential for professional activities that demand considerable autonomy, or for research and development work.

(Higher Education Act, Chapter 1, Section 9)

Course Objectives

Knowledge and Understanding
After completed studies, the student shall have knowledge about the formalisms, methods and algorithms for planning and scheduling which are presented in the course.

Competence and Skills
After completed studies, the student shall be able to
- Identify real-world situations and problems which can be formulated as task planning, motion planning and scheduling problems.
- Sketch solutions to solve the above problems which use heuristic search, constraint-based techniques and sampling-based methods.

Judgement and Approach
After completed studies, the student shall be able to
- choose the most appropriate approach among the several presented during the course for solving a specific problem, and
- understand the computational and representational trade-offs of different methods.

Main Content of the Course

The course covers the following subjects:
- classical planning, STRIPS as a representation and algorithm
- planning and search, Graphplan and planning as satisfiability
- constraint-based resource scheduling
- anytime search

- single- and multi-agent motion planning
- coordinated motion.

Teaching Methods

Teaching is given in the form of seminars.

Students who have been admitted to and registered on a course have the right to receive tuition and/or supervision for the duration of the time period specified for the particular course to which they were accepted (see, the university's admission regulations (in Swedish)). After that, the right to receive tuition and/or supervision expires.

Examination Methods

Examination, 7.5 Credits. (Code: 0100)
Written examination.

For further information, see the university's local examination regulations (in Swedish).

Grades

According to the Higher Education Ordinance, Chapter 6, Section 18, a grade is to be awarded on the completion of a course, unless otherwise prescribed by the university. The university may prescribe which grading system shall apply. The grade is to be determined by a teacher specifically appointed by the university (an examiner).

According to regulations on grading systems for first- and second-cycle education (vice-chancellor's decision 2010-10-19, reg. no. CF 12-540/2010), one of the following grades is to be used: fail, pass, or pass with distinction. The vice-chancellor or a person appointed by the vice-chancellor may decide on exceptions from this provision for a specific course, if there are special reasons.

Grades used on course are Fail (U), Pass (G) or Pass with Distinction (VG).

Examination
Grades used are Fail (U), Pass (G) or Pass with Distinction (VG).

For further information, see the university's local examination regulations (in Swedish).

Specific entry requirements

First-cycle degree of 180 credits, with Computer Science as the main field of study, and at least 15 credits in mathematics (analysis and algebra). The applicant must also have qualifications corresponding to the course "English B" or "English 6" from the Swedish Upper Secondary School.
OR
First-cycle degree of 180 credits, and at least 30 credits in mathematics (analysis and algebra), as well as at least 15 credits in Computer Science or Informatics (which includes programming). The applicant must also have qualifications corresponding to the course "English B" or "English 6" from the Swedish Upper Secondary School.

For further information, see the university's admission regulations (in Swedish).

Transfer of Credits for Previous Studies

Students who have previously completed higher education or other activities are, in accordance with the Higher Education Ordinance, entitled to have these credited towards the current programme, providing that the previous studies or activities meet certain criteria.

For further information, see the university's local credit transfer regulations (in Swedish).

Other Provisions

The course is given in English.

Reading List and Other Teaching Materials

Required Reading

Ghallab Malik, Nau Dana, Traverso Paolo (2004)
Automated Planning Theory and Practice
Elsevier, ISBN 9781558608566, 635 pages

Additional Reading

Dechter, Rina (2003)
Constraint Processing The Morgan Kaufmann Series in Artificial Intelligence
Elsevier Science, ISBN: 0080502954, 9780080502953, 480 pages

LaValle, Steven (2006)
Planning algorithms
Cambridge university press, ISBN 978-0-521-86205-9, 831 pages

Russell, Stuart, Norvig, Peter (2010)
Artificial Intelligence, A modern Approach Prentice Hall
Prentice Hall, ISBN: 0136042597, 9780136042594, 1132 pages

Additions and Comments on the Reading List

Ytterligare material kan tilldelas av läraren.