Course syllabus for

# Clinical decision support, 5 credits

Kliniskt beslutstöd, 5 hp

This course has been cancelled, for further information see Transitional provisions in the last version of the syllabus.

Please note that the course syllabus is available in the following versions:
Spring2011 , Spring2012

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| Course code | 4HI010 |
| Course name | Clinical decision support |
| Credits | 5 credits |
| Form of Education | Higher Education, study regulation 2007 |
| Main field of study | Health Informatics |
| Level | AV - Second cycle |
| Grading scale | Excellent, Very good, Good, Satisfactory, Sufficient, Fail, Fail |
| Department | Department of Learning, Informatics, Management and Ethics |
| Decided by | Programnämnd 5 |
| Decision date | 2010-11-09 |
| Course syllabus valid from | Spring 2011 |

## Specific entry requirements

Bachelor of science or professional qualification of at least 180 credits within health care, biomedicine, technology, data and software engineering or informatics. Furthermore, knowledge in English equivalent to English B (with at least the Pass grade) is required.

## Objectives

The general aim of the course is that the students should acquire sufficient knowledge and skills to be able to participate in the requirements engineering, the development, the introduction, the improvement and the evaluation of methods that provide clinical decision support actively and explain how these methods can be implemented in information system while considering interoperational, organizational, ethical and legal aspects. On completion of the course, the students should be able to: Knowledge and understanding - explain how the introduction of clinical decision support can be used to achieve an improved patient safety and a more evidence-based care. - explain, illustrate and categorise the main types of clinical decision support systems. - explain methods to create or generate medical knowledge that can be introduced in a clinical decision support system based on clinical expert knowledge, evidence-based clinical guidelines and medical databases, by means of machine learning techniques - explain methods to represent medical knowledge in standardised models. - explain and problematise how clinical decision support systems can influence an organisation and how this can be planned for. -

explain the role of the medical knowledge and the clinical decision support as a part in an organisation knowledge management. Skills - analyse the need of decision support. - carry out an analysis of user requirements and develop a graphical user interface for a clinical decision support system. - choose and apply methods to create medical knowledge for an identified clinical problem through interviews of clinical experts or document analysis of clinical guidelines. - choose and apply a standardised method to represent medical knowledge for integration in decision support systems. - analyze and suggest methodology to facilitate integration with other information system. Values and attitudes - evaluate the use and the suitability to introduce a new decision support system in a given clinical context based on analysis of the need, work flow, decision-making processes and ethical and legal aspects of the activities.

# Content

- Various types of clinical decision support systems. - Case studies. - Evidence-based medicine. - Methods to create or generate medical knowledge:Cognitive task analysis, analysis of clinical guidelines, statistical and machine learning techniques - Knowledge representation:rules, computerised clinical guidelines, ontologies and information models. - Organizational and social challenges. - Ethical and legal aspects. - "Knowledge management" in health care organisations.

# Teaching methods

Groups are created with students who have care - respective technical background. Based on this interdisciplinary competence, the groups admit two different roles, the clinical role of orderer and the technical supplier role. The course will be given in the form of a number of blocks where different themes are treated. The blocks are structured similarly: Initially, lectures that introduce new theory and project assignments are given. Later is given opportunity to teacher supervision and block is completed with presentations and a reflecting seminar.

# Examination

The examination consists of two parts. Part 1 consists of active participation in group assignments, the submission of written presentation and seminars. This part is assessed with Fail/G. Part 2 is an individual take-home examination that is of the type Open book, i.e. all aids are allowed. Take-home examination is assessed with the grading scale A-F. The final grade is the same as the grade in part 2 and is made after Pass has been achieved in part 1. Compulsary participation Participation in the group assignments and in reflecting seminars is compulsory.The course director assesses if and, in that case, how absence can be compensated. Before the student has participated in all compulsory parts or compensated absence in accordance with the course director's instructions, the student's results for the course/respective part will not be registered in LADOK. Limitation of number of occasions to write the exam: The student has the right to write the exam six times. If the student has not passed the exam after four participations he/she is encouraged to visit the study advisor. The number of times that the student has participated in one and the same examination is regarded as an examination session. Submission of a blank examination is regarded as an examination. An examination for which the student registered but not participated in will not be counted as an examination.

# Transitional provisions

After each course, there will be at least 6 occasions for examination within a 2-year period after the end of the course.

# Other directives

Course evaluation will be carried out in accordance with the guidelines established by the Board of

Education. The course is given in English.

# Literature and other teaching aids

**Clinical decision support : the road ahead**
*Greenes, Robert A.*

Amsterdam : Elsevier Academic Press, cop. 2007 - xv, 581 p.
ISBN:978-0-12-369377-8 (alk. paper)  LIBRIS-ID:10410159
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