Course syllabus for

Modelling, simulation and visualisation in health informatics, 5 credits

Modellering, simulering och visualisering inom hälsoinformatik, 5 hp
This course has been cancelled, for further information see Transitional provisions in the last version of the syllabus.

Course code	4HI013
Course name	Modelling, simulation and visualisation in health informatics
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	2011-04-27
Revised by	Education committee LIME
Last revision	2019-11-22
Course syllabus valid from	Autumn 2011

Specific entry requirements

All courses from term 1 and at least 10 credits from courses from term 2 at the Master's programme in health informatics.

Objectives

The general aims of the course are that the student should receive knowledge and abilities within the disciplinary domain medical simulation and visualisation through literature studies, demonstrations, lectures and project work under supervision.

On completion of the course, the student should be able to:

Knowledge and understanding
* Show knowledge of methods and important concepts for modelling and simulation within health care
* Show in-depth knowledge of virtual patients for learning and examination
* Show in-depth knowledge of simulation of flows and processes within health care
* Show in-depth knowledge of simulation for medical and psychiatric investigation, diagnostics, treatment and rehabilitation

* Show knowledge about and understanding of intellectual property law questions with respect to simulation and visualisation within health care

Skills and ability
* Identify, formulate, analyse, reflect and assess problems with relevance for simulation and visualisation within health care
* Model basic medical processes and flows
* Choose, discuss and argue for choices of appropriate methods for medical simulation and visualisation
* Under supervision be able to plan and assess resource needs for and carry out limited projects within medical simulation and visualisation

Assessment ability and attitudes
* Show knowledge and understanding for ethical, legal and other important principles to use images, animations and films within medical simulation and visualisation
* Show knowledge and understanding for patients' integrity with respect to simulation and visualisation within health care

Content

* Orientation in modelling, visualisation and simulation within health care
* Different simulation models and concepts
* Virtual patients for learning and assessment
* Simulation of physiological processes on body -, tissue -, cellular - and molecular level
* Simulation of flows and processes within health care (patient flows, hospital planning etc.)
* Simulation of disease processes and disease transmission
* Simulation for medical and psychiatric investigation, diagnostics, treatment and rehabilitation
* Methods for modelling of medical processes and flows

Teaching methods

* Lectures
* Demonstrations
* Studies of literature
* Project Work

Examination

The examination consists of two parts which stands for 1/3 and 2/3 of the final mark, respectively.
* Written examination, A-F
* Project Work including project report, A-F

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

The course is closed.

Other directives

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

The course language is English.

Literature and other teaching aids

Biomedical informatics : computer applications in health care and biomedicine
Shortliffe, Edward H.; Cimino, James J.

3. ed. : New York : Springer, cop. 2006 - xxvi, 1037 s.
ISBN:978-0-387-28986-1 (inb.) LIBRIS-ID:10198070
URL: http://www.loc.gov/catdir/enhancements/fy0663/2006921549-d.html
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