SYLLABUS

Intelligent Technology - Computation & the Brain 15 credits P0012A

Framtidens intelligenta teknik - Hjärnan & neurala nätverk

Course syllabus admitted: Spring 2018 Sp 3 - Autumn 2018 Sp 2

DECISION DATE
2017-06-01

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LULEÅ TEKNISKA UNIVERSITET

Intelligent Technology - Computation & the Brain 15 credits P0012A

Framtidens intelligenta teknik - Hjärnan & neurala nätverk

First cycle, P0012A

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	U G#	Teoretisk neurovetenskap	Other Subjects within Technology

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language +
Swedish upper secondary school courses Mathematics 3b/3c , (specifik entry A4).
Or:
Swedish upper secondary school courses , Mathematics C, (specifik entry 4)

Selection

The selection is based on final school grades or Swedish Scholastic Aptitude Test.

Examiner

Peter Bengtsson

Course Aim

After finalising the course the student shall be able to explain and understand the brain from an anatomical and physiological perspective, as well as having learnt relevant models from computational neuroscience. The course is for engineers, natural scientists, behavioural scientists, and others who want to learn about a highly topical and exciting field of research, applying to advanced intelligent machines and Brain-Machine-Interaction.

Contents

In the course we study the main parts of the brain such as different lobes, internal structures, Brainstem and Cerebellum. We study the localisation, the functions and the interaction between the parts. We also simulate these brain functions with models from computational neuroscience.

Realization

Each course occasion´s language and form is stated and appear on the course page on Luleå University of Technology's website.
Internet course, comprising individual studies, assignments, laboratory sections and internet seminars.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.
Assignments, laboratory sections and internet seminars.

Remarks

Students must register for the courses themselves, or contact ETKS educational administration eduetks@ltu.se, not later than three days after the quarter commences. Failure to do so can result in the place being lost. This rule also applies to students with a guaranteed place.

Taught in Swedish and English.

Associated courses in the series Intelligent Technology are:
P0008A Intelligent Technology of the future – Cognitive Science;
P0012A Intelligent Technology – Computation & the Brain;
P0065A Intelligent Technology – Computational Neuroscience I;
P7045A Intelligent Technology – Neuroscience & Mathematics;
P7010A Intelligent Technology – Cyborgs & Humanoid Robots;
P0034A Intelligent Technology – Computational Neuroscience;
P7023A Intelligent Technology – Scientific Work.

Overlap

The course P0012A is equal to ARP117

Literature. Valid from Spring 2015 Sp 3

Purves, D., et al. (2012). Neuroscience, 5th Edition.
Additional literature will be added according to the teacher's instructions.

Course offered by

Department of Business Administration, Technology and Social Sciences

Items/credits

Number	Type	Credits	Grade
0005	Assignment report and laboratory work	15	U G#

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Director of Undergraduate Studies Daniel Örtqvist, Department of Business Administration, Technology and Social Sciences 2017-06-01

Syllabus established

by Department of Human Work Sciences 2008-01-29