



## PHYSICS

### **FIM270 Sport Technology, 7.5 higher education credits**

Sportteknologi, 7,5 högskolepoäng

*Second Cycle*

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#### **Confirmation**

This course syllabus was confirmed by Department of Physics on 2015-11-03 and was last revised on 2017-06-13 to be valid from 2017-06-13, spring semester of 2017.

*Field of education:* Science 100%

*Department:* Physics

#### **Position in the educational system**

The course can be part of the following programmes: 1) Complex Adaptive Systems, Master's Programme (N2CAS), 2) Physics of Materials and Biological Systems, Master's Programme (N2PMB) and 3) Physics, Master's Programme (N2PHY)

#### *Main field of studies*

Physics with Specialization in Materials and Biological Systems

#### *Specialization*

A1N, Second cycle, has only first-cycle course/s as entry requirements

#### **Entry requirements**

Basic undergraduate mathematics, computing and numerical analysis.

#### **Learning outcomes**

On successful completion of the course the student will be able to:

To train students to transfer and apply engineering knowledge to everyday issues. This course target at issues in sport such as body movement measurement and analysis.

To train the student to find engineering solutions to issues in sport.

To train students to communicate engineering way of thinking and science knowledge to people without engineering background.

The student will be able to analyze, develop solutions and evaluate the implementation of the proposed solution.

The course will train the students how to transfer knowledge into practical solutions and give them insight on the complexity of the development and introduction of products in areas where engineering knowledge has been limited introduced. Based on real-life scenarios from sports activities a picture of sporting issues and how coaches and athletes work will be obtained. We highlight technologies that are available and how they are used and may by the insight into technologies that are available and from what in an engineering perspective is possible to give suggestion to new technologies and development of existing technologies. From this, projects will be created and performed with the aim to solve issues in sport with engineering knowledge. The course also aims to provide participants with knowledge in the development and introduction of new technology.

Utilize theoretical and practical knowledge of engineering education on issues in sports.

Using mathematical techniques to analyze body motion.

Communicate technology to people without technology education.

To create solutions that take the recipient's, sports club/organization, financial and associated limitations in regard.

To provide suggestions for solutions with high technological precision.

To link the knowledge from previous courses to new issues and applications.

Working with ethical issues that exist within the project.

Read and critically review publications in the field.

### **Course content**

Communication: to communicate with non-engineers.

Innovation process: perspective on the receiver; What is and what create the need of the innovation?

Reflective review of publications in the project area; to understand publications that lack scientific evidence.

Project implementation; To develop and evaluate a product.

Study visit; movement analysis lab, idrottshögskolan Göteborg.

### **Form of teaching**

The course consists of lectures, field trips and project work

*Language of instruction:* English

**Assessment**

Home exam, project report and presentation

If a student, who has failed the same examined component twice, wishes to change examiner before the next examination, a written application shall be sent to the department responsible for the course and shall be granted unless there are special reasons to the contrary (Chapter 6, Section 22 of Higher Education Ordinance).

In cases where a course has been discontinued or has undergone major changes, the student shall normally be guaranteed at least three examination occasions (including the ordinary examination) during a period of at least one year from the last time the course was given.

**Grades**

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

**Course evaluation**

The results of and possible changes to the course will be shared with students who participated in the evaluation and students who are starting the course.