



**Karolinska
Institutet**

Course syllabus for

Physics and acoustics, 7.5 credits

Fysik och akustik, 7.5 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:

Spring2008 , Autumn2009 , Autumn2010 , Autumn2011 , Autumn2012 , Autumn2013 , Autumn2014 , Autumn2015 , Autumn2017 , Spring2024

Course code	1AU002
Course name	Physics and acoustics
Credits	7.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Not applicable
Level	GX - First cycle
Grading scale	Pass, Fail
Department	Department of Clinical Science, Intervention and Technology
Decided by	Programnämnden för audionomprogrammet
Decision date	2007-10-04
Revised by	Programnämnd 4
Last revision	2012-05-03
Course syllabus valid from	Autumn 2012

Specific entry requirements

Specific entry requirements according to the programme syllabus of the Study Programme in Audiology, 180 HE credits.

Objectives

The general aims of the course are that the student should acquire basic knowledge in mathematics and physiology required for later technical courses and parts in the Study Programme in Audiology.

Learning outcomes of the course
On completion of the course, the student should be able to:
- explain basic concepts in mechanics and relate these to basic wave physics and acoustics
- account for basic properties of sound including noise
- understand and explain relationships in simple circuits, and demonstrate knowledge of basic electricity safety
- understand the meaning of mathematical formulas and graphs occurring in mechanics, wave physics, acoustics and electricity
- understand, present, and carry out simple physical measurements

Content

Physiology and acoustics, 6 hp The course is a survey course that introduces the scientific working method within the subject areas mechanics, wave physics, acoustics and electromagnetism. Specific emphasis is placed at interpretation of various types of graphs. The mechanics focuses on concepts as speed, acceleration, force and pressures. The basic wave physics includes among others knowledge about various types of waves, wave propagation, impedance and phenomenon as resonance and standing waves. The wave physics application within the acoustics is highlighted and concepts that sound production, sound transmission and reflection are taken up in the acoustics part where noise and noise control are also included. The electromagnetism includes basic knowledge about electric circuits, measurement of electric units and electricity security. **Physical measurements, 1.5 hp** Laboratory sessions with physical measurements within the above fields. The laboratory sessions should be recorded and are presented in tables and graphics. Presentation takes place in the form of submission of written laboratory report. Furthermore, the part includes calculation exercises in the form of written assignments.

Teaching methods

Lectures, laboratory sessions, calculation exercises and demonstrations.

Examination

Examination takes place through

Part 1: Physics and acoustics, 6 HE credits

Written examination

Part 2: Physical measurements, 1.5 HE credits

Written laboratory report and passed written assignments

For a Pass grade in the course, attendance at compulsory parts is also required. In case of absence from compulsory part, the student is responsible alone to contact course coordinator for complementary assignment. Being offered for students who not have become passed at the regular examination total be given possibility to six examinations of which the three last in connection with the next occasion then the course is given.

Transitional provisions

Examination may take place under the previous reading list during a period of one year after the date of the renewal of the reading list. Examination will be provided during a period of two years after a close-down of the course.

Other directives

A study guide is distributed at the beginning of the course, comprising assessment criteria for examination, specific instructions for certain tasks, a timetable specifying compulsory parts, and a list of responsible teachers. Course evaluation will be carried out in accordance with the guidelines established by the Board of Education. Course evaluation will be carried out both through a written course evaluation at the end of the course, and through an oral course forum at least once in connection with the course, where the students may express their opinions.

Literature and other teaching aids

Jacobson, Bertil

Teknik i praktisk sjukvård

[Bålsta] : [B. Jacobson] ; a Lund : b Studentlitteratur [distributör], 1992 - 350 s.

ISBN:91-630-1064-X (inb.) LIBRIS-ID:8364670

[Library search](#)

Jerkert, Jesper

Akustik från grunden

1 : Huddinge : Enheten för Audionomi, CLINTEC, Karolinska Institutet, 2006 - 150 s

Johansson, C.

Förberedande kurs i matematik för Audionomprogrammet

Stockholm : Hälsohögskolan, 1996 - 72 s

Jönsson, A; Johansson, C

Tänkesätt inom fysiken

Huddinge : Karolinska Institutet, - 35 s

Speaks, Charles E

Introduction to sound : acoustics for the hearing and speech sciences

3. ed. : San Diego : Singular Pub. Group, c1999 - xiii, 316 p.

ISBN:1-56593-979-4 LIBRIS-ID:6364449

[Library search](#)