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	2013-05-06
Course syllabus valid from	Autumn 2013

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 the 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
-explain 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 an overwiev 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 like sound production, sound transmission and reflection are presented in the acoustics part where noise and noise control are also included. The electromagnetism includes basic knowledge of 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 reports. Furthermore, the part includes calculation exercises in the form of written written assignments.

Teaching methods

Lectures, laboratory sessions, calculation exercises and demonstrations.
Laboratory sessions, calculation exercises and demonstrations are compulsory. In case of absence from compulsory part, the student is responsible for contacting course coordinator for complementary assignment.

The course director assesses how absence from compulsory education elements can be compensated for. Before the student has participated in the compulsory parts or has replaced compulsory education, in accordance to the instructions of the course coordinator, the final study results cannot be reported. Absence from a compulsory education element may result in that the student can not recover the occasion until next time the course be given.

Examination

Physics and acoustics, 6 credits
Written examination

Physical measurements, 1.5 credits
Inividually written laboratory report and passed written assignments

For a Pass grade in the course, attendance and active participation in compulsory parts are also required. For students who have not passed the regular examination, possibility for examination is offered at a total of six examinations, of which the three last in connection to the next occasion when the course is given. As examination, the times that the student participated in the same test are counted. Supplementary addition to a written assignment is counted as an examination.

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

Jerkert, Jesper
Akustik från grunden

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

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

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