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	2010-05-05
Course syllabus valid from	Autumn 2010

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

Part 1: Physics and acoustics 6 HE credits The course is an introductory course that introduces scientific working methods in the subject areas of mechanics, wave physics, acoustics and electricity. Special emphasis is placed on the interpretation of various types of graphs. Mechanics focuses on concepts such as speed, acceleration, force and pressure. Basic wave physics includes inter alia knowledge of various types of waves, wave propagation, impedance and phenomena such as resonance and standing waves. Wave physics application in the acoustics is highlighted and concepts such as sound production, sound transmission and reflection are brought up in the acoustics part where noise and noise control are also included. Electromagnetism includes basic knowledge of electric circuits, measurement of electric units and electric safety. Part 2: Physical measurements 1.5 HE credits Laboratory sessions with physical measurements in the above areas. The laboratory sessions should be recorded and reported in tabular and graph form. Examination takes place through the submission of a written laboratory report. In addition, the part includes calculation exercises in the form of written assignments.

Physics and acoustics, 6.0 hp

Grading scale: GU

The course is an overview course that introduces the scientific working method within the subject areas mechanics, wave physics, acoustics and electromagnetism. Specific emphasis is placed on the interpretation of various types of graphs. The mechanics area focuses on concepts like speed, acceleration, force and pressures. The basic wave physics area includes, among other things, knowledge about various types of waves, wave propagation, impedance and phenomena such 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 area includes basic knowledge of electric circuits, measurement of electric units and electricity security.

Physical measurements, 1.5 hp

Grading scale: GU

This module consists of 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 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 approved assignments For a Pass grade in the course, attendance at compulsory parts is also required. In case of absence from a compulsory part, the student gets an individual complementary assignment determined by the course coordinator. Students who have not passed the regular examination are offered two re-examinations in connection with the regular opportunity. All in all, there is a possibility of six examinations, the last three of which are provided in connection with the next regular course.

Transitional provisions

Examination may take place under the previous reading list during a period of one and a half years after the date of the renewal of the reading list. Examination will be provided during a period of three 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