

59420-152 (6) Physics for Engineering students (2L, 1T)

2019

Course summary:

Introduction to basic relativity and basic quantum mechanics. Continued study of waves, acoustics and optics based on Engineering Physics 113.

Method of assessment: Flexible assessment

Prerequisite module: Engineering Physics 113

Language policy:

Afrikaans and English in the same class groups:

During each lecture, all information is conveyed at least in English. Summaries and/or explanation of the core concepts will also be given in Afrikaans. Questions in Afrikaans and English will, at the least be answered in the language of the question. Students will be supported in Afrikaans and English during a combination of appropriate facilitated learning opportunities.

Interpreting services from English to Afrikaans.

Module relevance in programme:

The module will introduce you to modern ideas in physics which is relevant to our understanding of the challenges which engineers face in today's modern world. These include the engineering of systems at ultrafast speeds, subatomic scales, and high radiation environments. The module builds on and complements the module in Engineering Physics 113.

Outcomes of course:

This module will introduce you to the modern developments in physics, which is also relevant to the engineering environment.

Lecturer:

Prof S Wyngaardt

Telephone number: 021 808 3379

E-mail address: shaunmw@sun.ac.za

Office: Room 1018 in the Merensky Physics Building

Course content:

Topics covered in the course includes special relativity, an introduction to the principles of quantum mechanics, basics introduction to nuclear and particle physics

Practical (Tutorials):

Tutorials will occur each week. During the tutorial sessions students have the opportunity to solve problems related to the course work and to participate in other activities to enhance their understanding of the content covered during the lectures. During each tutorial session students should expect to produce work that will contribute to their class mark. The nature of assignments and assessments will be varied.

Study material:

Prescribed textbook: "Engineering Physics: Engineering Physics 113 and Engineering Physics 152" (Wiley Custom)

Learning opportunities:

Formal lectures, classroom discussions of relevant physics topics

Assessment:

Methods of Assessments

Tutorial assignments will contribute 30 – 50 % of the class mark. One class test will be written during the semester and will contribute 50 - 70% to the class mark.

Venue and time of assessment opportunities

Class test: To be confirmed

Date: See timetable

Time: To be confirmed

Venue: To be confirmed

Calculation of class mark:

Class mark = 30-50% (assignments) + 50-70% (class test)

Calculation of final mark for the module:

Final mark = 40% (class mark) + 60% (examination)

Admission to examination:

A class mark of at least 40% should be attained in order to qualify for the exam at the end of the year.