

12998-144(16) Introductory Physics B (3l, 3p)

2014

Course summary:

An introductory physics module with a mathematical approach and emphasis on the fundamental concepts, with contents: Special relativity, electrostatics, electrodynamics and magnetism.

P Physics 114

P Mathematics 114

C Mathematics 144

Outcomes of course:

This calculus-based course exposes the student to a first systematic treatment of electricity and magnetism. It also lays the foundation for more advanced physics courses which may lead to eventual specialization in physics.

Lecturer:

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Course content:

Formal lectures

The following topics are covered during formal lectures: Electricity and magnetism: Electrostatics, electric fields and Gauss' law, potential, capacitance, currents and resistance, electrical circuits. Magnetic fields, force on moving charges in magnetic field, sources of magnetic fields. Brief introduction to electromagnetic induction and special relativity.

Practicals

The practical component of the course consists of experiments related to the course material. Students work in pairs. Each student, however, has to record his/her results in a report on each experiment. This mark counts towards the class mark.

Practical (Tutorials):

There are tutorial sessions, of 3 hours each, where students have the opportunity to solve problems related to the course work. Tutorial tests will count towards the class mark.

Study material:

Prescribed textbook: "**Sears and Zemansky's University Physics**"
(Addison-Wesley, 13th edition) by Young and Freedman.

Learning opportunities:

Tutorials (6 tutorials of 3 hours each).
Selected Lecture material available on SUNLearn.
Solutions to selected problems available on SUNLearn.
Weekly tutorial sessions with lecturing assistants.

Assessment:

Methods of Assessments

Tutorial tests
Class test
Practical laboratory reports
Examination

Venue and time of assessment opportunities

Tutorial tests: during the last hour of a tutorial session
Class test: Click on the timetables link in the toolbar at the top of the page
Exam: Click on the timetables link in the toolbar at the top of the page
Supplementary exam: Click on the timetables link in the toolbar at the top of the page
Examinations: See timetable

Availability of marks:

Calculation of class mark:

Tutorial tests: 20%
Practical mark: 30%
Class test: 50%

Calculation of final mark:

Examination: 60%
Class mark: 40%

Admission to examination:

Class mark greater than or equal to 40%
No more than two practicals or tutorials missed without valid reasons