

AIM AND OBJECTIVES OF BSc PHYSICS

The Board of Studies in Physics (UG) recognizes that curriculum, course content and assessment of scholastic achievement play complementary roles in shaping education. The committee is of the view that assessment should support and encourage the broad instructional goals such as basic knowledge of the discipline of Physics including phenomenology, theories and techniques, concepts and general principles. This should also support the ability to ask physical questions and to obtain solutions to physical questions by use of qualitative and quantitative reasoning and by experimental investigation. The important student attributes including appreciation of the physical world and the discipline of Physics, curiosity, creativity and reasoned skepticism and understanding links of Physics to other disciplines and to societal issues should give encouragement. With this in mind, we aim to provide a firm foundation in every aspect of Physics and to explain a broad spectrum of modern trends in physics and to develop experimental, computational and mathematical skills of students. The programme also aims to develop the following abilities:

1. Read, understand and interpret physical information – verbal, mathematical and graphical.
2. Equip students in methodology related to Physics.
3. Impart skills required to gather information from resources and use them.
4. To give need based education in physics of the highest quality at the undergraduate level.
5. Offer courses to the choice of the students with interdisciplinary approach.
6. Perform experiments and interpret the results of observation, including making an assessment of experimental uncertainties.
7. Provide an intellectually stimulating environment to develop skills and enthusiasms of students to the best of their potential.
8. Use Information Communication Technology to gather knowledge at will.
9. Attract outstanding students from all backgrounds.

SEMESTER I

PH01BA901-METHODOLOGY IN PHYSICS.

OBJECTIVES: This course will be an introduction to the pursuit of Physics, its history and methodology. The course also aims at emphasizing the importance of measurement which is central to physics.

PH01BDB02: PRINCIPLES OF ELECTRONIC COMPONENTS

OBJECTIVES: This course is expected to give a familiarization of various electronic Components

PH01BDB03- ELECTRONIC APPLICATIONS

OBJECTIVES: This course is expected to provide knowledge of various electronic circuits and its application.

SEMESTER II

PH02BA901-MECHANICS AND PROPERTIES OF MATTER

OBJECTIVES: This course would empower the student to acquire engineering skills and practical knowledge, which help the student in their everyday life. This syllabus will cater the basic requirements for their higher studies. This course will provide a theoretical basis for doing experiments in related areas.

PH02BDB02- BASICS OF POWER ELECTRONICS

OBJECTIVES: This course is expected to provide a knowledge of various Power Electronic components and its application.

PH12BDB03- POWER ELECTRONICS

OBJECTIVES: This course is expected to provide a knowledge of various Power electronic circuits and its application.

SEMESTER III

PH03CR001-ELECTRONICS

OBJECTIVES: We are living in a wonder world of Electronics. To know the physical principles and applications of Electronics is most necessary for a Physics student. This course is intended to provide this know-how.

PH03BDB01- LINEAR INTEGRATED CIRCUITS

OBJECTIVES:: This course is expected to provide knowledge of various Linear Integrated Electronic circuits and its application.

PH03BDB04- COMMUNICATION ELECTRONICS

OBJECTIVES:

This course is expected to provide knowledge of various communication systems and its working.

SEMESTER IV

PH34CR001-ELECTRICITY AND ELECTRODYNAMICS

OBJECTIVES: Electricity and Electrodynamics have the key role in the development of modern technological world. Without electric power and communication facilities, life on earth stands still. A course in electricity and electrodynamics is thus an essential component of physics programme at graduate level. This course is expected to provide a sound foundation in electricity and electrodynamics.

PH04BDB02- MICRO PROCESSOR AND INTERFACING DEVICES

OBJECTIVES: This course is expected to provide knowledge of Micro Processor and Interfacing Devices.

PH04BCC01- APPLICATIONS OF MICROPROCESSORS

OBJECTIVES: This course is expected to provide knowledge of architecture and applications of Microprocessors

SEMESTER V

PH05BAA01-CLASSICAL AND QUANTUM MECHANICS

OBJECTIVES: This course is a prelude to advanced theoretical studies in Condensed Matter Physics, Spectroscopy, Astrophysics, Electrodynamics and Nuclear Physics

PH05BA901-PHYSICAL OPTICS AND PHOTONICS

OBJECTIVES: This course aims to provide necessary foundation in optics and photonics which prepare the students for an intensive study of advanced topics at a later stage.

PH05BA902-THERMAL AND STATISTICAL PHYSICS

OBJECTIVES:: This course is to develop a working knowledge of statistical mechanic and to use this knowledge to explore various applications related to topics in material science and the physics of condensed matter.

PH05BA903-DIGITAL ELECTRONICS

OBJECTIVES: This course is expected to provide necessary back ground for applications of electronics in mathematical computation.

Open course

PH05DAP02-ENERGY AND ENVIRONMENTAL STUDIES

OBJECTIVES: The course creates concern among the students on energy conservation and environmental protection.

SEMESTER VI

PH06BA901-Computational Physics

OBJECTIVES:: This course is intended to give an insight to computer hardware and computer applications.

PH06BA902-NUCLEAR AND PARTICLE PHYSICS

OBJECTIVES: This course intended to explore the interior of nucleus and interaction between nucleons

PH06BA903-CONDENSED MATTER PHYSICS

OBJECTIVES:: This course is intended to provide an introduction to the physics of Condensed Matter. This study attempts to explain various types of phenomena like electro-magnetic properties, super-conductivity and super fluidity

PH06BA904-RELATIVITY AND SPECTROSCOPY

OBJECTIVES:: This course is intended to introduce principles of spectroscopy and special theory of relativity.

PH06BB902-OPTOELECTRONICS

OBJECTIVES: This century is going to be the century of Optoelectronics or Photonics – the

light wave technology. Today we have optical technologies replacing electronic memories, amplifiers etc. These enable high speed computing. Hence no Physics student can avoid this latest field of science and technology.

BSc PHYSICS

OUTCOMES

SEMESTER I

PH01BA901 - METHODOLOGY IN PHYSICS.

OUTCOME:

By learning this course , students will get an introduction to the pursuit of Physics, its history and methodology. The students also learn the importance of measurement and the methodology of using different measuring devices which is central to physics.

PH01BDB02: PRINCIPLES OF ELECTRONIC COMPONENTS

OUTCOME: The students will be familiarized various electronic Components.

PH01BDB03- ELECTRONIC APPLICATIONS

OUTCOME: The student's gain knowledge of various electronic circuits and its application.

SEMESTER II

PH02BA901-MECHANICS AND PROPERTIES OF MATTER

OUTCOME: This course would empower the student to acquire engineering skills and practical knowledge, theoretical basis for doing experiments in related areas, which help the student in their everyday life. Students will gain basic knowledge for their higher studies.

PH02BDB02- BASICS OF POWER ELECTRONICS

OUTCOME: students gain knowledge on Power Electronic components and its application.

PH12BDB03- POWER ELECTRONICS

OUTCOME: students gain knowledge on Power Electronic circuits and its application.

SEMESTER III

PH03CR001-ELECTRONICS

OUTCOME: The physical principles and applications of Electronics which is most necessary for a Physics student is understood by this course.

PH03BDB01- LINEAR INTEGRATED CIRCUITS

OUTCOME: various Linear Integrated Electronic circuits and its application may be understood by this course.

PH03BDB04- COMMUNICATION ELECTRONICS

OUTCOME: Knowledge of various communication systems and its working is learned.

SEMESTER IV

PH34CR001-ELECTRICITY AND ELECTRODYNAMICS

OUTCOME: Electricity and Electrodynamics have the key role in the development of modern technological world. Without electric power and communication facilities, life on earth stands still. By this course student get a sound foundation in electricity and electrodynamics.

PH04BDB02- MICRO PROCESSOR AND INTERFACING DEVICES

OUTCOME: Basic knowledge of Micro Processor and Interfacing Devices are gained by this course

PH04BCC01- APPLICATIONS OF MICROPROCESSORS

OUTCOME: This course provides knowledge of architecture and applications of Microprocessors.

SEMESTER V

PH05BAA01-CLASSICAL AND QUANTUM MECHANICS

OUTCOME: The theoretical background to study Condensed Matter Physics, Spectroscopy, Astrophysics, Electrodynamics and Nuclear Physics is gained by this course.

PH05BA901-PHYSICAL OPTICS AND PHOTONICS

OUTCOME: foundation in optics and photonics is gained by this course and which which prepare the students for an intensive study of advanced topics at a later stage.

PH05BA902-THERMAL AND STATISTICAL PHYSICS

OUTCOME: Working knowledge of statistical mechanic is gained by this course and which may be used to explore various applications related to topics in materials science and the physics of condensed matter.

PH05BA903-DIGITAL ELECTRONICS

OUTCOME: **necessary** back ground for applications of electronics in mathematical computation is gained by this course.

Open course

PH05DAP02-ENERGY AND ENVIRONMENTAL STUDIES

OUTCOME: The course creates concern among the students on energy conservation and environmental protection.

SEMESTER VI

PH06BA901-Computational Physics

OUTCOME: an insight to computer hardware and computer applications is given by this course.

PH06BA902-NUCLEAR AND PARTICLE PHYSICS

OUTCOME: This course explore the interior of nucleus and interaction between nucleons and develop a research interest in nuclear physics.

PH06BA903-CONDENSED MATTER PHYSICS

OUTCOME: an introduction to the physics of

Condensed Matter is given by this course. Knowledge and explanation on various types of phenomena like electro-magnetic properties, super-conductivity and super fluidity is given.

PH06BA904-RELATIVITY AND SPECTROSCOPY

OUTCOME: principles of spectroscopy and its applications and basic idea of relativity is given to the students.

PH06BB902-OPTOELECTRONICS

OUTCOME:

Today optical technologies replacing electronic memories, amplifiers etc. These enable high speed computing. Hence by this course students gain knowledge on Optoelectronics or Photonics, latest field of science and technology.