

AIMS AND OBJECTIVES OF PHYSICS SYLLABUS

AIMS

The broad aims of the Physics syllabus are to:

1. inculcate among the students the habit of scientific and rational thinking and an attitude to search for order and symmetry in diverse phenomena of nature and thereby to appreciate the supreme wisdom and creative powers of the creator;
2. lay a foundation for research and development by stimulating interest and developing attitudes relevant to scientific methods;
3. equip the students with the knowledge and understanding of concepts rather than the ability to remember facts so that they may have a reasonably comprehensive and complete grasp of principles of physics;
4. develop observational skills and relate the student's knowledge of concepts to quantitative measurements by including a well-balanced practical course;
5. make it possible for the students to acquire knowledge, skills, working methods and ways of expression which will contribute to an all round development of individual student;
6. promote an awareness that the application of science may be both beneficial and detrimental to the individual, the community and the environment.

GENERAL OBJECTIVES

On the completion of the course the student should be able to:

1. acquire the knowledge and understanding of physical concepts rather than the ability to remember facts;
2. develop the habit of scientific and rational thinking and an attitude to search order and symmetry in apparently diverse phenomena of nature;
3. understand and interpret scientific information presented in verbal, mathematical or graphical form and to translate such information from one form to another;
4. describe physical phenomena in terms of models, laws and principles;
5. recognize the operation of the scientific principles in established practical applications to apply acquired knowledge, experience and skills to new situations in a novel manner;
6. develop observational skills, confidence in using scientific equipment and relate the knowledge of scientific concepts to quantitative and physical measurement;

7. understand and appreciate the inter relationship and balance that exists in nature, the problems associated with the over exploitation of the environmental resources and disturbance because of the human activities in the ecological balance, thus taking care of the environment;
8. acquire knowledge, skills, working methods and ways of expression which will reflect on all round development of the students' attitudes towards scientific thinking and its applications;
9. help the students feel that the advancement in physics and its extended applications are essential for the healthy growth of national economy and to appreciate that physics is a major part of the modern world;
10. develop attitudes such as concern for accuracy and precision, objectivity, and enquiry.

SPECIFIC OBJECTIVES

The specific objectives of the intermediate level physics course are as follows:

A. Knowledge and understanding

Students should be able to recall and show understanding of:

1. Physics terminology, definitions and conventions.
2. Selected factual knowledge and phenomena.
3. Selected experimental methods and related practical techniques.
4. Concepts, laws and models.
5. Relevant applications of physics in society and everyday life.

B. Practical skills

Students should be able to:

1. Plan and execute experiments.
2. Handle scientific equipment safely and to the appropriate limit of accuracy.
3. Observe, analyze and present experimental results accurately.
4. Handle simple treatment of errors.

C. Application

Students should be able to:

1. Identify problems in a given situation.

2. Apply the knowledge of physics in problem solving and experimental investigation using quantitative, numerical, theoretical and practical techniques.

D. Communication skills

Students should be able to:

1. Compile clear and concise accounts of experimental work and theoretical treatments.
2. Interpret the recorded data.
3. Use modes to explain phenomena and discuss issues relating to the social, economic, environmental and technological implications of physics.

E. Attitudes

Students should acquire

1. Inquisitiveness and interest in their study of physics.
2. An appreciation of the role of experimental work in the field of science.
3. An objective attitude towards judgment of evidence.
4. Concern for accuracy and precision.
5. Awareness of contribution of physics to society and the consequences of application of physics to meet human needs.