

and values

## COURSE CONTENT

### UNIT-I

1. **Importance of Teachings of Physical Sciences**
  - Nature, Concept & Scope of Physical Sciences and its Place in the School Curriculum.
  - History of Physical Sciences with special emphasis on Teaching of Physical Science.

- Aims and Objectives of Teaching Physical Sciences.
  - ◆ Differentiate between the terms 'Aims' and 'Objectives'.
  - ◆ Aims of teaching Physical Sciences at Middle, Secondary and Senior Secondary stages.
  - ◆ Bloom's Taxonomy of educational objectives.
  - ◆ Instructional Objectives of teaching Physical Sciences at the school stage and their formulation.
- Physical Science Teacher: Qualities & Responsibilities.
- Need for Professional Orientation.

## UNIT-II

### 2. Approaches & Methods of Teaching Physical Sciences

- Development of Teaching Skills through Micro Teaching (Probing Questions, Introducing the Lesson, Explaining, Illustration with Examples, Using Chalkboard and Stimulus Variation).
- Methods of teaching Physical Sciences (Lecture cum Demonstration method, Project method and Problem Solving method)
- Aids, Equipments and Assistance in teaching Physical Sciences:
  - ◆ Need and utilities of Physic Sciences Laboratory.
  - ◆ Preparation and use of Teaching Aids.
- Unit and Lesson Planning.
- Popularization and Propagation of Physical Sciences through Science Exhibition, Science Magazine, Science Trip and Science Quiz.
- E-teaching of Physical Sciences using technology for self-learning and collaborative learning of science

## UNIT-III

### 3. Pedagogical Analysis of contents in Physical Sciences

- Contents Analysis, Pedagogical Analysis and their comparison.
- Study of items: Division of units into sub-units, Teaching requirements, Instructional objectives, Teaching strategies, Previous knowledge testing, Topic announcement, Concepts of contents, Presentation, Teaching aids use, Demonstration experimental verification, Thought provoking questions and Criterion based tests.
- Pedagogical analysis of any one of the following topics:
  - ◆ Atomic Structure
  - ◆ Energy and its types
  - ◆ Environment and Pollution
  - ◆ Water as a Universal Solvent
  - ◆ Transmission of Heat
  - ◆ Magnetism
  - ◆ Friction

#### UNIT-IV

#### 4. Evaluating Outcomes of Physical Sciences Teaching

- Indicators of Quality Learning and Major Issues in Classroom Learning with special reference to Physical Sciences.
- Concept of Test, Measurement and Evaluation.
- Differentiate between the terms 'Examination' and 'Evaluation'.
- Qualities of a good test, Principles and steps in construction of an achievement test, Blue Print and Question Paper, Item analysis, Construction of multiple choice questions, Diagnostic test, Remedial teaching in physical sciences.
- Continuous and comprehensive evaluation, Formative and summative assessment, Grading pattern.
- Selection of appropriate evaluation technique.

**Task & Assignments: Any one of the following (10 marks)**

Preparation of Unit Plan and two lesson plans on any topic of Physical Science included in the Science text book of secondary school.

Write Book Review on any two books in Physical Sciences.

Write Review on Science Exhibition, Science Trip, Science Fair, Science Fiction Movie and Scientific Environment of Class.

Preparation of a unit/ achievement test on any topic by developing the Blue Print and the test items conforming to the blue print.

Preparation of a model / tool / device based on any principle of Physical Sciences.

Any other project/assignment given by the institution.