B.Ed. Two Year Programme

P.2.6 : Physics

Maximum Marks: 100

Course Objective
This course is aimed at developing the insights, competencies and skills among the pupil-teachers to effectively transact the Physics curriculum and evolve as a reflective practitioner, capable of translating theoretical perspectives into pedagogical practices.

Unit I Pedagogical Underpinning
• Place of physics in school curriculum - Nature of physics as a science discipline and its linkages with other disciplines.
• The concept of Pedagogical Content Knowledge (PCK) and its implications for Physics teaching.
• Aims of teaching physics at the senior secondary level with linkages to upper-primary and secondary level.
• Objectives of teaching physics with special reference to the development of thinking and process skills

Unit II Classroom processes
• Pedagogical planning: considerations in relation to content (curriculum and concepts) and learners (with specific reference to socio-cultural and developmental context of the learner including special needs).
• A repertoire of teaching-learning processes: Inquiry based approach, inductive and deductive approach, experimentation, demonstration, discussion, investigatory projects, individually paced programmes, group work, peer learning, observation-based survey, problem solving, guided independent study, seminar presentation, action research
• Developing unit plans, lesson plans and Remedial/Enrichment plans using combinations of various processes.
• Planning for conduct of activities, experiments and laboratory work in Physics with a critique of the current practices

Practicum
1. Planning and discussion of lessons for the school experience programme.
2. Developing remedial or enrichment programmes.
3. Conduct of activities/Experiments.

Unit III Teaching- Learning Resources
• Criteria for selecting/designing Teaching-Learning Resources : content based, learner based and context based.
• Textbook, reference books, encyclopaedia, newspaper and alike
• Improvisations and Science Kits
• Instructional aids, computer aided instruction, multi-media packages, interactive software, websites, Open Education Resources(OER) etc.
• Planning of extended experiences, science quiz, science fair, science corner/resource room, science club, excursion and related SUPW activities.

**Practicum:** Developing Teaching-Learning resources

**Unit IV Organization of the Physics Laboratory**

• Layout and design of the physics laboratory.
• Storage of apparatus, consumable and non-consumable items/materials
• Maintenance of laboratory records.
• Making arrangements for the conduct of experiments.

**Practicum:** Laboratory work - management of laboratory, activities and project work.

**Unit V Assessment**

• Nature of learning and assessment, analysis and critique of the present pattern of examinations.
• Design and analysis of
  • Formative assessment tasks
  • Summative Assessment
• Assessment of laboratory work and project work
• Assessment through creative expression-drawing, posters, drama, poetry, etc as part of formative assessment for continuous assessment of thinking and process skills
• Developing learner profiles and portfolios; participatory and peer assessment.

**Practicum:** Preparation of a detailed Assessment Report of learners’ continuous and comprehensive assessment.

**Suggested Reading List**


