SEMESTER – I

CPS 2a - Part I -PEDAGOGY OF PHYSICAL SCIENCE

Credits: 4 **Internal: 40 marks**

Hours/Week: Theory-4hrs & Practical- 4hrs **External: 60 marks**

Total: 100 marks

Course Learning Outcomes:

At the end of this course, Student-teachers will be able to

- interpret the nature and scope of Physical Science;
- order the aims and objectives of teaching Physical Science;
- integrate the teaching skills effectively in the classroom;
- address the varied needs of students;
- justify the usage of various methods of teaching Physical Science;
- employ various teaching aids in explaining the concepts of Physical Science;
- observe the classes of subject experts and reflect on the demonstration of concepts in Physical Science; and
- prepare Mini teaching lessons and Educational Technology record.

Unit I: Nature and Scope of Physical Science

Science as a process and a product: a body of knowledge - a way of investigation - a way of thinking – Characteristics of a person with Scientific attitude – Interdisciplinary Approach- Implications of the nature of Science for a Science teacher.

Unit II: Aims and Objectives of Teaching Physical Science

Goals and Objectives of teaching Physical Science with reference to Revised Bloom's Taxonomy of Educational Objectives - General and Specific Objectives of teaching Physical Science – Writing Objectives in behavioural terms- Aims of teaching Physical Science at different levels: Primary, Secondary and Higher Secondary.

Unit III: Development of Skills through Mini Teaching

Mini teaching: Meaning - Characteristics - Phases of Mini Teaching. Teaching Skills: Skill of Set Induction - Skill of Explaining, Skill of Blackboard Writing - Skill of Illustrating with Examples - Skill of Probing Questions - Skill of Fluency in Questioning - Skill of Stimulus Variation - Skill of Reinforcement - Skill of Achieving Closure - Advantages and Limitations of Mini teaching.

Unit IV: Exploring Learners in Teaching and Learning Physical Science

Class as a heterogeneous group- the need for addressing the individual differences of Students- Gifted Learners- Needs and Problems of the Gifted- Educational programmes for the Gifted- National Talent Search Examination- Ways of enhancing the abilities of the Gifted learners in Science- Slow Learners- Needs and Problems of the Slow Learners- Diagnostic Tests- Remedial Teaching.

Unit V: Methods of Teaching Physical Science

Teacher and Student-centered Methods- Lecture Method- Lecture Demonstration Method- Heuristic Method- Project Method- Biographical Method- Inductive-Deductive Method- Historical Method-Assignment Method - Augmented and Virtual Reality - Significance of employing different Methods in teaching of Physical Science.

Unit VI: Teaching Aids

Concept of Teaching Aids- Importance of using aids in the teaching of Physical Science- Edgar Dale's Cone of Experience- Principles for selection of Teaching Aids- Classification of Teaching Aids- Visual Aids- SMART Interactive Whiteboard - Chalkboard - Bulletin Board - Flannel Board – Chart - Flash Cards – Posters – Models – Specimens – Objects – Diorama- Graphs - Filmstrip Projector - Slide Projector – Epidiascope- Overhead Projector- Audio Aids- Radio - Tape Recorder - Audio-visual Aids- Television – Computer – Documentaries - Motion Pictures – Criteria for selection of appropriate teaching aids - E-Content Development and Digital tools for Online Teaching and Learning-LMS:Google Classroom,Digital tool: Kahoot.

Suggested References:

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உமா பாஸ்கரன், T. (2009). பொருளறிவியல் கற்பித்தல் முறைகள்-I. சென்னை : சாரதா பதிப்பகம்.

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