

ELECTIVE COURSE 1 (EC 1)
PEDAGOGY OF SCHOOL SUBJECT: SCIENCE

Total Credits: 6

Total Marks: 100

Objectives

1. To understand the basic concepts associated with academic disciplines
2. To understand place of different disciplines in the school curriculum
3. To understand the meaning and nature of Science.
4. To familiarize the objectives of teaching Science as given by NCF 2005
5. To identify the values of teaching science
6. To develop an understanding of the approaches to teaching Science.
7. To familiarize the concept, needs and ways of infusing Global Perspectives in Science curriculum.
8. To develop an understanding of the methods of teaching Science.
9. To acquire knowledge about various learning resources and its management in science education.
10. To develop an understanding of the need and avenues of professional development of a Science teacher.

MODULE 1: FUNDAMENTALS OF SCIENCE EDUCATION

(2 Credits)

Unit 1: Basics of Academic Disciplines

- a) Meaning of academic disciplines, Relationship between academic disciplines and Science subject.
- b) Classification of academic disciplines: Becher -Biglan typology (pure-hard, pure soft, applied-hard, applied-soft types) with emphasis on nature of knowledge in each type.
- c) Place of Science subject in the present school curriculum

Unit 2: Place of Science in the Curriculum and Life

- a) Meaning and Nature (Product & Process) of Science , Science Process skills - Basic and Integrated
- b) Aims and Objectives of teaching science at upper primary, secondary and higher secondary level (NCF 2005)
- c) Values of teaching science in socio-cultural context

Unit 3: Organisation of Science Curriculum

- a) Maxims of teaching science (Known to Unknown, Whole to Parts, Simple to Complex, Particular to General, Empirical to Rational, Concrete to Abstract)
- b) Co-relation of Science in the Curriculum: Internal & External
- c) i. Infusing Global Perspective in Science Curriculum (Need and Importance),
ii. Curriculum Organization- Concentric and Topical approach

MODULE 2: TRANSACTING SCIENCE CURRICULUM

(2 Credits)

Unit 4: Science Teaching: Methods, Approaches and Tools

- a) Methods of Teaching - Lecture cum demonstration method, Project method, Problem Solving
- b) Approach : Inducto-deductive Approach

- c) Concept Mapping – Meaning, Steps and Significance, PEOR (i.e. Predict, Explain, Observe & React)

Unit 5: Learning Resources and Activity

- Science Text book: Characteristics of good Science textbook
- Science Club and Science Field Visit – Concept, Organisation and Significance
- Improvised Apparatus and E- resources (Virtual lab and Simulation)

Unit 6: Science Teacher

- Science teacher – Need and Avenues of Professional growth
- Science Laboratory - Planning and Maintenance, Laboratory Method
- Diagnostic testing and Remedial teaching in Science

MODULE 3: INTERNAL ASSESSMENT

(2 Credits)

Sr.No	Particulars	Marks
1	Content test (1X10)	10
2	Task/Assignment/ Activity for each module held in the semester (1 X 10)	10
3	One periodical class test held in the given Semester	15
4	One Essay test held in the given Semester	05
	Total	40

Suggested tasks: (Any One)

- Develop and Present Learning Resources in Science
- Visit any Science institution and prepare a report.
- Conduct any one science club activity and write a report on it
- Prepare concept map on any one unit of Science
- Critical evaluation of a Science textbook. (Std. VI to XII –SSC/CBSE)
- Report on avenues of continuous professional development of science teacher
- Conduct an experiment from School Science textbook and submit a report.

References

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