

Course: Teaching of Physics
Credit Hours: 3

Introduction: This course is designed specifically to equip the prospective science teachers with the latest pedagogical knowledge required to teach the contents of Physics at secondary level. In addition, the course will also provide the prospective science teachers an acquaintance with the modern assessment techniques and use of laboratory and computers in the field of teaching of Physics.

Objectives:

Students will be able to

Differentiate between method, technique and strategy in context of teaching.

Describe various methods for teaching of Physics.

Identify most suitable method to teach diverse topics.

Extend their knowledge of teaching to implement various methodologies.

Recognize the importance of teaching of Physics.

Demonstrate the use of low cost no cost materials for teaching of Physics.

Apply the computer technology for teaching of Physics.

Use the laboratory apparatus effectively for disseminating physical knowledge.

Course contents

1. Teaching of Physics

Introduction

The Nature of science

Scientific literacy and its importance

Definition of sciences: Science as product and process

The products of science

Processes of science

Scientific attitudes

The nature of scientific laws, facts, concepts and theories

Physical sciences and limitations of science

Definition of Physics

Importance of Physics in everyday life

Why teach Physics

2. Aims and Objectives of teaching Physics

Aims of teaching Physics

Criteria for selection of aims

Objectives of teaching Physics

Writing objectives

Difference between aims and objectives

3. Methods of teaching Physics

Various methods of teaching Physics

Lecture method

Demonstration method

Heuristic method

Assignment method

Project method

Inductive method

Deductive method

Scientific method

Problem method

Choice of method

4. The Nature of Children and Science Teaching

Piagetian theory of cognitive development

Stages of cognitive development

Characteristics of individual in various stages of cognitive development

Piaget's theory and science curriculum

Implications of Piagetian theory in facilitating learning of science

The process of learning according to Robert Gagne, Davis Ausubel and Bruner

5. Lesson Planning

Advantages of the Lesson Planning

Feature of a lesson plan

Steps in lesson plan

6. Teaching aids in Physics

Importance of teaching aids

Principles for selection of teaching aids

Principles for effective use of teaching aids

Different types of teaching aid material

7 Apparatus and Equipment

Introduction

Locally produces low cost equipment

Chemicals

Charts, Diagrams, Pictures and Bulletin board

Improvised Apparatus

Text books

8. The Physics Teacher

Duties and Responsibilities of a Physics teacher

Effective use of Physics Laboratory

Making Physics teaching more Interesting

9. Evaluation in Physics

Introduction

Designing of Test

Evaluation of Functional skills

The Assessment of Practical work

Recent Trends in Teaching of Physics

Evaluation Criteria

Examination	Type	Marks
Internal Examination	Sessional Work	15%
	Mid-Semester	25%
External Examination	Final Semester	60%

References

- Harlen, W. (1992). *Teaching of Science*. London: David Falton Publishers.
- Hassard, J. (1992). *Minds of Science: Middle and secondary methods*. New York: Harper Collins Publishers.
- Levinson, R. (2005). *Teaching Science*, London; Open University Press.
- Monier, M. (Ed.) (1995). *Learning to Teach Science*. London: Falmer Press.
- Postlethwaite, K. (1993). *Differentiated Science Teaching*. Philadelphia: Open University Press.