

CENTRAL UNIVERSITY OF HARYANA
School of Education

Teaching Plan

Programme: B.Ed.

Year: I

Course Code- SOE020215C3104

Credit: 04

Name of Teacher: - Dr. Neha Bishnoi

Session: 2018-20

Semester-II

Course Title: Pedagogy of Physical Science

Maximum Marks: 100

1. Teaching and Examination Scheme:

Teaching Scheme (Unit wise Division of Teaching hours)				Examination Scheme		
				CIA	TEE	Total Marks
Unit No.	L	T	(L+T+P)	30 Marks	70 Marks	100 Marks
I	12	4	16			
II	12	4	16			
III	12	4	16			
IV	12	4	16			
TOTAL	48	16	64			
Legends: L - Lecture, T -Tutorial/Teacher Guided Student Activity, P - Practicum/Practical. CIA -Continuous Internal Assessment and TEE - Term End Examination						

2. Unit-wise Teaching Plan:

Unit/Topic	Approximate Hours (Lecture/Tutorial/Practicum/Practical)	Content Outlines/Teaching Points	Teaching Strategies	Learning Outcomes	Evaluation Strategies	Suggested Learning Resources

<p>Unit-I Conceptual Understanding and Objectives of Teaching Physical Science</p> <p>1. Concept, Nature, Scope and Value of Physical Sciences as a Subject of the School Curriculum</p> <p>2. Correlation of Science with subjects (Mathematics, Language, Social Studies, Geography, Health & Physical Education).</p> <p>3. Aims and Objectives: Meaning and Difference between the terms, Aims of teaching Physical Sciences at Middle and Secondary level with special reference to NCF 2005</p> <p>4. Bloom's Taxonomy of Educational Objectives (Cognitive, Affective and</p>	<p>16 Hours</p>	<p>1.1 Concept and nature of Physical Science</p> <p>1.2 Scope and value of Physical Science as a Subject of the School Curriculum</p> <p>2. Correlation of Science</p> <p>2.1 Mathematics</p> <p>2.2 Language</p> <p>2.3 Social Studies</p> <p>2.4 Geography</p> <p>2.5 Health & Physical Education</p> <p>3.1 Aims and Objectives: Meaning and Difference between the terms</p> <p>3.2 Aims of teaching Physical Sciences at Middle and Secondary level with special reference to NCF 2005</p> <p>4. Bloom's Taxonomy of Educational Objectives</p> <p>4.1 Cognitive Domain</p> <p>4.2 Affective Domain</p> <p>4.3 Psychomotor Domain</p>	<p>L</p> <p>E</p> <p>C</p> <p>T</p> <p>U</p> <p>R</p> <p>E</p> <p>C</p> <p>U</p> <p>M</p> <p>D</p> <p>I</p> <p>S</p> <p>C</p> <p>U</p> <p>S</p> <p>S</p> <p>I</p>	<p>On completion of this unit the students will be able to:</p> <p>(i) Explain the concept and nature of Physical Science</p> <p>(ii) Understand the Scope and value of Physical Science</p> <p>(iii) Recall the Correlation of Science with other subjects such as Mathematics, Language, Social Studies, Geography and Health & Physical Education</p> <p>(iv) Differentiate between the terms aims and objectives</p> <p>(v) Frame objectives of topics for Pedagogy of Physical Science</p> <p>(vi) formulate objectives in terms of behavioral terms by using action verbs suggested by different approaches</p>	<p>Unit test</p>	<ul style="list-style-type: none"> • Albert, Paul (2017). <i>Pedagogy of Physical science</i>. New Delhi: Blue Rose Publishers. • Kumar, Pramod , Ramaiah, K. , Sreedharacharyulu, K. (2016). <i>Pedagogy of Physical Science</i>. Meerut: R.Lall. • Mangal, S.K., Mangal, Shubhra (2018). <i>Pedagogy of Physical Sciences</i>. Meerut: International Publishing House. • NCF (2005). <i>National curriculum framework</i>. New Delhi: NCERT. • NCERT. (2006). <i>Position paper on teaching of science</i>. New Delhi: NCERT. • Tolman, Marvin N. (2006). <i>Hands on Physical Science Activities</i>. United States: Jossey Bass (Wiley). <p>Web resources:</p> <ul style="list-style-type: none"> • http://www.ncert.nic.in/right
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<p>Psychomotor) 5. Approaches of writing objectives in behaviroal terms: Robert Mager, Miller and RCEM approach</p>		<p>5. Approaches of writing objectives in behaviroal terms 5.1 Robert Mager Approach 5.2 Miller Approach 5.3 RCEM Approach</p>	<p>O N</p>			<p>side/links/pdf/framework/ncf_hindi_2005/ncf2005.pdf • http://www.ncert.nic.in/rightside/links/pdf/framework/english/nf2005.pdf</p>
<p>Unit-II Basic Teaching Skills, Methods and strategies of Teaching Physical Sciences. 1. Basic teaching skill: Meaning, Components and Procedure of Skills (Skill of Introducing the Lesson, Skill of Reinforcement, Skill of Probing Questioning, Skill of Illustration with Example, Skill of Stimulus Variation, Skill of Board Writing, Skill of Classroom Management) 2. Methods of Teaching Physical Science: Lecture-</p>		<p>1. Meaning, Components and Procedure of Basic teaching Skills 1.1 Skill of Introducing the Lesson, Skill of Reinforcement 1.2 Skill of Probing Questioning 1.3 Skill of Illustration with Example 1.4 Skill of Stimulus Variation 1.5 Skill of Board Writing, Skill of Classroom Management 2.1 Lecture-Cum Demonstration 2.2 Project Method 2.3 Laboratory Method 2.4 Heuristic Method</p>	<p>L E C T U R E C U M</p>	<p>(i) Understand different basic teaching skills (ii) Practice different types of teaching methods on the nature of content while internship (iii) Implement different types of strategies while teaching by different teaching methods throughout the internship (iv) Solve small problems related to teaching learning process with the help of Action Research</p>	<p>Unit test</p>	<ul style="list-style-type: none"> • Kulshrestha, S.P., Singh, Gaya (2013). <i>Teaching of physical science</i>. Meerut: Raj Printers. • Kumar, Pramod , Ramaiah, K. , Sreedharacharyulu, K. (2016). <i>Pedagogy of Physical Science</i>. Meerut: R.Lall. • Mangal, S.K., Mangal, Shubhra (2018). <i>Pedagogy of Physical Sciences</i>. Meerut: International Publishing House. • Nagaraju, M.T.V., Vanaja, M. (2015). <i>Methods of teaching of physical science</i>. New Delhi: NeelKamal Publications. • Sharma, R.C. (2006). <i>Modern science teaching</i>. New Delhi: Dhanpat Rai Publishing Comp. •

<p>Cum Demonstration, Project Method, Laboratory Method, Heuristic Method, Brain Storming</p> <p>3. Strategies of Teaching Physical Sciences: Team Teaching, Panel Discussion, Field Trips, Science Club, Science Fair</p> <p>4. Action Research: Meaning, steps and importance</p>		<p>2.5 Brain Storming</p> <p>3 Strategies of Teaching Physical Sciences</p> <p>3.1 Team Teaching</p> <p>3.2 Panel Discussion</p> <p>3.3 Field Trips</p> <p>3.4 Science Club</p> <p>3.5 Science Fair</p> <p>4.1 Action Research: Meaning, steps</p> <p>4.2 Importance of Action Research</p>	<p>D I S C U S S I O N</p>			<ul style="list-style-type: none"> Praveen, Manoj G., Haseen, Koya. M. P. (2016). <i>Teaching Science Resource, Methods and Practices - (Physical Science & Natural Science</i>. New Delhi: Neelkamal Publishers. Rajasekar, S. (2016). <i>Methods of Teaching Physical Science</i>. New Delhi: Neelkamal Publishers. Sharma, R.C. (2006). <i>Modern science teaching</i>. New Delhi: Dhanpat Rai Publishing Comp. <p>Web resources:</p> <ul style="list-style-type: none"> http://sprabhakngce.blogspot.com/
<p>Unit-III Pedagogical Analysis, Unit Plan, Lesson Planning & Evaluation</p> <p>1. Pedagogical Analysis: Utility, Principles, Steps in Pedagogical Analysis</p> <p>2. Pedagogical</p>		<p>1. Pedagogical Analysis</p> <p>1.1 : Utility</p> <p>1.2 Principles</p> <p>1.3 Steps</p> <p>2. Pedagogical</p>	<p>L E C T U R</p>	<p>(i) Understand Pedagogical analysis of any one topic and cab be able to explain it</p> <p>(ii) Construct lesson plan form Herbatian and Constructivist approaches</p> <p>(iii) Critically think over</p>	<p>Lesson Plan Preparation and Presentation</p>	<ul style="list-style-type: none"> Kochhar, S.K. (2003). <i>Methods and techniques of teaching</i>. New Delhi: Publishers Pvt. Ltd.. Kohli, V.K. (1998). <i>How to teach science</i>. Ambala: Vivek Publishers. Pandey. (2003). <i>Major issues in science teaching</i>. New Delhi: Sumit

<p>analysis of any one of the topic from Science text book from class 6th to 10th referred by NCERT</p> <p>3. Lesson Plan: Essential features, Advantages, Requirement, Approaches to Lesson Plan: Herbatian Approach, Constructivist Approach</p> <p>4. Evaluation: CCE, meaning and needs, Types, Qualities of a good test, Blue Print.</p>		<p>analysis of any one of the topic from Science text book from class 6th to 10th referred by NCERT</p> <p>3. Lesson Plan</p> <p>3.1 Essential features</p> <p>3.2 Advantages</p> <p>3.3 Requirement</p> <p>3.4 Herbatian Approach</p> <p>3.5 Constructivist Approach</p> <p>4. Evaluation</p> <p>4.1 CCE, meaning and needs</p> <p>4.2 Types</p> <p>4.3 Qualities of a good test</p> <p>4.4 Blue Print</p>	<p>E</p> <p>C</p> <p>U</p> <p>M</p> <p>D</p> <p>I</p> <p>S</p> <p>C</p> <p>U</p> <p>S</p> <p>S</p> <p>I</p> <p>O</p> <p>N</p>	<p>CCE and evaluation system</p> <p>(iv) Make a Blue Print of question paper of Science subject</p>		<p>Publications.</p> <ul style="list-style-type: none"> Rao, N. Venkat, Ramulu, Ch. A. (2016). <i>Pedagogy of Physical Sciences</i>. New Delhi: Neelkamal Publishers. Sood, J.K. (1992). <i>New directions in science teaching</i>. Chandigarh: Kohli Publishers. Tolman, Marvin N. (2006). <i>Hands on Physical Science Activities</i>. United States: Jossey Bass (Wiley). <p>Web resources:</p> <ul style="list-style-type: none"> http://www.ncert.nic.in/ncert/textbook
<p>Unit-IV Instructional material and Teacher of Physical Science</p> <p>1. Instructional Aids: Meaning, Need, Types and Development</p> <p>2. Improvisation:</p>		<p>1. Instructional Aids</p> <p>1.1 Meaning, Need</p> <p>1.2 Types and Development</p> <p>2.1 Improvisation: Meaning</p>	<p>L</p> <p>E</p> <p>C</p> <p>T</p>	<p>(i) Discriminate amongst different types of teaching aids</p> <p>(ii) Use different types of teaching aids skilfully</p> <p>(iii) Understand the</p>	<p>Assignment</p>	<ul style="list-style-type: none"> Paul (2017). <i>Pedagogy of Physical science</i>. New Delhi: Blue Rose Publishers. Kulshrestha, S.P., Singh, Gaya (2013). <i>Teaching of physical science</i>. Meerut: Raj Printers. Mangal, S.K., Mangal,

<p>Meaning, need and importance</p> <p>3. Usage of Instructional Aids with special reference to Charts, Models, Display Boards, and Black Board, Computer, Science Kit and their merits & demerits.</p> <p>4. Laboratory: Planning, equipping, organization, Library accidents and their remedies</p> <p>5. Text book: Meaning, Qualities of a good Science Textbook, Critical Analysis of a Secondary School Physical Science Textbook, Procedure of Textbook selection</p> <p>6. Physical Science Teacher: Qualities and Duties</p>		<p>2.2 need and importance</p> <p>3. Usage of Instructional Aids</p> <p>3.1 Charts, Models</p> <p>3.2 Display Boards, and Black Board</p> <p>3.3 Computer, Science Kit</p> <p>3.4 merits & demerits</p> <p>4. Laboratory</p> <p>4.1 Planning, equipping, organization</p> <p>4.2 Library accidents and their remedies</p> <p>5. Text book</p> <p>5.1 Meaning, Qualities of a good Science Textbook</p> <p>5.2 Critical Analysis of a Secondary School Physical Science Textbook</p> <p>6. Physical Science Teacher</p> <p>6.1 Qualities</p> <p>6.2 Duties</p>	<p>U R E</p> <p>C U M</p> <p>D I S C U S S I O N</p>	<p>importance of Improvisation</p> <p>(iv) Establish and manage a science laboratory at secondary school</p> <p>(v) Select a good science text book as a teacher and critically evaluate the content of science text book</p> <p>(vi) Understand the role and responsibilities of a science teacher</p>		<p>Shubhra (2018). <i>Pedagogy of Physical Sciences</i>. Meerut: International Publishing House.</p> <ul style="list-style-type: none"> Nagaraju, M.T.V., Vanaja, M. (2015). <i>Methods of teaching of physical science</i>. New Delhi: NeelKamal Publications. Radha Mohan. (2016). <i>Teaching of physical science</i>. New Delhi: Neelkamal Publishers. Rahi, Avtar Singh (2018). <i>Pedagogy of Physical Sciences and Teachers</i>. Colorado (U.S.A.): Create space Independent Publishing Platform. Rajasekar, S. (2016). <i>Methods of Teaching Physical Science</i>. New Delhi: Neelkamal Publishers. <p>Web resources:</p> <ul style="list-style-type: none"> http://www.ncert.nic.in/textbook/textbook.htm http://www.ncert.nic.in/ncert/textbook
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Internal Assessment Strategies:

The thirty marks have been allotted under Internal Assessment. The following activities will be executed under Internal Assessment:

S. No.	Activity	Mode	Weightage of Marks
1	Three Sessional tests will be conducted (Best two will be considered)	Written Test	20
2	Lesson Plan Presentation on Any topic of Physical Science From NCERT Science Book From class 6 th to 10 th by using all (Mentioned in Syllabus) Basic teaching skills.	Lesson Plan & Presentation (PPT)	5
3	Percentage of attendance		05
	Total Marks		30