

EDU –04.2 : THEORETICAL BASE OF ENGLISH LANGUAGE EDUCATION.

(Theoretical Discourses – 60 hours & CE – 30 hours)

Course Outcome (CO):

The student teacher :

- CO 1 Familiarizes with the nature and purpose of language teaching.
- CO 2 Grasps problems related to learning a Second Language.
- CO 3 Draws implications of different theories of learning for Second Language instruction.
- CO 4 Gets an awareness of Approaches, Methods and Instructional Strategies for teaching English.

Contents

Unit 1:General Introduction to English Language Teaching and Learning

Unit 2:Nature and Development of English Language

Unit 3:Aims and Objectives of Teaching English

Unit 4: Methods and Strategies of Teaching English

Unit 1: General Introduction to English Language Teaching and Learning (Duration: 25 hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. Student teacher familiarizes with functional plane of teaching and learning and the divergent roles expected to be played as Language Teacher 2. Grasps the current status of English in India and its	- Perspectives of English Studies -Significance in the Global context -English as a skill subject - Teaching ESL, EFL, First Language [L₁] and Second Language [L₂] -Bilingualism -Code switching - Teaching of English in India	Intro lectures on ELT in India Makes student recall qualities of teachers whom they admire/remember Narration, anecdotes	- Contribution in debate on need of English as an International Language - Performance in classroom discussions regarding teacher role - Entry recorded in Reflective

importance	-Three Language Formulae – Mother tongue Interference -English as a Link Language • Language teacher competencies- Roles and responsibilities of English Teacher-mentor, facilitator, scaffolder, reflective practitioner	of lives of teachers who served as role models Views films related to teachers/ teaching Reads stories about lives of great teachers Web-based resources	journal
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Unit 2:Nature and Development of English Language (20 hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. Gathers knowledge about meaning, nature and characteristics of language and select theories of language teaching and learning	Language and culture, Language and society, Language and media(print and digital) Basic concepts in Linguistics- Morphology, Seminar Phonology, Syntax, Semantics Psycho-linguistic Theories	Brain storming Presentations Quiz	Examine level of participation Role performance analysis Evaluation based on documentation

	• Behaviourism- imitation, repetition, reinforcement • Cognitivism –Schema • Constructivism-ZPD- Scaffolding, Mental Processes • Chomsky-LAD- Universal Grammar • Krashen’s Hypotheses • Multiple Intelligence	• Peer Tutorial • Discussion • Invited Talks	
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Unit 3:Aims and Objectives of Teaching English (20 hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. Develops an understanding of the principles of language teaching	Utilitarian aim, Socio-cultural aims Objectives of Teaching English Principles of Language Learning Ideology of teaching English in Indian classrooms; Addressing learner sensibilities and learner abilities in language learning; Developing communicative competence	Brain storming Quiz Discussion Assigned readings from the works of theorists Group discussion	Examine level of participation Evaluation based on documentation Examine student report Address the level of pupil involvement in Group Discussion

Unit 4: Methods and Strategies of Teaching English (25 hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. Familiarizes with traditional approaches and methods of language teaching 2. Updates Knowledge of current approaches and methods 3. Develops the ability to choose the most suitable method for a given content or group of learners	Approach, Method, Technique Grammar Trans. Method, Bilingual Method, Direct Method. SOS Approach, Communicative Approach Humanistic approaches—TPR, Silent Way, CLL, Suggestopaedia Task Based Language Teaching	Demonstration of steps followed in different methods Watching video recordings - Accessing Online Co-relating class room activities	Evaluate the competence to compare and contrast Monitor the ability to distinguish between similar concepts, phases

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Activities for developing skills <http://www.teachingexpertise.com/articles/activities-for-developing-skills-1106> Current trends in Teaching Listening and Speaking by Jack. C. Richards www.oup.com/elt Learning Brain-based way <http://languagelab.com.sg/faq.php>

The Essentials of Language Teaching <http://www.nclrc.org/essentials/index.htm>

Teaching English to Speakers of Other Languages by M.S.

Thirumalai. <http://www.languageinindia.com/april2002/tesolbook.html> Task-Based Language Teaching and Learning: An Overview http://www.asian-efl-journal.com/Sept_06_ro.php

BBC World Service: Learning English

<http://www.bbc.co.uk/worldservice/learningenglish/index.shtml> Dave Sperling's ESL Café <http://www.eslcafe.com/>

FRET (Free Resources for English Teaching) <http://www.english->

teaching.co.uk/ Web English Teacher <http://www.webenglishteacher.com/>

EDU 04.7 : THEORETICAL BASE OF MATHEMATICS EDUCATION

(Theoretical Discourse - 60 hrs, CE - 30 hrs)

Course Outcome (CO):

- **CO 1 To make the novice student teachers understand the scope and nature of Mathematics teaching at different levels of learning**
- **CO 2 To introduce Mathematics teacher with a futuristic perspective as an agent of social change**
- **CO 3 To acquire the fundamentals of theory and practice of principles and procedures of teaching and learning of Mathematics**
- **CO 4 To develop an understanding of different methods, strategies and techniques possible in teaching and learning of Mathematics**

Contents:

Unit I: Nature and Development of Mathematics Education

Unit II: Introduction to teaching and learning

Unit III: Aims and Objectives of Teaching Mathematics

Unit IV: Methods and strategies of teaching Mathematics

Unit I: Nature and Development of Mathematics

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1. To familiarise with various definitions of Mathematics 2. To understand the nature and scope and characteristics of Mathematics 3. To acquaint with development of Mathematics 4. To inquire into the Contributions of great Mathematicians	*Meaning and Definition of Mathematics _ Nature and scope of Mathematics _ Characteristics of Mathematics - Language of Mathematics - Role intuition - inductive and deductive reasoning *Development of Mathematics - Human needs as the basis of growth of Mathematics. -as a structured science-undefined terms, postulates, axioms and theorems -pure and applied mathematics -Euclidian and non-Euclidean Geometry *Values of learning Mathematics - Utilitarian, - Disciplinary, -Cultural, Aesthetic, Social,	Meaningful Verbal Explanation Group Discussion Peer tutoring reflective dairy Collaborative Interaction and Role Play Power point Presentation	Analysis of students Performance _ Peer Evaluation _ Poster Presentation Evaluation of reflective dairy Questioning

5. To understand the values of learning Mathematics	Moral, International etc.		
6. To identify different types of correlation of Mathematics	*Correlation of Mathematics with – life, other subjects and different branches of the same subject *Contributions of great Mathematicians- -Pythagoras, -Rene Descartes, - C.F.Gauss, - Aryabhatta, -Bhaskaracharya, -Brahmagupta, -SreenivasaRamanujam and SangamagramaMadhavan	Assignments Brain storming Group discussions Seminar	Class tests

Unit II: Introduction to teaching and Learning

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1.To Know how children learn mathematics 2.To understand the various roles of mathematics teacher 3.. To generate a knowledge of phases of teaching 4.. To understand the qualities of a good mathematics teacher 5.. To acquaint with the oncept of classroom	Learning • Learning process of Mathematics • Stages of learning -Experience with physical objects(E) - Language that describes experience (L) - Pictures that represent experience (P) -Written symbols that generalise experience(S) • Role of mental math Teacher Role-*Knowledge worker *Facilitator * Mentor *Social Engineer Qualities of a good Mathematics teacher Teaching *Phases of teaching - (Pre-active,Interactive and	Meaningful Verbal Explanation Group Discussion Peer tutoring Power point presentation Assignments	Performance assessment in group discussion _ Tests _ Peer evaluation _ Evaluation of assignments

without walls	Post- active teaching) * Maxims of Teaching /Learning Class Room • Changing concept of classroom environment (changes in approaches and role of teacher)		
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Unit III: Aims and Objectives of Teaching Mathematics

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1.To understand the aims and objectives of teaching mathematics 2. To introduce the Bloomstaxonomy of educationalobjectives	*Aims of teaching Mathematics *Meaning of objectives. * Instructional objectives and Specifications *Concept of Objective based instruction * Blooms taxonomy of educational objectives Cognitive	Meaningful verbal presentation Power point presentations	Performance analysis in groupdiscussions _ Observation _ Participation in the

under three domains 2. To familiarise with the revised version of Bloom's taxonomy of educational objectives 3. To compare and contrast the objectives of teaching mathematics listed in NCF and KCF	domain, Affective domain, and Psychomotor domain * A conceptual overview of revised Bloom's taxonomy of objectives of teaching/ learning (Anderson and Krawthwohl), 1990. • Bloom's digital taxonomy • Objectives of teaching mathematics as enumerated by NCF(2005) and KCF(2007)	Illustrations Seminars Role play Collaborative and Cooperative learning strategies	Seminar sessions _ Examples cited in their lecture note _ Questioning _ Summative evaluation _ Participation in the Seminar sessions
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Unit IV: Methods and strategies of teaching Mathematics

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1. To understand various methods and approaches, useful for effective transaction of mathematics 2. To familiarise with various techniques useful for individualising Mathematics instruction	*Methods and approaches Procedure, merits & demerits of: - Lecture method - Inductive Deductive method - Analytic -Synthetic method - Laboratory method - Heuristic approach Concept of Questioning Features of good questions and Good questioning *Techniques for individualising instruction - Assignments - Supervised study - Drill work - Dalton plan	Group discussions Role play Meaningful verbal presentation Collaborative and Cooperative learning strategies Power point presentations	Participant observation Performance assessment in classroom activities — Individual work and in Group work. Summative evaluation

Suggested references books :

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EDU- 04.8: THEORETICAL BASE OF PHYSICAL SCIENCE EDUCATION

(Theoretical Discourse - 60 hrs, CE - 30 hrs)

Course Outcome (CO):

- **CO 1** To make the novice student teachers understand the nature and scope of Science education
- **CO 2** To introduce the challenging career of Science teacher with a futuristic perspective as an agent of social change
- **CO 3** To understand the aims and objectives of learning science in the developmental age
- **CO 4** To acquire the fundamentals of theory and practice of principles and procedures of teaching and learning of Physical Science
- **CO 5** To apply suitable methods, strategies and techniques in teaching and learning of Physical Science

Contents:

- **Unit 1:** Nature and Development of Science Education
- Unit 2: Aims and Objectives of Teaching Physical Science
- Unit 3: Introduction to teaching and learning
- Unit 4: Methods and Techniques in Physical Science Teaching

Unit 1: Nature and Development of Science Education (10+5=15 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand the nature and scope of science 2. To familiarize with the evolution of scientific achievements 3. To identify and highlight the contributions of scientists in India and abroad 4. To appreciate the contributions given by the Indian women scientists	- Nature of science- science as a product and process, science as an attitude - Scientific attitude and Scientific temper, Scientific literacy- science as a method - Scientific Method - Steps, Elements- Logical and Technical aspects, Mill's Canons of Induction, Transfer of training - Scope of science-Values (intellectual, social, practical, disciplinary, recreational, moral, aesthetic).	Seminar Group discussion & tool preparation Problem solving Reflective practices	- Document analysis - Posters - Online assessment - Quiz programme
5. To familiarize with the evolution of teaching of science 6. To identify the role of science for sustainable development	- Development of science in ancient, medieval and modern periods. - Contributions of scientists- Einstein, Newton, Lavosier, Mendeleev, Rutherford, C.V.Raman, M.N. Saha. P.C.Ray, APJ Abdul Kalam, G. Madhavan Nair, ECG Sudarshan, Kalpana Chawla, Sunitha Williams, Tessy Thomas. - Evolution of science education – General science and subject specific - Emerging branches in science- Nanotechnology, Bioinformatics, information Technology, Geoinformatics - Science for sustainable development	Document analysis Personality profile presentation Creative blog Trend analysis Seminar Module preparation	

Unit 2: Aims and Objectives of Teaching Physical Science (20+4=24 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To acquaint with the aims and objectives of teaching physical science 2. To understand the different taxonomies of instructional objectives	• Aims and Objectives of teaching physical science – knowledge construction, skill acquisition and developing career interest • Objective based instruction- Instructional objectives, Specific objectives, learning experience, Evaluation • Taxonomy: Basic concepts of objectives of affective, psychomotor and cognitive domain • Bloom's Taxonomy, 1956. • Revised Bloom's Taxonomy (Anderson and Krawthwohl), 1990. • Mc Cormack and Yager Taxonomy of Science Education, 1989 - Process skills–Basic and integrated skills • Bloom's digital taxonomy (Andrew Churches, 2008)	Meaningful verbal expression Narrative expression sessions in small or medium groups Seminar Digital presentation Blog searching Reflective practices Peer tutoring	• Questioning • Participation in group discussions • Participant observation • Tests • Blog posting

Unit 3: Introduction to Teaching and Learning (10+5=15 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To acquaint student teachers with the process of teaching learning in the changing scenario 2. To familiarize with the maxims of teaching 3. To understand the concept of learning given by behaviourists, cognitivists and constructivists 4. To acquaint with the qualities, duties and responsibilities of science teacher 5. To understand the changing roles of teacher in the present scenario 6. To familiarize with the changing classroom environment	• Teaching – phases (pro-active, interactive and post active- Glaser), maxims of teaching. • Learning - definitions based on behaviourism, cognitivism and constructivism. • Interdependence of teaching and learning – Effective teaching and factors affecting (Teacher, Learner and Environment). • Science teacher - qualities, duties and responsibilities. Multiple roles of teacher - Teacher as a leader, knowledge worker, facilitator, supervisor, mentor, scaffolder, social engineer and reflective practitioner. • Changing concept of classroom environment – Virtual Learning Environment(VLE) and classroom with and without walls (changes in approaches and role of teacher)	Meaningful verbal expression Group discussion Narrative expression sessions in small or medium groups Reflective thinking & Seminar Video analysis Web based learning Creative blog	• Analysis in group discussion • Participant observation • Debate • Reflective journal • Tests

Unit 4: Methods and Techniques in Physical science Teaching (20+6=26 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand methods, strategies and techniques of teaching Physical Science 2. To apply different strategies and techniques in teaching	• Methods, Strategies and Techniques in teaching • Teacher centred methods- Lecture method, Lecture demonstration method • Learner centred methods - Laboratory method, Guided discovery method, Project Method, Deductive method, Inductive method, Problem Solving Method • Techniques of teaching Physical Science- Debate, Seminar, Symposium, Discussion, Buzz section, Brain storming, Simulation, Role play.	Meaningful verbal expression Group discussion Peer instruction Project Brain storming Explicit teaching	• Analysis in group discussion. • Participant observation. • MCQ based discussion. • Graphic Organizer Designing.

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EDU – 04.9 : THEORETICAL BASE OF NATURAL SCIENCE EDUCATION

(Theoretical Discourses-50 Marks/60 hours & CE-25 Marks /30 hours)

Course Outcome (CO):

Enable the student teacher:

- CO 1 To understand the scope and nature of Natural Science Teaching at different levels of learning.
- CO 2 To acquire the fundamentals of theory and practice of principles and procedures of Teaching and Learning of Natural Science.
- CO 3 To understand the concept of teaching- learning process.
- CO 4 To introduce the challenging career of science teacher with a futuristic perspective as an agent of social change.
- CO 5 To understand and develop skill in selecting appropriate aims and objectives for teaching Natural Science.
- CO 6 To familiarize and apply the instructional management strategies of teaching Natural Science.

CONTENTS

- Unit – I : Nature and Development of Science Education**
- Unit – II : Introduction to Teaching and Learning**
- Unit – III : Aims and Objectives of Teaching Natural Science**
- Unit – IV : Methods and Strategies for Teaching Natural Science**

UNIT: I Nature and Development of Science Education (10 +5= 15 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
- To understand the nature and scope of science - To familiarize with the evolution of science achievements. - To understand and highlight the contributions of scientists in biological sciences - To familiarize the evolution of teaching of science - To identify the role of science for sustainable development.	Nature of science- - Science as a process and product, Science as an attitude-Scientific attitude & Scientific temper, Scientific literacy- science as a method-Scientific method- steps. Scope of science- Values (intellectual, social, practical, disciplinary, recreational, moral, aesthetic). - Contribution of scientists – Aristotle, Robert Hooke, Gregor Johhan Mendel, Watson & Crick ,Charles Darwin, Har Gobind Khorana, Dr.Salim Ali , M.S.Swaminathan, Dr.Verghese Kurien, Janaki Ammal. - Development of science in ancient, medieval, and modern periods - Evolution of science education. - Emerging branches in science- Nanotechnology, Bioinformatics, Biotechnology, Geo informatics - Science for sustainable development.	Group discussion. Narrative expression sessions in small or medium groups. Brain storming. Seminar. Personality profile presentation Multimedia approach.	- Participation in group discussion. - Document analysis. - Online assessment. - Quiz programme.

UNIT.II Introduction to Teaching and Learning (10+5= 15 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To acquaint student teachers with the process of teaching in the changing scenario. 2. To familiarize with the maxims of teaching 3. To understand the concept of learning given by behaviourists, cognitivists and constructivists 4. To develop understanding in Continuing Professional Development 5. To familiarize with the changing classroom environment . 6. To understand the changing role of teacher in the present scenario.	• Teaching -Phases, Maxims of teaching ○ Learning - ▪ Definitions based on behaviourism, cognitivism and constructivism. ▪ Interdependence of teaching and learning. ▪ Changing concept of classroom environment- conducive, learner friendly environment. Virtual Learning Environment (VLE). ▪ Science teacher- qualities, duties and responsibilities. ▪ Multiple role of teacher- Teacher as a leader, knowledge worker, facilitator ,supervisor, mentor, scaffolder, social engineer and reflective practitioner. ▪ Professional growth of science teacher- Continuing Professional Development(CPD)	Group discussion Seminar Meaningful verbal expression Narrative expression in small or medium group Creative blog	• Analysis in group discussion. • Participant observation. • Debate. • Reflective journal. • Tests

	• Taxonomy of Instructional Objectives-Origin, Bloom's Taxonomy of Instructional Objectives (1956) , Mc Cormack and Yager's Classification, Revised Blooms Taxonomy by Anderson and Krathwohl (2001), Bloom's Digital Taxonomy.	Team teaching. Peer tutoring	
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UNIT IV METHODS AND STRATEGIES FOR TEACHING NATURAL SCIENCE (20+6=26 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand appropriate methods, techniques and strategies of teaching Natural science. 2. To develop skill in selecting appropriate methods, techniques and strategies of teaching Natural science.	○ Teacher initiated methods- Lecture method, Lecture cum Demonstration and Biographical method. ○ Student initiated methods- Problem solving, Project method, Guided discovery, Experimental and heuristic method. ● Approaches- Inductive-Deductive, Multimedia, Interdisciplinary and Constructivist approaches. ○ Techniques- Seminar, Group discussion, Debate, Brain storming, peer tutoring, team teaching, concept mapping.	Meaningful verbal expression Group discussion Peer instruction Narrative expression sessions. Brain storming. Seminar. Reflective practices. PBL. Modular approach. Multimedia and interdisciplinary approach. Peer tutoring	● Participation in group discussion. ● Questioning. ● On-task behavior in class. ● Tests. ● Science diary. ● Daily reflective journal ● Participant observation.

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- [http://www.ncert.nic.in/right side/links/pdf/framework/english/nf2005.pdf](http://www.ncert.nic.in/right_side/links/pdf/framework/english/nf2005.pdf)

EDU – 04.10 – THEORETICAL BASE OF SOCIAL SCIENCE EDUCATION

(Theoretical discourses-60 hours & CE – 30 hours)

Objectives:

- To familiarize with the conceptualized version of components required to enter in teaching profession
- To mould the prospective teacher educators to uphold the professional spirit
- To equip with varied dimensions of Social Science education
- To identify and analyse the aims and objectives of teaching Social Science
- To gain an outlook of approaches in behaviorism, constructivism and cognitivism in Social Science education
- To analyze the unique features of different instructional methods suited for teaching Social Science
- To identify and select most appropriate teaching- learning methods and strategies in varied context and content.

Contents:

Unit: 1 Introduction to Teaching and Learning

Unit: 2 Nature, Scope and Development of Social Science Education

Unit: 3 Aims and objectives of Teaching Social Science

Unit: 4 Instructional Methods, Techniques and strategies in Social Science Teaching

Unit : 1 Introduction to Teaching and Learning

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. To familiarize with the conceptualized version of components required to enter in teaching profession 2. To mould the prospective teacher educators to uphold the	• Teaching - profession and service, Principles and Maxims of teaching, Instruction, Factors determine effective instruction, classroom Interactions, Learner, Learning, Learning environment, classroom as a social laboratory.	Meaningful verbal presentation Brain storming Case analysis of 2/3 famous teachers Buzz session to	• Report writing and verification • Case analysis presentation

professional spirit in diverse angles	Teacher, Teacher as professional; Continuing Professional Development (CPD), Qualities and competencies of Social Science Teachers, Teacher responsibilities; multifarious roles: knowledge worker, facilitator, scaffolder, mentor, social engineer, counselor, reflective practitioner and digital migrant.	generate varied roles of an ideal teacher	
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- Bining, A.C & Bining, D.H. (1952) Teaching Social Studies in Secondary Schools. New York: McGraw Hill

Unit: 2 Nature, Scope and Development of Social Science Education. (10 Hrs + 4 Hrs)

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. To acquaint with the basic concepts of Social Science as a discipline 2. To identify subject matter organization process in Social Science- Fusion, Integration &	- Conceptual background of Social Science, Meaning and Scope, Need and significance - Content organization treatment of Social Science- Fusion, Integration and Correlation within Social Science- Understanding about Primary, Secondary and Higher Secondary	Meaningful verbal learning Participatory approach Co- operative learning	Preparation of report on teacher Presentation

Correlation	levels (Social Studies, Social Science and Humanities)	Discussion	
3. To analyze the relationship of Social Science with other subjects	Correlation of Social science with other subjects- Language & Science		

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- <http://serc.carleton.edu>
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- Aggarwal, J.C. (1996) A Practical Approach. New Delhi : Vikas Publishing House Pvt. Ltd.
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UNIT : 3 Aims and objectives of Teaching Social Science

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. To identify and analyze the aims and objectives of teaching Social Science 2. To endow with the significance of Taxonomy of	- Aims, objectives and values of teaching Social Science - Individual, Social, Cultural, National and International considerations of Social	General discussion Analytical study Focus group discussion	- Comparison chart on Basic concepts of Behaviorism, constructivism and cognitivism and its analysis Seminar with Slide

instructional objectives in Social Science education 3. To gain an outlook of approaches in behaviorism, constructivism and cognitivism in Social Science education	Science • Bloom's taxonomy of Instructional objectives (Revised)- Instructional objectives and specifications. • Behaviorism, Cognitivism and Constructivism- approach & practice in classroom- Comparison • Learning objectives and Learning Outcomes	Prepare a seminar paper with PPT support on the psychological implications in the pedagogical practices of Social Science.	presentation (CE item for Edu. 04) • Test (CE Edu.4)
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- http://www.unco.edu/cetl/sir/stating_outcome/document
- <http://ci484-learning-technologies.wikispaces.com/Behavioris>.
- Chauhan, S.S (2006) Advanced Educational Psychology, New Delhi
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- Gronlund,N.E(1970) Stating Behavioural objectives for class room instruction.London:MacMillan

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- Anderson,W,L and Krathwohl,D,R, A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives. Allyn & Bacon: Boston.

UNIT 4: Instructional Methods, Techniques and Strategies

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. To analyze the unique features of different instructional methods suited for teaching Social Science 2. To proficient in select most appropriate teaching methods in varied context and content.	• Need and significance of methods and strategies for teaching Social Science. • Differentiate method, technique and strategy • Methods- Lecture, storytelling, Discussion, Socialized recitation, Problem solving, Project, Source method, Supervised study. • Cooperative learning, Collaborative learning, Scaffolding, Brain storming, Buzz session, Debate, Seminar.	Seminar Debate Project	• Report presentation & verification

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- www.flipkart.com
- <http://www.celt.iastate.edu/creativity/techniques.html>
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EDU. 05.2 : PEDAGOGIC CONTENT KNOWLEDGE ANALYSIS: ENGLISH

(Theoretical Discourses – 60 hours & CE – 30 hours)

Course Outcome (CO):

The student teacher:

- CO 1 Familiarizes with the different dimensions of Pedagogic Content Knowledge.
- CO 2 Develops an understanding of objectives and specifications for teaching English as a Second Language.
- CO 3 Familiarizes the procedure and steps for planning different kinds of lesson.
- CO 4 Analyzes Secondary Course Books and identifies suitable strategies for transacting content.
- CO 5 Explores ways of designing appropriate learning aids.
- CO 6 Identifies suitable strategies for assessment.

Contents :

Unit I : Introduction to Pedagogic Content Knowledge (PCK)

Unit II: Planning and Designing of Lesson Templates

Unit III: Essential Requirements for Teaching of English

Unit IV: Resources in Teaching and Learning of English

Unit 1: Introduction to Pedagogic Content Knowledge(PCK) (25 hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. Develops an understanding of pedagogy and its principles 2. Familiarizes with Taxonomy of Educational Objectives 3. Develops an understanding of	• Pedagogic Analysis Scope, Principles and Objectives • Pedagogic Content Knowledge Scope in teaching and learning • Objective-based Instruction	Direct instruction Engaging in Group discussion Individual and collaborative tasks	Participation in task. Peer assessment of presentations

types of thinking	Bloom's Taxonomy: Specifications,		
4. Familiarizes with the nature	• Process skills & Thinking Skills (Critical and Problem Solving) • Content Analysis of State Syllabus - Themes, Language elements, Sequencing of content, Deficiency in content • Discourses- slogans, placards, notices, reports, diary entry, messages -script of a speech, letter, posters, advertisement, write up, conversation, profile etc	Critique of different Course Books	

Unit 2: Planning and design of lesson templates (25 hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. Familiarizes the procedure and steps for planning different kinds of lesson. 2. Analyzes Secondary Course Books and identifies suitable strategies for transacting content.	Planning- Relevance, mode and Design-Year Plan-Unit Plan - Lesson Templates Components and Strategies for teaching: Prose- Intensive and Extensive reading; Skimming and Scanning, Silent and Oral reading, Pre-reading and Post-reading Poetry- Appreciation, Deviant language of Poetry Grammar- Formal and Functional, Inductive and Deductive methods, Use of Substitution	Workshop mode to identify Objectives, Specifications and appropriate testing mechanisms Critiquing Syllabus Grids in Course Books Intro. lectures on thinking skills	Ability to develop suitable Lesson Plan/ Teaching Manual for different content Phased monitoring Performance in Workshop Checking ability to frame appropriate Objectives and Specifications

	Tables Vocabulary - Content and Function words, Active and passive vocabulary, Techniques and Strategies for enriching vocabulary Composition-different types	Demo. by expert Preparation of Group Lesson Plan/Teaching Manual	
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		Practice under supervised guidance. Task-directed discussion and Applied exercises	
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Unit 3: Essential requirements for teaching of English

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. Familiarizes with different teaching skills	Analysis and Practice of Language Skills- LSRW-Identification and Practice of Language Elementsstructure, vocabularyetc Core Skills of Teaching- Introduction Illustrating with examples	Peer observation using Schedule Videography for Reflection	Use of Observation schedule Reflection write- up submitted following viewing ofvideo recordingof own teaching

	- Reinforcement -Explaining,Stimulus variation -Classroom Management -Reading - Recitation -ICT skills Micro Teaching – Concept, Phases and cycle		
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Unit 4: Resources in teaching and learning of English (20 hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. Familiarizes with ways of employing different aids for teaching different content 2. Explores ways of designing appropriate learning aids.	Teaching aids- design and development Learning support resources Pictures Charts Flash Card Models News paper and Journals -Documentary Audio-Video Clips Interactive Board LCD Projector Internet Language Lab	Display of specimen aids Guidance for preparation of aids for different content in workshop mode	Peer comment Guided supervision

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Bloom's Taxonomy: <http://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>

Classroom Management : <http://www.teachingideas.co.uk/more/management/contents.htm>,
http://www.educationworld.com/a_curr/curr155.shtml

Language skills:

http://www.apsacssectt.edu.pk/download%20material/training%20deptt/workshop%20material/four_skills_of_language.pdf

Learning Support Centres in Higher Education (LSCHE): http://www.lsche.net/?page_id=608

Microteaching: <https://uwaterloo.ca/centre-for-teaching-excellence/support-graduate-students/fundamentals-university-teaching/microteaching-details>

Pedagogical Content Knowledge: <http://mkoehler.educ.msu.edu/tpack/pedagogical-content-knowledge-pck/>

Resource Mapping: <file:///C:/Users/Reliance/Downloads/ResourceMappingExampleWisconsin.pdf>

Structure (function) words versus content words: <http://homepage.ntlworld.com/vivian.c/Words/ContentStructure.ht>

EDU 05.7 : PEDAGOGIC CONTENT KNOWLEDGE ANALYSIS: MATHEMATICS

(Theoretical Discourse - 60 hrs, CE - 30 hrs)

Course Outcome (CO):

- **CO 1 To develop practical field based skill and experience in resource development and learning experience designing while transacting the mathematics curriculum**
- **CO 2 To infuse an attitude for undertaking the contextual challenges as a Mathematics Education Professional**
- **CO 3 To enrich the capabilities of Mathematics teachers during and after the pre service education**
- **CO 4 To inculcate the theoretical and practical wisdom of mathematics classroom and its associated units' design, management and innovation**

Contents:

Unit 1: Introduction to Pedagogic Content Knowledge

Unit 2: Planning and Designing of Lesson Templates

Unit 3: Essential Requirements of Teaching Mathematics

Unit 4: Resources in Teaching and Learning Mathematics

Unit I: Introduction to Pedagogic Content Knowledge

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1. To provide knowledge on Pedagogic Analysis 2. To identify the requirements for Pedagogic Analysis 3. To develop ability to analyze the content for locating Objectives, Curricular objectives, learning outcomes, pre-requisites, resources, teaching strategies, learning activities and evaluation strategies	- Content Analysis – meaning, steps - Pedagogy – meaning and scope - Pedagogic Content Knowledge (PCK)- PCK Analysis –steps (Content Analysis, Learning outcomes, Pre requisites, Teaching-learning processes (Teaching-learning resources, Environmental inputs), Enrichment Activities, Assessment techniques, Assignments. - PCK Analysis of Mathematics content from secondary school syllabus prescribed by SCERT	Lecturing Collaborative/Cooperative Learning session Group discussion Seminars Narrative Expression Assignment	Performance analysis in group discussions _ Observation _ Participation in the Seminar sessions _ Assessment of assignment

Unit II: Planning and Designing of Lesson Templates

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1. To understand need, importance and stages of planning instructions in mathematics 2. To develop the ability to plan and design year, unit and lesson plans	Planning instruction • Need and Importance of planning, • Stages of planning -Year plan, Unit plan and Lesson plan Transition of behaviouristic approach to constructivist approach in lesson planning • Preparation of lesson templates in Behaviourist and Constructivist formats	Meaningful verbal Presentation Collaboration/Cooperative Learning session, Group discussion	_ Questioning _ Performance analysis in group discussions Assessment of practical records on Discussion, demonstration, criticism lessons.

		Reviewing previous lesson plans	Practicals - o Discussion lessons - o Observation of video lessons - o Demonstration lessons
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Unit III: Essential Requirements for Teaching Mathematics

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1. To understand the basic skills needed for effective teaching 2. To develop the	Mathematical Skills Arithmetic skills Geometric Skills Drawing and interpreting graphs and charts HOT skills		_ Assessment of reflective diary _ Performance analysis while practising

ability to make use of teaching skills by the practice of microteaching 3. To understand and practice digital skills.	• Microteaching Skills (set induction, questioning, reinforcement, stimulus variation, using black board, explanation etc) Microteaching lessons- Planning and preparation of - Microteaching lesson plans _ Practicing Microteaching skills • Link Practice Digital skills -identify and practice digital skills for teaching	Meaningful verbal presentation Group discussion Brain storming Illustration of skills Simulation Video clippings/video lessons	Microteaching skill discussions _ Observation Practicals o Practice of skills
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Unit IV: Resources in Teaching and Learning Mathematics

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1. To understand	*concretisation of abstract ideas in mathematics,	Meaningful verbal	

different methods for concretising abstract ideas 2. To understand the need, importance and different types of learning aids in mathematics 3. To provide hands on experience on modern learning supporting gadgets for each student	*Different types of learning aids, *Improvised aids * modern learning supporting gadgets like PPT, Interactive white Board etc * Hands on experience on the modern learning supporting gadgets.	presentation Group activities Sessions in small or medium groups -Video clippings You tube resource tapping Drill and Practice Lab sessions	_ Performance analysis in individual and in group discussions/tasks _ Questioning _ Practical tests
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- _ Aggarwal, J.C. (2001). *Principles, Methods & Techniques of Teaching (2nd ed.)*. New Delhi: Vikas Publishing House Pvt. Ltd.
- _ Ediger, M. & Rao, D. B. (2000). *Teaching Mathematics Successfully*. New Delhi: Discovery Publishing House.

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EDU - 05.8 : PEDAGOGIC CONTENT KNOWLEDGE ANALYSIS : PHYSICAL SCIENCE

(Theoretical discourses - 60 hrs, CE - 30 hrs)

Course Outcome (CO):

- **CO 1** To develop practical field based skill and experience in resource development and learning experience designing while transacting the science curriculum
- **CO 2** To infuse an attitude for undertaking the contextual challenges as a Science Education Professional
- **CO 3** To enrich the capabilities of prospective science teachers during and after the pre-service education
- **CO 4** To inculcate the theoretical and practical wisdom of science classroom and its associated units' design, management and innovation

Contents:

- **Unit 1: Introduction to Pedagogic Content Knowledge**
- **Unit 2: Essential Requirements of Teaching Physical Science**
- **Unit 3: Planning and Designing of Lesson Templates**
- **Unit 4: Resources in Teaching and Learning of Physical Science**

Unit 1: Introduction to Pedagogic Content Knowledge (20+10=30 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand pedagogic content knowledge (PCK) and find its scope in teaching and learning 2. To understand the steps involved in PCK analysis 3. To apply the principles of pedagogic analysis.	• Content Analysis – meaning, steps • Pedagogy – meaning and scope • Pedagogic Content Knowledge (PCK)- PCK Analysis –steps (Content Analysis, Learning outcomes, Pre requisites, Teaching-learning processes (Teaching-learning resources, Environmental inputs), Enrichment Activities, Assessment techniques, Assignments. • PCK Analysis of Physical science content from secondary school syllabus prescribed by SCERT	Meaningful verba 1 Expression Group discussion Turn around K-W-L charting Document writing Net surfing	• Analysis in group discussion • Assessment of optional notebook entries • Open forum • Peer evaluation

Unit 2: Essential Requirements of Teaching Physical Science (25+25=50 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To acquaint with the planning of instruction 2. To develop understanding of different types of planning 3. To design lesson templates based on different formats	- Teacher Competencies-Subject competencies, Pedagogical competencies, Technological competencies - Teaching skills - Microteaching - Definitions and meaning, principles, steps, microteaching cycle - Development of selected teaching skills- Set induction, Reinforcement, Explaining, Illustrating with examples, Probing questions, Using chalk board, Stimulus variation, Using audio-visual aids, discussion, promoting pupil participation, Classroom management. - Link Practice	Meaningful verbal Expression Group discussion Explicit teaching Peer tutoring	- Performance assessment in group discussion - Assessment of optional note book entries

Unit 3: Planning and Designing of Lesson Templates (20+15=35 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To acquaint with the planning of instruction 2. To develop understanding of different types of planning 3. To design lesson templates based on different formats	• Planning- Need and Importance. • Different types of planning- Purposes and steps-Year Plan, Unit Plan, Resource Unit, Lesson Plan- Herbartian steps Behaviourist and Constructivist formats	Meaningful verbal expression Group discussion Explicit teaching Peer tutoring	• Performance assessment in group discussion • Assessment of optional notebook entries

Unit 4: Resources in Teaching and Learning of Physical science (15+10=35 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand the importance of learning aids and improvised aids in learning Physical Science 2. To acquire hands-on experience in designing and developing suitable learning aids for classroom instruction 3. To develop understanding in resource mapping	• Learning aids and improvised aids- Importance in science learning • Textbook-Qualities, Vogel's Criteria, Fog Index • Hand book, Source book, Work book, Reference book, Supplementary reading materials • Resource Mapping	Narrative expression sessions in small or medium groups Document analysis You tube resource tapping Drill and Practice Lab sessions	• Participant observation • Analysis in group discussion • Class test • Material Development Circles

Reference

- Julie Gess Newsome & Norman G. Lederman (1999): Examining Pedagogical Content Knowledge : Netherlands, Kluwer Academic Publishers.
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EDU- 05.9: PEDAGOGIC CONTENT KNOWLEDGE ANALYSIS - NATURAL SCIENCE

(Theoretical discourses-50 Marks/60 hours & CE-25 Marks/30 hours)

Course Outcome (CO):

Enable the student teachers:

- **CO 1** To comprehend the dimensions of pedagogical analysis
- **CO 2** To critically analyze the Secondary School Biology Syllabus based on pedagogical Content Knowledge.
- **CO 3** To understand and apply the different skills for teaching Natural Science.
- **CO 4** To understand and prepare teaching manuals based on different instructional strategies.
- **CO 5** To understand the different teaching learning resources for teaching Natural Science.
- **CO 6** To prepare and use suitable learning aids for Natural Science teaching.

CONTENTS

Unit I : Introduction to Pedagogic Content Knowledge – analysis of Secondary School Biology Syllabus
Unit II : Planning and designing of Lesson Templates instruction, different approaches of designing lesson plans.
Unit III : Essential Requirements of Teaching Natural Science and its development.
Unit IV : Resources in Teaching and learning of Natural Sciences for enhancing science learning-visual, projected, non-projected and activity aids

UNIT I –INTRODUCTION TO PEDAGOGIC CONTERNT KNOWLEDGE ANALYSIS : TEACHING NATURAL SCIENCE (Theory hours -15)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand pedagogic content knowledge (PCK) and find its scope in teaching and learning. 2. To understand the steps involved in PCK analysis. 3. To apply the principles of pedagogic analysis. 4. To make Pedagogic content knowledge analysis of secondary school Biology syllabus.	• Content analysis- meaning, steps • Pedagogy - meaning and scope • Pedagogic Content Knowledge (PCK) – PCK Analysis – steps, (Content analysis, Learning outcomes ,Pre requisites, Teaching –Learning processes ,Enrichment Activities, Assessment techniques, Assignments.)Meaning, objectives, scope, principles and dimensions. • Pedagogic content analysis of secondary school syllabus prescribed by SCERT.	Meaningful verbal expression Group discussion Narrative expression sessions in small or medium groups Text Book analysis and peer instruction	• Performance assessment in group discussion • Assessment of Optional Note Book entries • Questioning • Tests • Peer evaluation • Student's portfolio

UNIT II - PLANNING AND DESIGNING OF LESSON TEMPLATES (20 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand different types of planning. 2. To develop skill in designing lesson plans based on different approaches.	○ Meaning and importance of planning, Types of planning – Year plan, Unit plan, lesson plan and Resource Unit ● Designing lesson plans based on Herbartian Approach& Constructivist Approach.	Discussions in small or medium groups.. Seminar. Reflective practices. Debate. PBL.	● Performance assessment in group discussion ● Questioning ● Tests ● Peer evaluation ● Lesson Plan

UNIT III - ESSENTIAL REQUIREMENTS OF TEACHING NATURAL SCIENCE (15 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
- To understand the different types of teaching skills. - To develop the teaching skills relevant to Biological science. - To familiarize the different phases of micro teaching. - To develop skill in designing micro lessons. - To develop skill in practicing micro lesson.	○ Teaching competencies- Subject competencies, Pedagogical competencies, Technological competencies. ○ Teaching skills –Definition, Core teaching skills, Components of teaching skills, Teaching skills specially required for Biology teacher. ○ Micro-teaching: Objectives, Micro-teaching cycle - its relevance in teacher training programme. ○ Importance of Link practice. ● Design and development of micro lessons- practice and documentation with appraisal format to elicit feedback.	Discussions in small or medium groups. Reflective practices. Multimedia and interdisciplinary approach. Team teaching. Peer tutoring Group discussion. Narrative expressions	● Performance assessment in group discussion ● Assessment of performance in brain storming, ● Symposium. ● Questioning ● Tests ● Peer evaluation ● Assessing micro lessons ● Assessing micro teaching.

UNIT IV – RESOURCES IN TEACHING AND LEARNING OF NATURAL SCIENCE (10 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
- To understand the meaning and definition of audio-visual aids - To identify and comprehend the different types of audiovisual aids in teaching Natural Science. - To develop skill in improvisation. - To apply multimedia in teaching Natural Science. - To design and develop the teaching learning aids for Natural Science.	Design and development of materials for effective science learning Audiovisual aids - Significance of audio visual aids in science learning. - Designing, developing and documenting minimum of one item for - improvised, Visual and graphic aids (Charts, Models, Diagrams, Pictures, Posters). Projected and non- projected aids-OHP, LCD, Bulletin Board, Flannel Board, Interactive Board etc. Activity aids –Living corners and Nature Calendar. Collection and preservation of specimens.	Discussions in small or medium groups. Seminar. Reflective practices. Lab sessions Drill and practice Peer tutoring.	- Performance assessment in group discussion, debate etc. - Assessment of assignments - Questioning. - Tests - Peer evaluation - Student's portfolio - Evaluating the audio visual aids prepared by student teachers.

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- <http://ictevangelist.com/technological-pedagogical-and-conte>.
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EDU – 05 .10 : PEDAGOGIC CONTENT KNOWLEDGE ANALYSIS – SOCIAL SCIENCE.

(Theoretical discourses – 60 hours & CE – 30 hours)

Objectives

- To understand the key aspects involved in systematic PCK analysis
- To develop skill in analyzing the content of secondary level Social Science text book
- To justify the importance and phases of instructional planning in Social Science
- To equip prospective teachers in developing teaching skills through micro teaching practices
- To conscientize the inevitable role of various instructional support in effective instructional practices.
- To become competent in developing suitable testing mechanisms.

Contents

Unit 1	Introduction to Pedagogical content knowledge analysis
Unit 2	Instructional Planning and Designing Lesson Templates
Unit 3	Essential Requirements for Teaching Social Science Education
Unit 4	Instructional Resources in Teaching and Learning of Social Science

Unit : 1 Nature and Scope of Pedagogical content knowledge analysis

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. To understand the key aspects involved in systematic PCK analysis 2. To establish relationship between pedagogic knowledge with	• Pedagogical content knowledge analysis (PCK) -Meaning, Scope, Features of PCK analysis, significance of PCK analysis in Social Science. • Relationship between pedagogic analysis with content analysis Content Analysis –	Narrative expression session Text book analysis Collaborative learning	• Content analysis presentation • Brief report on text book analysis

content analysis	Procedure, facts, concepts, principles.	Discussion- Prepare content analysis of two units by each student teacher after discussion.	
3. To develop skill in analyzing the content of secondary level Social Science text books	Content analysis of secondary Social Science text books-(History, Geography, Political Science, Economics, Sociology areas)		

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Unit: 2 Instructional Planning and Designing Lesson Templates

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. To justify the importance and phases of instructional planning in Social Science discipline 2. To capacitate systematic planning and designs lesson transcripts 3. To develop skills in preparing lesson transcripts	• Instructional planning –Importance, Phases, Types - Year plan, Unit plan, Lesson plan • Procedure for the Preparation of year plan, unit plan and lesson plan • Designing Lesson Transcripts	Group discussion Co-operative learning Meaningful verbal learning Prepare model year plan, Unit plan & lesson transcripts. Video/ Demo lesson observation	• Discussion lessons -5 • Demonstration lessons -3 • Criticism lessons -5 • (Practical evaluation) • Video lesson observation and reporting (CE- Edu.05)

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Unit: 3 Essential Requirements of Teaching Social Science Education

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. To equip prospective teacher educands in developing teaching skills through micro teaching practices 2. To generate skill orientation among prospective teacher educands through practical experiences	• Essential requirements – Teaching Competencies and Skills. • Micro teaching - Meaning, Phases, steps. • Micro teaching skills – (minimum 10 skills) • Micro teaching – Lesson templates, Practice and assessment mechanisms. • Skills in using ICT • Link practice	• Experiential learning • Demonstration • Reflective practices • General discussion • Demonstration method • Analysis of video performance	• Micro teaching lesson notes/plans (Ten skills/ 2 skills per student) • Performance in skill presentation (Practical evaluation)

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Unit : 4 Instructional Resources in Teaching and Learning of Social Science

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
- To conscientize the inevitable role of various instructional support in effective instructional practices. - To acquire skills in constructing and using different instructional aids.	- Instructional Resources: textbook, workbook, handbook, source book. - Instructional aids: Importance, educational values, classification of learning aids: projected, Non-projected and activity aids. - Hands on experience: Computer, LCD Projector, Interactive white board and multi media	General discussion Workshop Displays Prepare resource map for effective utilization in Social Science	- Handling of various instructional aids. Social Science club activity- Workshop to prepare a source book or innovative instructional aid/ Resource map (CE-Edu.05)

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