

EDU- 09.8: CURRICULUM AND RESOURCES IN DIGITAL ERA: PHYSICAL SCIENCE EDUCATION

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

COURSE OUTCOME (CO):

- CO 1 To strengthen the experience of the promising student teachers as Science curriculum designers, transmitters and assessors
- CO 2 To develop a humanistic attitude among the student teachers in the light of Science-Technology-Society-Environment paradigm
- CO 3 To undertake a self-empowerment initiative in transacting the Physical Science Curriculum from a digital migrant outlook
- CO 4 To provide the required research based science learning experiences so as to undertake a habit of self-development through inquiry and investigation

Contents:

Unit 1: Curriculum Designing in Physical Science Education

Unit2: Formal and Informal Contexts in teaching and learning of Physical Science

Unit 3: E-Resources in Teaching and Learning of Physical Science

Unit 4: Research in Physical ScienceEducation

Unit 1: Curriculum Designing in Physical Science Education (20+2=22 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To acquaint with the concepts of curriculum and syllabus 2. To understand and apply the principles of curriculum construction 3. To familiarize with the curriculum organization 4. To familiarize with the recent trends in curriculum construction in state, national and international level 5. To understand correlation of Physical Science within the subject as well as with other subjects.	1. Curriculum and syllabus-Meaning. 2. Principles of curriculum construction. 3. Types of curriculum-subject centred, activity centred, core curriculum 4. Approaches to curriculum organisation-Concentric approach, Spiral approach, Type study, Topical approach, Historical approach, General science and disciplinary approach 5. Hidden curriculum 6. Trends in curriculum construction-NCERT (NCF)- science basic criteria of validity of science curriculum and science curriculum at different stages-outlook-and SCERT curriculum (KCF)-major criticisms leveled against the prevailing science education and aims of education (5 domains), Issue based curriculum, Critical Pedagogy 7. Critical analysis of secondary school curriculum in Physical Science prescribed by SCERT. 8. Science-A Process Approach (SAPA), Cognitive Acceleration Through Science Education (CASE) / 'Let's	Meaningful verbal expression Buzz session PBL Peer instruction Seminar Web Streaming Document analysis Blog reading	• Questioning • Role performance analysis in Buzz discussion • Concept mapping • Open book analysis

	Think through Science'- 9. Correlation- Incidental and systematic, Correlation within the subject, Correlation of Physical science with other subjects such as biology, mathematics, language, geography, history, earth science, music, art and craft, life and environment		
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Unit 2: Formal and Informal Contexts in Teaching and Learning of Physical Science (20+10=30 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To acquaint with the concept and significance of community based resources 2. To familiarize various formal and informal learning contexts 3. To identify the contributions of human resources in local community 4. To identify governmental and non-governmental movements for popularizing science	a. Community based resources- Meaning , need and significance b. Formal science learning contexts– • Science library-importance and organisation, web resources – • Science laboratory- Importance and organisation, Registers, Rules, Accidents and First aid • Field trips and excursions- Need and importance • Science fairs and exhibition-Significance, organisation and evaluation • Science club- Significance, organization and activities c. Informal learning contexts: Science Park , museum, historical monuments, play grounds, music room, planetarium, ANERT, - Human resources-Scientists and eminent personalities in local community. d. Governmental and non-governmental movements and organizations for popularising science-Science Talent Search Programme, Science Olympiad (HBCSE), KVPY, Sasthraphoshini scheme, Kerala Shastra Sahitya Parishad	Narrative expression sessions in small or medium groups Assignment Seminar Field trip Community resource mobilization / Contextual analysis	• Performance analysis • Quiz programme • K-W-L charting • Profile presentation • Blog posting

Unit 3: E-Resources in Teaching and Learning of Physical Science (15+5=20 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To identify various digital resources in learning of Physical Science 2. To understand the significance of Learning Management System 3. To familiarize various resources 4. To identify the challenges and means of rescue a teacher should possess in this digital era	1. Digital resources-CD, DVD, Websites – 2. Learning Management System (LMS)-definition and significance- MOODLE 3. Identification and use of e-resources: 4. Web 2.0 tools: - Hot Potatoes, Ptable (Dynamic periodic table), Edmodo, Teacher Tube, Edublog, Chem Collective 5. Today's teacher – a digital native– challenges	Web Streaming Explicit teaching Peer instruction	• Documentation • Assessment of individual performance • Think Aloud Sessions

Unit 4: Research in Physical Science Education (5+3=8 hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand the concept and scope of research in science education 2. To identify the role of science teacher as a researcher 3. To identify the recent research areas in Physical Science education	• Research - meaning and scope • Science teacher as a researcher • Recent research in Physical Science education – An Overview	Net surfing Blog reading Action research Invited lectures	• Blog posting • Project report • Documentation

Reference

- David Heywood, Joan parker (2010): The Pedagogy of Physical Science: London, Springer.
- FundaOrnek, IssaM.Saleh (Eds.) (2012): Contemporary Science Teaching Approaches: Promoting Conceptual Understanding in Science: USA, Information Age Publishing Group.
- Jeffrey Michael Reyes, Duncan Andrade, Ernest Morrell (2008): The Art of Critical Pedagogy: Possibilities for Moving from Theory to Practice: New York, Peterlang Publishing Inc.
- John Wallace, William Loudon (2002): Dilemmas of Science Teaching [electronic resource]: perspectives on problems of practice: New York, Routledge.
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EDU – 09 . 9 : CURRICULUM AND RESOURCES IN DIGITAL ERA : NATURAL SCIENCE EDUCATION

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

COURSE OUTCOME (CO):

Enable the student teachers:

- CO 1 To understand the different types of resources for teaching Natural Science.
- CO 2 To locate different reference materials related with Biological Science.
- CO 3 To identify the school and community resources for better Biological Science learning.
- CO 4 To familiarize and understand the natural resources, man-made resources in teaching Natural Science.
- CO 5 To familiarize the different club activities related with Natural Science.
- CO 6 To understand the steps of organizing field trip, excursion, science fair & exhibition.
- CO 7 To understand the different approaches of organizing Biological Science curriculum.
- CO 8 To familiarize the modern trends in curriculum movements in India and abroad.
- CO 9 To familiarize and understand the e-learning resources for teaching Natural Science.
- CO 10 To identify research inputs in genetic engineering, medical field & environmental issues.

CONTENTS :

Unit I	: Resource for Natural Science Curriculum Transaction.
Unit II	: Curriculum Trends in Biological Science.
Unit III	: E – Resources in teaching Learning of Natural Science.
Unit IV	: An Introduction to Research in Biological Sciences

UNIT-I-RESOURCE FOR NATURAL SCIENCE CURRICULUM TRANSACTION (Theory hours-20)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
15. To understand different types of resources. 16. To understand the relevance & scope of different types of resources. 17. To understand, and utilize school based resources in formal and informal learning. 18. To develop skill in designing a high school biology laboratory. 19. To organize different extra-curricular activities related to science teaching. 20. To identify, and utilize different community resources for science learning.	• Different types of resources. • Relevance & scope of different types of resources. • School based Resources For Science Learning: • a. Library –School and Class library-importance and its organization, Types of resources for accessing information-book, non book and web resources. • b. Science laboratory- significance and organization –Designing a high school biology laboratory. • c. Club activities - Science club, Science fair, Exhibition, Manuscript magazine, Field trip & Excursion, Community awareness programme • d. Living corners-Aquarium, Terrarium and Vivarium • e. Different types of garden-Vegetable, Ornamental and Herbal. • f .Text books- qualities of good science text book, Text book analysis. Supplementary reader. • g. Hand book for teachers and Work book for learner. • h. Reference material-encyclopedia, newsletters, magazines, journals. • Community Based Resources For effective Science Learning: • Community resources for science learning- relevance and scope. • Identification of Community resources	Group discussion Seminar PBL Multimedia and interdisciplinary approach. Team teaching. Peer tutoring. Meaningful verbal expression. Organizing & designing science library, science laboratory.	• Quiz programme. • Participation in group discussion. • Questioning. • On-task behavior • Field trip report. • Assignments • Seminar presentation.

	for better science teaching and learning. • Human resources- e.g. Resource persons/ eminent teachers/ personalities/ scientists in the local community. • Natural Resources- e.g. .pond /lake/river/sea/ forest/ wet land/ sacred grooves etc. • Man made Resources- e.g. Museum/ Zoo/ Botanical garden/ Agrifarms / hospital, Krishi VignjanKendrum /Research Center under State & Central government.		
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UNIT II .CURRICULUM TRENDS IN BIOLOGICAL SCIENCE (Theory hours-18)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand the Meaning-functions and Principles of curriculum construction. 2. To familiarize different types of curriculum. 3. To understand and apply the principles of curriculum construction. 4. To understand and compare the curricular movements in national and international level. 5. To understand the types of correlation in the teaching learning process. 6. To understand the importance of correlation in the teaching learning process. 7. To make a Critical analysis of the prevailing secondary school biology syllabus.	• Curriculum-Meaning-functions and, Principles of curriculum construction, • Types of curriculum- subject centered, activity centered, integrated ,core and hidden curriculum. • Approaches to curriculum organization- Topical, Subject, Concentric, Spiral and Integrated/ Correlation approach (Incidental & Systematic correlation). • Factors affecting curriculum organization. • Criteria of a good Natural science curriculum. • Critical analysis of the prevailing secondary school biology syllabus. • Trend in curriculum construction- NCERT(NCF) -Relevant sections of NCF ,Science-basic criteria of validity of a science curriculum, and science curriculum at different stages-outlook and SCERT Curriculum (KCF). • Curriculum reforms in India(NCERT) & abroad (BSCS).	Meaningful verbal expression Group discussion Small group sessions Peer instruction Narrative expression sessions in small or medium groups. Brain storming. Seminar. PBL. Modular approach. Multimedia and interdisciplinary approach. Team teaching. Peer tutoring	• Participation in group discussion. • Questioning. • On-task behavior in class. • Tests. • Science dairy. • Daily reflective journal. • Participant observation.

UNIT III E-RESOURCES IN TEACHING LEARNING OF NATURAL SCIENCE (ICT Materials) (Theory hours-11)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand and compare the Educational CDs developed by SIET, NCERT, IT@ school for the learning of biology at secondary level. 2. To familiarize Web tools related with HS Biology. 3. To familiarize e-journals, e-books related with Biology. 4. To understand about the use of e-resources. 5. To develop a skill in using e-resources. 6. To understand the meaning-relevance & scope of virtual laboratory & virtual dissection. 7. To identify & use virtual laboratory & virtual dissection related with HS Biology.	• An introduction to the contribution of e-learning materials developed by SIET, NCERT ,SAMAGRA, IT@ school& VICTERS for the learning of biology at secondary level. • Web 2.0 tools: Hot Potatoes , Edublog. • An introduction to e-journals, e-books related with Biology • Meaning-relevance & scope of virtual laboratory & virtual dissection.	Modular approach. Multimedia and inter disciplinary approach. Team teaching. Peer tutoring Meaningful verbal expression Group discussion Using internet effectively for collecting information.	• Participation in group discussion. • Questioning. • On-task behavior • Report of video analysis. • Involvement in using e-journals, e-books related with Biology. • Involvement in using virtual laboratory & virtual dissection.

UNIT-IV AN INTRODUCTION TO RESEARCH IN BIOLOGICAL SCIENCES(Theory hours-11,)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
- To understand research inputs in genetic engineering, medical sciences & Environmental issues. - To understand the emerging challenges related with organ transplantation. - To get an idea about the importance of family farming. - To get an idea about the existing waste disposal measures in a scientific way. - To suggest innovative measures to waste disposal.	4.1 Research inputs in genetic engineering (Give brief introduction about Human Genome Project, Tissue culture). 4.2 Research inputs in medical sciences (Meaning and scope of Organ transplantation- a new hope for life, Nano-technological applications in medical field) 4.3 Research inputs in Environmental issues (Family farming, waste disposal).	Multimedia and inter disciplinary approach. Team teaching. Peer tutoring Meaningful verbal expression Group discussion Assignment Seminar	- Peer tutoring - Meaningful verbal expression - Group discussion - Assignment - Seminar presentation.

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- http://en.wikipedia.org/wiki/Technological_Pedagogical_Content_Knowledge
- <http://www.amazon.com/books/dp/0805863567>
- <http://ictevangelist.com/technological-pedagogical-and-content-knowledge-for-educators>
- How the web will change the classroom by Mohan, R.,(2007).
- <https://d1jt5u2soh3gkt.clc>

EDU - 09.10 : CURRICULUM AND RESOURCES IN DIGITAL ERA: SOCIAL SCIENCE EDUCATION
(Theoretical Discourses -50 Marks/60 hours & CE-25 Marks /30 hours)

COURSE OUTCOME (CO):

- CO 1 To get acquainted with modern principles and trends in the construction and organization of Social Science curriculum
- CO 2 To become equipped in retrieving suitable teaching learning resources
- CO 3 To attain proficiency in IT enabled instructional resources and to become talented in applying innovative strategies and approaches for instructional effectiveness.
- CO 4 To generate a broad perspectives of e-resources in instructional practices and to develop skill in retrieving and transacting Social Science curriculum through e-resources.
- CO 5 To develop a positive attitude towards research for curriculum development and to adopt& develop innovative teaching learning strategies.

Contents :

Unit 1	Curriculum Designing in Social Science Education
Unit 2	School and Community Based Instructional Resources in Teaching Social Science
Unit 3	Resource Mapping in Social Science.
Unit 4	Research Trends in Social Science Education

Unit 1: Curriculum Designing in Social Science Education (7 Hours + 4 Hours)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
2. To get acquainted with modern principles and trends in the construction and organization of Social Science curriculum 3. To become conversant with NCF and KCF to develop approaches to Social Science Education	- Curriculum – Concept, Principles of designing Social Science curriculum - Approaches, types of curriculum, Modern trends in designing Social Science curriculum. - Brief outline about NCF (2005) KCF (2007) and its approaches in Social science curriculum formation.	Analytical approach Seminar Co-operative learning Prepare a paper on NCF and KCF and its approaches to Social Science curriculum.	Seminar with slide presentation (CE- Edu. 09)

References

- <http://www.ncert.nic.in/html/pdf/schoolcurriculum/framework>
- <http://www.ssamis.com/web/downloads/KCF 2007.pdf>
- <http://www.case.edu/artsci/engl/emmons/writing/pedagogy>
- Rao, Bhaskara (2005) Curriculum for Learning to Live Together. New Delhi: Discovery Publishing House.
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- Dash, B. N. (1998). Content cum Methods of Teaching Social Studies. Ludhiana: Kalyani Publishers.
- Edigar, M. & Rao, B. (2003). Teaching Social Studies Successfully. New Delhi: Discovery Pub. House.
- NCF (2005) and KCF (2007)

Unit 2 : School and Community Based Instructional Resources in Teaching Social Science (8 Hrs + 4 Hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
To identify and to utilize community resources for the effective transaction of Social Science Curriculum	- Community Resources- meaning, nature, need and scope in Social Science. - School to community and community to school- Resources- Historical- Palace, museum, caves, forts, archives etc, Geographical- Planetarium, Mountains, seashore, rift valley etc, Political- Gramasabha, Panchayat, Legislative assembly, memorials etc, Economical- market, bank, stores etc.	Discussion Prepare a list of community recourses- discuss and present the ways to utilize the community recourses Visit to any one of the community resources.	Field trip to any one site with action plan and report (Practical Sem.2)

References

- <http://cricap.org>
- <http://www.ehow.com/>
- cum Methods of Teaching Social Studies. Ludhiana: Kalyani Publishers.
- Edigar, M. & Rao, B. (2003). Teaching Social Studies Successfully. New Delhi: Discovery Pub.House. [http://Aggarwal, J.C. \(1996\) A Practical Approach. New Delhi : Vikas Publishing House Pvt. Ltd.](http://Aggarwal, J.C. (1996) A Practical Approach. New Delhi : Vikas Publishing House Pvt. Ltd.)
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Unit 3: Resource Mapping in Social Science

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
4. To generate a broad perspectives of different - resources in instructional practices 5. To develop skill in retrieving and transacting Social Science curriculum through different resources	• Effective use of Print Media in Social Science learning • Need for Social Science Laboratory Concept of Time sense and place sense in Social Science learning. • Role of Library in Social Science Education • The need and role of Social Science clubs in community related curricular programme	Discussion Developing social science laboratory Preparation of catalogue for Social Science Library	• Use e-resources to prepare any 4 learning materials • Test for units 1,2 & 3 (CE-Edu. 09)

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- Ehman & Patrick (1974). Towards Effective Instruction in Social Studies. USA: Houghton Mifflin.

4. Research Trends in Social Science Education

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
6. To develop a positive attitude towards research in the curriculum development process and to utilize the research findings in the teaching learning process.	- An introduction to Research in Social science Education- Need and importance - Teacher as a researcher in Social science - Analysis of Research outcomes in the teaching and learning of Social Science education.	Group Discussion Prepare a paper (utilizing internet) on the latest research findings on pedagogical aspects in Social science education and conduct a seminar.	Observe the participation of student teachers in the learning process

Reference

- <http://www.edu.plymouth.ac.uk/resined/actionresearch/arhome.htm>
- Best, John.W& Kahn, James.V. (1999). *Research in Education*. Boston: Allyn and Bacon.
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EDU - 10.2:Techno Pedagogic Content Knowledge Analysis: English

HOURS OF INTERACTIONS: 60 (Instructions) + 30(Activities/Processes) = 90 Hrs

Objectives

- ☐ To familiarize with concept of teacher as a Techno-pedagogue.
- ☐ Identity ways of networking both for knowledge enrichment and instruction.
- ☐ Familiarize with the scope and possibilities of Models of teaching as an instructional design.
- ☐ Develops an awareness of global trends in English Language education.

Contents

- Unit I : TPACK and Self Instructional Strategies (Duration : 25 hrs)
Unit II: Networking in language learning (Duration :20 hrs)
Unit III: Models of Teaching in Language Practice (Duration :25 hrs)
Unit IV: Global Trends in English Language Education (Duration : 20 hrs)

Unit I :TPACK and Self Instructional Strategies (Duration : 25 hrs)

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. Familiarizes with the concept of teacher as Techno-pedagogue 2. Identifies the inter-relationship between Content Knowledge, Pedagogic Knowledge and Technological Knowledge	☐ Techno-Pedagogy ☐ Content Knowledge ☐ Pedagogic Knowledge ☐ Technology Knowledge ☐ Teacher as a Techno-Pedagogue ☐ Nature and scope of Self instructional Strategies ☐ Programmed Instruction - Linear-Branching ☐ Self Instructional modules ☐ Computer Assisted Instruction(CAI) ☐ Computer Based Instruction (CBI) ☐ Computer Assisted Language Learning (CALL)	Comparison of same content available in different digital formats Group task to identify effectiveness of different digital content in realizing proposed learning objectives. Demonstration of teaching content with	☐ Preparation of computer-based instructional material

		computer as aid and exclusively using computer Pair and group work to prepare computer-based instructional materials	
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Unit II: Networking in language learning (Duration :20 hrs)

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. Familiarizes with ways of exploiting Internet resources for both knowledge enrichment and instruction 2. Develops necessary skills for transmission of information and content using websites	☐ Networking: ☐ Teacher –Teacher; Teacher-Institution; Teacher-Student ☐ Forum , Wiki, Blog ☐ Video Conferencing ☐ Professional communities -English ☐ Teacher Blogs ☐ Teacher Tube ☐ ESL Café ☐ LinkedIn ☐ Content writing ☐ Copy Writing ☐ Outsourcing ☐ Transcription ☐ Learning Management System ☐ Scope ☐ Storage ☐ Collaboration	Introductory talk Demo in Smart Classroom Pair-share Collaborative tasks	☐ Group presentation ☐ Monitoring of activities in virtual world ☐ Checking Popularity on Web

Unit III: Models of Teaching in Language Practice (Duration :25 hrs)

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. Familiarizes with Models of Teaching as an instructional design and identifies ways of employing them for teaching Prose, Poetry, Vocabulary and Grammar	☐ *Dimensions of a Model- Syntax, Social System, Principles of Reaction, Support System Instructional and nurturant effects ☐ -Direct Instruction Model ☐ -Concept Attainment Model ☐ -Advance Organizer Model ☐ ☐	Distribution of Specimen Lessons based on specific Models Group tasks for preparing lessons based on specific Models Assimilation and accommodation	☐ Ability to transact the content/ realize objectives in the plans prepared ☐ Checking effectiveness of Lesson Plans based on specific Models for chosen content

Unit IV: Global Trends in English Language Education (Duration : 20 hrs)

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. Familiarizes with global trends in Language education 2. Familiarizes with aspects related to translation 3. Gets an awareness of digital resources for Online tutoring	☐ Exercises and pedagogic practices in countries where English is treated as L ₁ ☐ Exercises and pedagogic practices in Asian countries as ESL ☐ Literary Translation as a language exercise. ☐ Journal Clubs – Review and discussion of studies and articles in Journals	Lecture-cum-discussion on different pedagogical practices. Close reading of literary texts followed by group translation	☐ Prepares samples ☐ Peer evaluation ☐ Performance in tests

	☐ Production of digital resources for Online tutoring	Comparison of articles in journals and magazines to identify form and style required for journal articles followed by critique of articles written by peers Critique of specimen digital resources followed by design and preparation of digital resources for Online tutoring	
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References

Books:

- ☐ Lesley, Farrel (etal.) Eds.) **English Language Education in SouthAsia: From Policy to Pedagogy**. Cambridge University Press.
- ☐ Joyce, Bruce and Marsha Weil.(1972) **Models of Teaching**. Prentice Hall Inc. ; Englewood Cliffs.
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- ☐ **Models of Teaching: A solution to the teaching style/learning style dilemma**. Susan S. EllisEducational Leadership. January 1979.P274-77.

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- ☐ **CALL (computer assisted language learning):** <https://www.llas.ac.uk/resources/gpg/61>
- ☐ **Collaborating with Wikis:** <http://tewt.org/index.php/discussion-collaboration/wikis>

- **Content Based Instruction in EFL Contexts.** Stephen Davies, :The Internet TESL Journal, Vol. IX, No. 2, February 2003. <http://iteslj.org/Articles/Davies-CBI.html>
- **Critical ELT Practices in Asia Key Issues, Practices, and Possibilities.** : Kiwan Sung and Rod Pederson (Eds.) Transgressions: Cultural Studies and Education Volume 82. Sense Publishers <https://www.sensepublishers.com/media/209-critical-elt-practices-in-asia.pdf>
- **Educational Blogging:** <http://tewt.org/index.php/discussion-collaboration/blogs>
- **E-tivities with a Wiki: Innovative Teaching of English as a Foreign Language:** <http://eunis.dk/papers/p87.pdf>
- **How to Write and Publish an Academic Research Paper:**
http://www.journalprep.com/FILES/How_to_Write_and_Publish_an_Academic_Research_Paper.pdf
- Online reading material**
- http://www.gutenberg.org/wiki/Main_Page
- <http://onlinebooks.library.upenn.edu/archives.html>
- Online tutoring platforms**
- <https://buddyschool.com/>
- <http://www.tutorvista.co.in/index.php>
- <https://www.smarthinking.com/services-and-subjects/services/live-online-tutoring/>
- **Rubrics for Web Lessons:** <http://webquest.sdsu.edu/rubrics/weblessons.htm>
- **Select Podcasting Sites:** English as a Second Language Podcast: <http://www.eslpod.com>
- **Specimen Linear Programme for teaching Grammar:** <http://programmedinstruction.tiddlyspot.com/#Nouns-17>
- **Teaching English in the Digital Age:** <http://digitalenglish.weebly.com/>
- **Translation activities in the language classroom:** <https://www.teachingenglish.org.uk/article/translation-activities-language-classroom>
- **Using computers in language teaching:** <http://esl.fis.edu/teachers/support/teach.htm>
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- What is technological pedagogical content knowledge?:** Koehler, M. J., & Mishra, P. (2009), Contemporary Issues in Technology and Teacher Education.9(1), 60-70.<http://www.citejournal.org/articles/v9i1general1.pdf>
- **Writing a journal article review:** <https://academicskills.anu.edu.au/resources/handouts/writing-journal-article-review>
- **12 Content-writing secrets of professional writerThe Advanced Content Marketing Guide.** Neil Patel and Kathryn Aragon. <http://www.quicksprout.com/the-advanced-guide-to-content-marketing-chapter-5/>

EDU 10.7 : TECHNO- PEDAGOGIC CONTENT KNOWLEDGE ANALYSIS: MATHEMATICS

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

COURSE OUTCOME (CO):

- **CO1:**To undertake a self-empowerment initiative in transacting the Mathematics curriculum from a Techno-
- **CO2:** Pedagogical Content Knowledge perspective
- **CO3:** To get acquainted with different aspects of collaborative use of information communication technology
- **CO4:** To gain a perspective of basic theories and guiding plans for effective transaction of Mathematics.
- **CO5:** To understand the nature and importance of Mathematics from a global perspective

Contents:

Unit 1: Techno-Pedagogic Content Knowledge and Self Instructional Strategies

Module 2: Networking in Mathematics Learning

Module 3: Models of Teaching in Practice

Module 4: Global Trends in Mathematics Education

Unit 1: Techno-Pedagogic Content Knowledge and Self Instructional Strategies

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1. To acquaint with the concept, meaning and scope of techno-pedagogic Content knowledge 2. To understand the	Techno-pedagogue -Concept, meaning and scope _ Role of teacher as a techno-pedagogue _ Concept of TPCK _ Interrelationship of Content knowledge,	Group discussions Seminars Meaningful verbal presentation	_ Summative evaluation _ Performance analysis in group discussions

role of the teacher as a techno-pedagogue 3. To enable the student teacher to generate and transact TPCK based content analysis of Secondary school text books and CD resources to help students to practice self-instructional strategies	pedagogic knowledge and technological knowledge _ Scope and challenges of TPCK _ Generation and transaction of TPCK based content analysis of secondary school textbooks and CD sources ,	Power point presentations Illustrations Online assignment Using the possibilities of blogs in networking Video clippings	_ Observation _ Participation in the Seminar Sessions _ Examples cited in their lecture note _ dramatisation
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Unit II: Networking in Mathematics Learning

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1. To familiarise the student teachers with net working as a means of personal and professional growth	Networking - Meaning and scope *Networking in learning Mathematics	Demonstrations Illustrations Video clippings Debating	_ Document analysis _ Student reports - Digital document analysis - Blog posting

of teachers	*Concept of E-twinning for institutional/professional growth	Web based illustrations	
2. To provide hands on experience in online learning	*creation of personal e-mail ID and BLOGS with a minimum of 5 posts for promoting the teaching and learning of Mathematics	Power point presentations	(Practicals) o Creation of blog and posting

Unit III: Models of Teaching in Practice

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1. To understand models of teaching 2. To understand the application of major psychological theories	Concept of a model of teaching _ - Components of a teaching model _ - Families of teaching models _Detailed study and practice on Concept of Attainment Model , Inquiry Training Model and constructivist model	- Meaningful verbal expression - Group discussion - Peer tutoring - Observation - Brain storming - Video analysis	Performance analysis in group discussion Class test Observation Preparation of lesson templates using Models of Teaching (Discussion, Demonstration & criticism lessons)

Unit IV:Global Trends in Mathematics Education

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1.To compare mathematics education across the world 2.To identify recent projects in science teaching in India	• Comparison of Mathematics Education in World Wide –Mathematics teaching Japan, USA UK and India Recent projects in Mathematics teaching in India- it@school,Samagra, OFSET,	- Web streaming - Documentation - Invited lectures - Seminar	- Document analysis - Blog posting

Suggested references books :

- _ Aggarwal, J.C. (2001). *Principles, Methods & Techniques of Teaching (2nd ed.)*. New Delhi: Vikas Publishing House Pvt. Ltd.
- Bode, H. B. (1927). *Modern educational theories*. New York: Macmillan.
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EDU – 10.8: TECHNO-PEDAGOGIC CONTENT KNOWLEDGE ANALYSIS – PHYSICAL SCIENCE

(Theoretical Discourses - 60 hrs, CE - 30

hours)

COURSE OUTCOME (CO):

- CO 1 To undertake a self-empowerment initiative in transacting the Physical Science curriculum from a Techno-Pedagogical Content Knowledge perspective
- CO 2 To get acquainted with different aspects of collaborative use of information communication technology
- CO 3 To gain a perspective of basic theories and guiding plans for effective transaction of physical science
- CO 4 To understand the nature and importance of physical science from a global perspective

Contents:

Unit 1: Techno-Pedagogic Content Knowledge and Self Instructional Strategies

Unit 2: Models of Teaching in Practice

Unit 3: Networking in Physical Science Learning

Unit 4: Global Trends in Physical Science Education

Unit 1: Techno-Pedagogic Content Knowledge and Self Instructional Strategies (15 + 8 =23 hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To conceptualize the basic principles of Techno-Pedagogic Content Knowledge Analysis in Physical Science Teaching and Learning 2. To identify the role of science teacher as a techno-pedagogue 3. To understand various Self Instructional Strategies	• Techno-Pedagogic Content Knowledge Paradigm- Interrelationship of Content Knowledge, Pedagogic Knowledge and Technological Knowledge, • TPACK based content analysis of selected units of the secondary readers in Physical Science. • Science teacher as a techno-pedagogue. • Techno - pedagogic competencies- identification and use of various technological resources and devices for teaching-learning • Self Instructional Strategies- Meaning, Types- Programmed Instruction (Linear, branching), Modular Instruction, Personalized System of Instruction, CAI and CMI	Small group discussion Documentation Web searching Self-study Power Point Presentations Seminar Didactic Questioning	• Participant observation • Documentanalysis • On-task behaviour in class • Reflective journal

Unit 2: Models of Teaching in Practice (25 +20 = 45 hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand the applications of major psychological theories 2. To familiarize with various thinking skills 3. To understand the models of teaching	• Application of Psychological theories of Piaget, Bruner, Gagne, Vygotsky and Ausubel, and Gardner • Thinking skills – logical thinking, critical thinking, creative thinking, reflective thinking • Models of teaching-Concept Attainment Model, Inquiry Training Model, Advance Organiser Model, and 5E model	• Meaningful verbal expression • Group discussion • Peer tutoring • Observation • Brain storming • Video Analysis	• Analysis in group discussion • Class test

Unit3: Networking in Physical Science Learning (14 +10 = 24 hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand the role and purposes of networking in learning physical science	• Networking - Meaning and scope • Networking in learning of Physical Science-Purposes Types- Technical, Personal and Institutional	Net surfing Blog reading Invited lectures Digital Modular Expositions	• Digital document analysis • Blog posting • Debate • Online test

Unit 4: Global Trends in Physical Science Education (18 +10 = 28hrs)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To compare science education across the world 2. To identify recent projects in science teaching in India	1. Comparative Science Education World Wide with special emphasis to secondary science curriculum approaches, transactional strategies and learning outcomes - Science teaching in Finland and Canada. 2. Recent projects in science teaching in India –KITE (IT@School project) – objectives and scope – samagra-VICTERS	Web streaming Documentati on Invited Lectures	• Document analysis • Blog posting

Reference:

- AACTECommittee(2008):HandbookofTechnologicalPedagogicalContentKnowledge(TPCK)forEducators:Washington,DC,Rutledge/Taylor&Francis
- BhattacharyaS.P.(1994):ModelsofTeaching:NewDelhi,RegencyPublications.
- BruceR.Joyce,MarshaWeilandEmilyCalhoun(2011):ModelsofTeaching(7thEd.):USA,PearsonEducation
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- FrankRennie,TaraMorrison(2013):e-LearningandSocialNetworkingHandbook:ResourcesforHigherEducation:NewYork,Taylor&Francis.
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- Murshid al Muallim: Richard D. C ; Aalam al Kutub alQahira
- AlThadreesAhdafuhuwausasuhowaAsaleebuhuThaqweemuNathaijuhuwaThathbeeqathuhu:DrFikriHasanRayan,Aalmalkutub ,alqahira
- MadkhalIlaTharbiyaalmuthamayyizeenawalMauhoobeen,DaralfikarlialthibaawaNashr
- Kuthub al Mudariseenilmadaris al thanawiyya: Majli al wilayalilbuhuzuthabaviyyawathadreeb
- Altharbiyawathuruquthadrees:SalihabdulAzeez& AbdulAzeezAbdulMajeed; DaralMaarif,AlQahira
- KaifaThulqiDarsak:Yabhasufiusoolialtharbiyathwathadrees,DaralImlilMalayeen,Bairut.
- AlMuwajjahalAmaliliMudarriseeal LughaAl Arabiyya:AbidThoufeeqaHashmi;AlRisalapublishingHouse,Bairoot
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- Teaching Strategies: A guide to better instructions, HMCo. NewYork
- Research in Education; Best J W, & Kahn J.V, prentice hall India PvtLtd.

EDU – 10. 9 : TECHNO-PEDAGOGIC CONTENT KNOWLEDGE ANALYSIS -NATURAL SCIENCE.

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

COURSE OUTCOME (CO):

Enable the student teacher:

- CO 1 To develop understanding and application of Techno-Pedagogic Content Knowledge Analysis
- CO 2 To develop skill in preparation and practice of Technology Enhanced Learning Materials.
- CO 3 To understand and apply Online Assessment and Competency Enhancement Avenues.
- CO 4 To identify Net Working as a means of Personal and Professional Growth
- CO 5 To understand Classroom Management Principles Essential for Effective Pedagogic Transaction.
- CO 6 To get an idea about Global Trends in Science Education.
- CO 7 To familiarize The Modern Trends in Science Education at Global Level.
- CO 8 To get an idea about Self Instructional Strategies.
- CO 9 To understand about Self Instructional Strategies.
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CONTENTS :

Unit – I : Techno - Pedagogic Content Knowledge (TPCK) .

Unit – II : Networking in Science Learning.

Unit – III : Models of Teaching & Self-instructional Strategies.

Unit – IV : Global Trends in Natural Science Education.

UNIT. I TECHNO PEDAGOGI CONTENT KNOWLEDGE (TPCK) :A CONCEPTUAL ANALYSIS.
(Hours-22)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand about the conceptual analysis of Technological Pedagogical Content Knowledge (TPCK) 2. To understand and find interrelationships of different areas of TPCK 3. To develop skill in Technological Pedagogical Analysis of Content Knowledge (TPCK) of Secondary School Biology.	• Technological Pedagogical Analysis of Content Knowledge (TPCK)-meaning and scope. Different knowledge areas of TPCK- • Content Knowledge (CK), • Pedagogical Knowledge (PK), • Technology Knowledge (TK) • Pedagogical Content Knowledge (PCK), • Technological Content Knowledge (TCK), Technological Pedagogical Knowledge (TPK), and • Technological Pedagogical Content Knowledge (TPCK). • Interrelationships of different areas of TPCK • Science teacher as a techno-pedagogue • Technological Pedagogical Content Knowledge Analysis of Secondary School Biology.	Meaningful verbal expression. Group discussion. Narrative expression sessions in small or medium groups. Multimedia and interdisciplinary approach. Team teaching. Peer tutoring	• Participation in group discussion. • Questioning. • On-task behavior in class. • Tests. • Science diary. • Daily reflective journal • Participant observation • Report of Technological Pedagogical Content Knowledge Analysis of Secondary School Biology.

UNIT-II NETWORKING IN SCIENCE LEARNING (Hours-18)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
- To understand the meaning & scope of networking in science teaching. - To develop skill in Networking through different ways. - To develop skill in the preparation and practice of ICT and Multimedia based materials in the teaching learning process of science - To develop skill in the preparation and practice of online assessment tools in science teaching learning process. - To understand different competitive examinations for teachers. - To understand the Educational entrepreneurship - Career possibilities for trained graduate and post graduate science students	Networking- meaning and scope of Net working in science learning. Development of one Blog for Natural science class and 5 postings by each student for promoting teaching learning/social issues/challenges etc. e-twinning- means for institutional and professional growth. ICT and Multimedia as technology enhanced communication devises in the teaching of life science- Collection/ Preparation of e-materials for pedagogic transaction of secondary school biology syllabus including environmental issues affecting local community(Power points, video clippings, pictures, instructional materials) Online assessment- -meaning and scope, down load an Online quiz maker and use it during practice teaching. Competitive examinations for secondary school students – Science Talent Search Scheme, Science Olympiad, Google science fair. Competitive Examinations for teachers - KTET,CTET , SET,CSIR &	Group discussion Seminar Personality profile presentation Reflective practices. PBL Multimedia and interdisciplinary approach. Team teaching. Peer tutoring Net working e-twinning Blog posting	- Online assessment - Quiz programme. - Participation in group discussion. - Questioning. - On-task behavior. - Student's portfolio. - Blog posting - Net working - e-twinning - Preparation of e-materials - Online Assessment

	UGC NET. • Educational entrepreneurship - Career possibilities for trained graduate and post graduate science students.		
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UNIT-III MODELS OF TEACHING & SELF INSTRUCTIONAL STRATEGIES (Hours-15)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To understand the basic elements in the models of teaching 2. To develop skill in selecting suitable models of teaching for transacting pedagogy. 3. To develop and design lesson plans based on Concept Attainment Model(CAM), Inquiry Training Model(ITM), 5E Model of BSCS,& Inductive Thinking Model.. 4. To develop skill in selecting suitable self-instructional strategies for transacting pedagogy. 5. To understand about Computer Assisted Instruction (CAI).Its advantages & disadvantages. 6. To understand &prepare Modules.	• Models of teaching: Introduction, Elements and Families of models of teaching. • Concept Attainment Model(CAM), • Inquiry Training Model(ITM), • 5E Model of BSCS, • Inductive Thinking Model • Self Instructional Strategies- An overview about Self Instructional Strategies, advantages & disadvantages. • An introduction to Computer Assisted Instruction(CAI), its advantages & disadvantages. • Modules, its advantages & disadvantages.	Meaningful verbal expression Group discussion Small group sessions Peer instruction Narrative expression sessions in small or medium groups. Brain storming. PBL. Modular approach. Multimedia and interdisciplinary approach. Concept Attainment	• Participation in group discussion. • Questioning. • On-task behavior in class. • Tests. • Science dairy. • Daily reflective journal • Lesson plans based on models of teaching. • Module preparation

		Model(CAM) Inquiry Training Model(ITM) 5E Model of BSCS Inductive Thinking Model	
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UNIT-IV GLOBAL TRENDS IN SCIENCE EDUCATION. Hours-5)

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
1. To familiarize & understand about the global trends in education.	- An introduction to global trends in education - University & Career readiness - Individualized learning	Narrative expression sessions in small or medium groups. Meaningful verbal expression Multimedia approach Discussion	- Participation in group discussion. - Questioning. - On-task behavior in class. - Tests. - Science dairy.

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EDU – 10.10 : TECHNO PEDAGOGIC CONTENT KNOWLEDGE ANALYSIS – SOCIAL SCIENCE

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

COURSE OUTCOME (CO):

- CO 1 To conscientize the prospective teachers become a techno- pedagogue and become aware of the concept TPCK
- CO 2 To grow to be competitive in designing digital texts and e-content in Social Science
- CO 3 To familiarize with the networking system for institutional and professional growth.
- CO 4 To get acquainted with the need of creating e-mail and blogs for pedagogical analysis.
- CO 5 To prepare the prospective teachers as reflective practitioners

Contents :

- Unit 1 Techno Pedagogic Content Knowledge Analysis (TPCK) and Self Instructional Strategies
- Unit 2 Networking in Social Science Learning
- Unit 3 Models of Teaching in Social Science.
- Unit 4 Global Trends in Social Science Education

Unit 1 Techno Pedagogic Content Knowledge Analysis (TPCK) and Self Instructional Strategies

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
7. To conscientize the prospective teachers become a techno-pedagogue 8. To become aware of the concept TPCK 9. To become capable of analyzing content based on technology 10. To get aware on self instructional strategies.	• Inter relationship between Technology, Pedagogy and Content. • Teacher as Techno-Pedagogue in Social Science • Scope and purpose of Techno-Pedagogic Content Knowledge Analysis. • Self Instructional Strategies: Importance • Programmed instruction • CAI and CMI • Instructional modules	Meaningful verbal learning On line learning Group discussion TPCK based content analysis (Selected units of secondary/ higher secondary text books)	• Prepare a self explanatory note on ‘Teacher as a Techno-Pedagogue’ • TPCK based Content analysis on any one unit. • Video script developing & recording & uploading • (CE- Edu.10)

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Unit 2 Networking in Social Science Learning

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
11. To grow to be competitive in designing digital texts and e-content in Social science. 12. To become empower in surfing digital resource for transacting Social science curriculum.	• Applications of Social Networking systems Professional and Institutional growth: Through network-twinning • Concept of e- resources, Web resources, social networking, Educational blogs, e-journals, e-learning, m- learning, web based learning. virtual learning. • Learning Management System (LMS) in the teaching- learning of Social science. IT enabled instructional resources: On line resources, videos, YouTube resources, animations, film clippings.	Discussion Online learning Demonstration Workshop	• Observation • Report verification

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- Hoole H.S. Ratnajeewan & Hoole Dushyanthi. (2005). Information and communication technology. New Delhi: Foundation Books PVT. LTD.
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- Prasad Janardan, (2007). Audio Visual education. Teaching innovative technique. New Delhi: Kanishka Publishers.
- Rejeseakaran S. (2007) Computer Education and Educational Computing, New Delhi: Neel Kamal Publishing Pvt. Ltd.
- Roblyer, M.D. (2008). Integrating educational technology into teaching. New Delhi: Pearson.
- Sagar Krishna, (2005). ICT Teacher training. New Delhi : Global Network
- Kumar, S.P.K & Noushad, P.P. (2009). Social Studies in the Classroom: Trends and Methods.
- <http://blog.efrontlearning.net>
- <http://www.e-learningforkids.org/courses.html>
- <http://www.teacher.ne>

Unit 3 Models of Teaching Social Science

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
13. To acquaint with the concept, families and selected items of Models of Teaching 14. To acquaint with practice of developing lesson transcripts based on selected Models of Teaching.	- Models of teaching – Introduction, Operational Heart, Different families - Concept Attainment Model with lesson transcripts - Advance Organizer Model with lesson transcripts - Group Investigation Model with lesson transcripts. - Jurisprudential model & Inquiry Training Model	Scaffolding strategies Demonstration Simulation Online learning	- Discussion lesson-5(ICT-1, activity based-1, Models-3) - Demonstration- 2 (Models) - Criticism (5) (Practicals – sem-2)

References

- <http://www.guardian.co.uk/higher-education-network/>
- Kumar, S.P.K & Noushad, P.P. (2009). Social Studies in the Classroom: Trends and Methods.
- Joyce, B & Weil, M. (2003). *Models of Teaching* (5th Ed.) New Delhi: Prentice Hall Aggarwal, J.C. (2003). *Teaching of Social Studies: A Practical Approach*.

Unit 4 Global Trends in Social Science Education

Course Specific Outcome (CSO)	Major concepts	Strategies & Approaches	Assessment
15. To help the prospective teachers for comparative study of social science education in a global perspective.	- Global trends in Social Science education - Social Science education in other states and other Nations.	Discussion – Web searching. Seminar- compare SS	Assignment & seminar report

	• Role of Social Science in inculcating Democracy Socialism & Secularism National Brotherhood and International Understanding	curriculum & Text books of SCERT, NCERT and any one advanced nations. With reference to the presentation of content on these aspects	
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- **References**

- http://en.wikipedia.org/wiki/Reflective_practice
- <http://tep.uoregon.edu/showcase/crmodel/strategies>
- Borich, Gary D (2012). Effective teaching methods: Research based practice. New Delhi: Pearson Education
- Social Science text book of standard 8,9 & 10 of Kerala
- Teachers' Hand book in Social Science for standard 8,9 &10 -- NCERT Text Books.Singh and Gopal (2004) Teaching Strategies. New Delhi: APH Publishing Corporation.
- Raj, Rani Bansal (1999). Models of teaching and concepts of learning. New Delhi: Anmol Publications.
- Aggarwal, J.C. (2003). Teaching of Social Studies: A Practical Approach. Mumbai:Vikas Publishing House.
- Kumar, S.P.K &Noushad,P.P.(2009). Social Studies in the Classroom: Trends and Methods.

EDU - 09.2: Curriculum and Resources in Digital Era: English Education.

(Theoretical Discourses – 60 & CE – 30 hours)

Objectives :

- ☐ To familiarize with concepts related to Curriculum and Syllabus.
- ☐ To develop an understanding of the need and scope of school-community linkage.
- ☐ To identify and critique different types of Course Books.
- ☐ To explore possibilities of collaborative and cooperative learning.
- ☐ To sensitize with ways of engaging classes in inclusive settings.
- ☐ To evoke a need to regularly update research in the field of ELT

Contents:

- Unit I** Curriculum Designing in English Education
Unit II: Community Based Teaching and Learning of English
Unit III: E-Resources in Teaching & Learning of English
Unit IV: Research Inputs in English Learning

Unit I: Curriculum Designing in English Education (Duration :25 hrs)

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. Familiarize student teacher with the principles of curriculum construction and organization 2. Grasp the relationship between curriculum and Syllabus	☐ Principles of Curriculum construction and organization ☐ NCF 2005, 2009, KCF 2007 ☐ Critical Pedagogy ☐ Social constructivism ☐ Curriculum and Syllabus, Curriculum-Types ☐ Language Curriculum ☐ Philosophical and Sociological	Direct instruction Intro talk on the different Frame work available Verbal interaction Preparation of Check list and group	☐ Evaluation of entry made in Reflective Journal

	perspectives, Psychological and Linguistic Foundations ☐ Criteria for Selection of content ☐ Course book, Sourcebook	analysis of CB	
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Unit II: Community Based Teaching and Learning of English (Duration :20 hrs)

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. Acquaint with teaching and learning resources available in formal and informal contexts	☐ Teaching and learning resources ☐ Formal & Informal learning contexts ☐ Role of Language Institutes and Local Library for learning English ☐ Society as Language Lab – FilmTheatre ☐ Literary clubs, Language forums ☐ Interview and Talk by experts ☐ ☐ Inclusive Education- Concept, Need and significance; Ways of dealing with learners with LD/ Children with Special needs	Field visit Hands-on experience Group discussion Sharing of learning experience	☐ Surveying ☐ Checklist ☐ Presentation of Field visit reports

Unit III: E-Resources in Teaching & Learning of English (Duration :25 hrs)

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. To analyze instructional materials in print and digital form for effective transaction	☐ Educational Websites ☐ Virtual Classrooms ☐ On line language games- vocabulary, grammar, spelling etc. ☐ E-Library ☐ E-resources for Prose ☐ Film adaptations - literature and social issues ☐ Audio podcasts ☐ Speeches ☐ Pronunciation and Conversation practice Online ☐ E-resources for Poems ☐ Critique of poems on websites ☐ Exploring text types Online ☐ Descriptive – Narrative- Expository-Argumentative ☐ Recitation	Presentation of specimen digital resources followed by critique on effectiveness Individual /Pair work Exploring online resources and preparing report	☐ Performance evaluation ☐ Participant observation

Unit IV: Research Inputs in English Learning (Duration : 20 hrs)

Learning Outcome	Major concepts	Strategies & Approaches	Assessment
1. To enable student teachers to promote student effort in learning	☐ Research in English Language Education and Second Language Pedagogy ☐ Identifying and locating significant concerns related to language learning	Intro lecture Enquiry centred discussion	☐ Style of presentation ☐ Performance ☐ Examine communicative competence

	☐ Action Research ☐ Investigating any one learner issue ☐ Review of Recent Research Studies in English Language ☐	Group tasks by assigning specific roles	
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Reference

Books:

- ☐ Aggrawal, J.C. (2002). Educational Research –An Introduction. New Delhi, Arya Book Depot.
- ☐ Borg, Simon and Hugo Santiago Sanchez. (2015). International Perspectives on Teacher Research. Palgrave. ISBN 9781137376206.
- ☐ Burns, Anne. (1999). Collaborative Action Research for English Language Teachers. Cambridge University Press.
- ☐ Ellis, Rod. (2011). Language Teaching Research and Language Pedagogy. Wiley-Blackwell ISBN: 978-1-4443-3610-8
- ☐ Howatt, A. (1984) A History Of English Language Teaching. Oxford University Press.

Journals:

- ☐ Interdisciplinary Strategies for English and Social Studies http://apcentral.collegeboard.com/apc/public/repository/ap04_preap_1_inter_st_35891.pdf
- ☐ Issue Theme: Interdisciplinary Synergy: Teaching and Learning in Collaboration. English Journal, Vol 103. No. 3 January 2014 <http://www.ncte.org/journals/ej/issues/v103-3>
- ☐ The sociology of language teaching and learning. Ravi Bhushan, Theory and Practice in Language Studies, Vol. 1, No. 3, pp. 309-311, March 2011.

Select Online resources:

- ☐ Characteristics of a virtual classroom <http://www.learndash.com/characteristics-of-a-virtual-classroom/>

Curriculum

- ☐ <http://www.preservearticles.com/2012010920286/the-main-principles-of-curriculum-construction-may-be-mentioned-as-under.html>
- ☐ <http://www.differencebetween.info/difference-between-syllabus-and-curriculum>

How to Critique Poetry

- ☐ <http://www.wikihow.com/Critique-Poetry>
- ☐ http://www.writingroom.com/viewwriting/wr_how_to/How-To-Critique-A-Poem
- ☐ Four Types of Writing: <http://humbel-meer.hubpages.com/hub/Four-Types-of-Writing>
- ☐ Free-ENGLISH.com: <http://www.free-english.com/english/Home.aspx>

Film adaptations

- ☐ Adaptation- novel to film: http://www.pbs.org/wgbh/masterpiece/learningresources/fic_adaptation.html
- ☐ Adaptation: From novel to film: http://d2buyft38glmwk.cloudfront.net/media/cms_page_media/11/FITC_Adaptation_1.pdf
- ☐ Masterpiece theatre: http://www.pbs.org/wgbh/masterpiece/learningresources/fic_about.html
- ☐ Inclusive education: <http://nvpie.org/inclusive.html>
- ☐ Internet TESL Journal, The <http://iteslj.org/>

Language forums

- ☐ <http://www.usingenglish.com/forum/>
- ☐ <http://how-to-learn-any-language.com/forum/>
- ☐ Learning Disabilities in the ESL Classroom: <http://elt-connect.com/learning-disabilities-esl-classroom/>

Online Language Games

- ☐ Games zone: <http://www.english-online.org.uk/games/gamezone2.htm>
- ☐ Quia: <http://www.quia.com/pages/havefun.html>
- ☐ Vocabulary games: <http://www.vocabulary.co.il/>

Mobile learning

- ☐ A beginner' s guide to mobile learning in ELT: <http://englishagenda.britishcouncil.org/seminars/beginners-guide-mobile-learning-elt>
- ☐ Mobile Learning in ELT: Survey 2013: <http://nikpeachey.blogspot.in/2012/12/mobile-learning-in-elt-survey-2013.html>
- ☐ Online forums: <http://www.studentpulse.com/articles/414/3/using-online-forums-in-language-learning-and-education>
- ☐ English Conversation Exercise - Trip to FL - American English Pronunciation: <https://www.youtube.com/watch?v=4ogrBNpHPos>

Pronunciation practice online

- ☐ 14 English pronunciation practice - ESL Spoken English lessons - Pronunciation common mistakes: <https://www.youtube.com/watch?v=Xm2RIcGEVPw>
- ☐ Pronunciation
- ☐ English Speaking Online: <http://www.englishspeakingonline.com/>
- ☐ Pronunciation tips: <http://www.bbc.co.uk/worldservice/learningenglish/grammar/pron/>
- ☐ Speaking & Pronunciation Practice: <http://esl-writingtutor.com/practice/speaking-pronunciation.html>

Podcasts

- ☐ Speaking skills for advanced learners of English: <http://splendidspeaking.podomatic.com/>
- ☐ The English we speak: <http://www.bbc.co.uk/podcasts/series/tae>
- ☐ Listen to English: <http://www.listen-to-english.com/>

ELT Research

- ☐ Action research: <https://www.teachingenglish.org.uk/article/action-research>
- ☐ Directory of UK ELT Research 2005-12: <https://www.teachingenglish.org.uk/elt-research>
- ☐ Nellie's English Projects: http://www.nelliemuller.com/Action_Research_Projects.htm

- ☐ The State of ELT Research in the UK:
http://resig.weebly.com/uploads/8/1/4/0/8140071/panel_discussion_report_part_1_--_the_state_of_uk_elt_research.pdf
- ☐ Online research: <http://tewt.org/index.php/research>
- ☐ National Curriculum Framework 2005: <http://www.ncert.nic.in/rightside/links/pdf/framework/english/nf2005.pdf>
- ☐ The Speech Site: <http://thespeechsite.com/en/index.shtml>
- ☐ Tips on Reciting: <http://www.poetryoutloud.org/poems-and-performance/tips-on-reciting>
- ☐ 8 Current trends in teaching and learning EFL/ESL: <http://blog.tesol.org/8-current-trends-in-teaching-and-learning-eflesl/>

Useful sites

- ☐ Best Websites for teaching and learning 2014: <http://www.ala.org/aasl/standards-guidelines/best-websites/2014>
- ☐ Cambridge ELT: <http://uk.cambridge.org/elt/>
- ☐ CILT (Centre for Information on Language Teaching and Research) : <http://www.cilt.org.uk/infos/index.htm>

e-Library

- ☐ Hathi Trust's digital library: <http://www.hathitrust.org/>
- ☐ Open eBooks Directory: <http://e-library.net/>
- ☐ ProQuest eLibrary: <http://www.proquest.com/products-services/elibrary.html>

e-Resources for prose

- ☐ Early English Prose Fiction (ProQuest): <https://library.rice.edu/collections/eresources/early-english-prose-fiction-proquest>
- ☐ e-Resources for poem: <http://www.poetryfoundation.org/learning/resources>
- ☐ New E-Resources: http://hul.harvard.edu/ois/news/2014/html/2014-12-01_1049_system.html
- ☐ Resources for English and American Literature: <http://www.lib.cam.ac.uk/eresources/subjectresources.php?subjectId=36>
- ☐ Education sites: <http://www.topedusites.com/>
- ☐ ESLflow : <http://www.eslflow.com/>
- ☐ Learn English Central (British Council): <http://www.learnenglish.org.uk/>
- ☐ One Stop English Magazine: <http://www.onestopenglish.com/>
- ☐ TEFL.NET : <http://www.tefl.net/index.html>

EDU 09 . 7 : CURRICULUM AND RESOURCES IN DIGITAL ERA: MATHEMATICS EDUCATION

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

COURSE OUTCOME (CO):

- **CO 1 To strengthen the experience of the promising student teachers as Mathematics curriculum designers, transmitters and assessors**
- **CO 2 To develop a neo humanistic attitude among the student teachers in the light of Mathematics-Technology-Society-Environment paradigm**
- **CO 3 To undertake a self empowerment initiative in transacting the Mathematics Curriculum from a digital outlook**
- **CO 4 To provide the required research based Mathematics learning experiences so as to undertake a habit of self development through inquiry and investigation**

Contents:

Unit 1: Curriculum Designing in Mathematics Education

Unit 2: Formal and Informal Contexts in Teaching and Learning Mathematics

Unit 3i: E- Resources in Teaching and Learning Mathematics

Unit 4: Research Trends in Mathematics Education

Unit I: Curriculum Designing in Mathematics Education

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1.To understand curriculum and modern approaches in curriculum construction 2. To understand the modern trends in curriculum construction 3. To familiarise with the principles of Curriculum organisation, 4.Tto familiarise various curriculum study groups in India and abroad	* Concept of Curriculum * New approaches to curriculum Construction -Critical Pedagogy, - Problem Based Learning, -Constructivist Learning -Reflective learning - Experiential learning *Modern trends in curriculum construction -objective based -child centred -correlation _help for higher education -Reflect as a unified discipline -practicable etc	- Meaningful verbal expression - Buzz session - PBL - Peer instruction - Seminar - Web Streaming -Blog reading	_ Performance analysis in group discussions _ Observation _ Seminar reports _ Participation in the Seminar sessions _ Assessment of daily reflections / - Assignment

	* Principles of Curriculum organisation – -Topical and Spiral, -Logical and Psychological, _Correlation_ * Curriculum Study Groups - SMP SMSG, NMP * Agencies of Curriculum Development - NCERT and SCERT		
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Unit II: FORMAL AND INFORMAL CONTEXTS IN TEACHING AND LEARNING MATHEMATICS

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1.To make the student teachers understand the need and importance of community based resources in the present scenario 2. To understand the man made resources in the	*Concept of community based resources- Meaning , need and significance * Human resources *Natural resources- Mathematical aspects found in Environmental phenomena (congruence, similarity, ratio and proportion, geometric shapes,	-Group discussions -Meaningful verbal Presentation -Power point presentations	-Performance analysis in group discussions _ Observation _ Seminar reports

present context	symmetry etc.)	-Assignments	_ Participation in the
3. To make familiarise with informal learning contexts	* Man made resources -Mathematics laboratory -Mathematics library - Mathematics Club * Informal learning contexts such as Mathematics exhibitions, Fair, Field Trip etc.	-Seminar -Field trip -Community resource mobilization / Contextual analysis	Seminar

Unit III: E- RESOURCES IN TEACHING AND LEARNING MATHEMATICS

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1. To familiarise with the role of modern technology in the teaching and learning of Mathematics	- Digital resources-CD, DVD, Websites, digital text books *Learning management system(LMS)- definition and Significance *Identification of E-resources(Web 2.0 tools: - Hot Potatoes, Teacher Tube, Edublog, * m-learning-Nature and scope	- PowerPoint Presentations - Extension talks - On line learning - Web Streaming - Explicit teaching - Peer instruction	- Documentation - Assessment of individual performance - Think Aloud Sessions

	*Online Resources *Today's teacher – a digital native– challenges		
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Unit IV: RESEARCH TRENDS IN MATHEMATICS EDUCATION

Course Specific Outcome (CSO)	Contents/major concepts	Strategies/approaches	Assessment
1.To understand the need and importance of research in Mathematics education 2.To familiarise the different types of research 3.To identify major thrust areas of research in Mathematics Education	* Research in Mathematics Education- Need and importance *Types of Research -Qualitative & Quantitative -Historical, Fundamental - Action Research *Thrust areas of researches in mathematics education	- Net surfing - Blog reading - Action research - Invited lectures	- Blog posting - Project report - Documentation

Suggested references books :

- _ 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.
- _ James, A.(2005). *Teaching of Mathematics*. New Delhi: NeelkamalPublications,Pvt. Ltd.
- _ James, A. (2006). *Techniques of Teaching Mathematics*. New Delhi: Neelkamal Publications Pvt. Ltd.
- _ Joyce, B., Weil, M. & Calhoun, E. (2009). *Models of Teaching (8th ed.)*.New Delhi: PHI Learning Private Limited.

- _Kulshreshtha, A. K. (2008). Teaching of Mathematics. Meerut: R.Lall Books Depot.
- Kumar,S.&Ratnalikar,D.N.(2003). *Teaching of Mathematics*. New Delhi: Anmol Publications Pvt. Ltd.
- _ Mangal, S.K. *Teaching of Mathematics*. Ludhiana: Prakash Brothers Educational Publishers.
- _ Mustafa, M.(2005). *Teaching of Mathematics*. New Delhi: Deep and Deep Publications Pvt. Ltd.
- _ Orton, A. (2007). *Learning Mathematics.(3rd ed.)*. London: Continuum
- _ Siddiqui, H.S. & Khan, M.S. (2004). *Models of Teaching - Theory and Research*. New Delhi: Ashish Publishing House.
- _ Siddiqui, M. H. (2007). *Teaching of Mathematics*. New Delhi: APH Publishing Corporation.
- _ Wadhwa, S. (2000). *Modern Methods of Teaching Mathematics*. New Delhi: Sarup& Sons.
- _ Rao, D.B. &Pushpalatha, D.(1995). *Achievement in Mathematics*. New Delhi: Discovery Publishing House.
- _ Soman, K. *Ganithasasthrabodhanam*.Thiruvananthapuram: Kerala Bhasha Institute.