PEDAGOGY OF ENVIRONMENTAL STUDIES

Maximum Marks : 100
External: 70
Internal: 30

Design of the Course

- Select units of study to have a field-based assignment
- Specific readings are to be used for discussion in groups enabling a close reading of the texts.

Rationale and Aim

The main aim of this course is to prepare teachers who understand the philosophical and epistemological basis of EVS as a composite area of study that draws upon sciences and social sciences.

The content related to concepts in science and social science is embedded within the course. As students understand children's ideas, it is also an opportunity for the teacher educator to help them revisit and challenge their own conceptual understanding, identify misconceptions and advance towards a better understanding.

This course along with the courses in Child studies and Contemporary Studies will help the future teachers gain a deeper understanding of the ways in which children make sense of their physical and social environment and this insight will enrich their classroom teaching and learning.

Specific objectives

- To help student-teachers understand the scope of EVS and examine different perspectives of curriculum organization.
- To facilitate student-teachers to probe children's ideas in science and social science
- To prepare student-teachers to plan for and carry out classroom transaction in the light of various theoretical viewpoints of learning and children's ideas.
- To prepare student-teachers to assess children's learning using different modes.

UNITS OF STUDY

UNIT 1: Concept of Environmental Studies

- Scope of EVS as a curricular area at the Primary level
- Curriculum Organization :
  (a) EVS as an integrated area of study that draws upon understanding from Science and Social Science
  (b) EVS as EVS (Science) and EVS (Social Science).

UNIT 2: Understanding Children's Ideas:

- Perspectives in EVS learning- Piaget, Vygotsky, Bruner and Ausubel
- Research on Children's Ideas - Preconceptions, Alternative Conceptions:
- Implications of understanding children's ideas for classroom transactions.

UNIT 3: Class-room Transaction and Assessment

- Ways of conducting inquiry : observation, activities, discussion, and small group work, field visits, project, surveys, experimentation etc.
- Process skills in EVS
  Student-teachers organize simple activities for children like experiments to see what floats and what sinks in water, visit to nearby clinic, pond, stable, market, grouping flowers, seeds, leaves, analysis of newspaper reports by children. This will give them a chance to understand how children engage with ideas, make linkages, classify, analyze, kind of questions they ask, express themselves.
- Different ways of assessment and reporting assessment for further learning.
  Student-teachers use multiple ways of assessment using children's photographs, drawings, narratives, children's discussions etc while teaching in school.
  They prepare students' portfolios and report children's progress on various indicators such as expression, concern for justice, equality etc.

UNIT 4: Planning for teaching

- Concept maps and thematic web charts.
- Evolving a Unit Plan framework.
- Resource pool of materials.
- Reflecting on classroom practices.

UNIT 5: Understanding of Textbooks and Pedagogy

- Content, approaches and methods of teaching EVS - Interactive and participa tory methods, teacher as facilitator.
- Themes, structure of the unit, nature of exercises and its implications.
- Indicators of Learning

Mode of Transaction

- Classroom discussions for developing conceptual understanding.
- Individual and group presentations of issues and concerns raised in assignments.
- Teachers should organize discussions, projects and field-based projects.
- When evolving a Unit Plan framework, peer group discussions can be held.

Essential Readings

Unit 1

1. Jaithirtha, Kabir (2003) Relating with the Earth: an exploration of the

possibilities in teaching Geography. *Journal of the Krishnamurti Schools* http://www.journal.kfionline.org/article.asp?issue=7&article 6.
2. NCERT. (2005) *Syllabus for Elementary Classes*- Volume I. NCERT: New Delhi.
3. Orr, D.W. (2007) Is Environmental Education an Oxymoron? *Journal of the Krishnamurti Schools*. http://www.journal.kfionline.org/article.asp?issue=11&article 3.
4. Phatak, K. (2009) Walks: to nurture the Natural. *Journal of the Krishnamurti Schools*. http://www.journal.kfionline.org/article.asp?issue=13&article 3.
5. Seminar Proceedings (1995-96) Seminar on EVS organized by Vidya Bhawan Udaipur.
6. Sarabhai, V. K. et.al. (2007) Tbilisi to Ahmadabad- *The Journey of Environmental Education: A Source book*. Centre for Environment Education: Ahmedabad.

Unit 2

1. Driver, Rosalind, et. al. (2006) *Making Sense of Secondary Science: Research into Children's Ideas*. Routledge Falmer: London Introduction pp.1-13; Chapter 1, pp.17- 25; Chapter 12, pp.98-103; pp. Chapter 13, pp. 104-111.
2. Gruesene, E. and A. Tberghiem (1985) *Children's Ideas in Science*. Open University Press: Milton Keynes.
3. Piaget, Jean (1930). *The Child's Conception of Physical Causality*. Kegan Paul, Trench, Trubner & Co. Ltd: London Chapter. 1 pp. 3-31; Chapter 5, pp.114-132

Unit 3

1. Harlen, W. and J. Elstgeest (1998). *UNESCO Source Book for Science in the Primary School*. NBT: New Delhi.
2. NCERT. (2008). *Source Book on Assessment for Classes I - V*. Environmental Studies. NCERT: New Delhi.

Unit 4

1. Pollard, Andrew (2002). *Reflective Teaching*. Continuum: London.

Readings for Discussion

Unit 1

1. Agnihotri, Ramakant et. al. (1994) *Prashika*. Eklavya's Innovative Experiment in Primary Education. Eklavya: Bhopal.
2. Mishra, Anupam (2004) *Aaj bhi Kharein hai Talaab*. Gandhi Peace Foundation: New Delhi. 5th Edition.
3. Raina, V. and D. P. Singh (2001) What is Science? *Dispatch*. October-December.

Unit 2

1. Driver, Rosalind (1981) Pupils' Alternative Frameworks in Science. *European Journal of Science Education* 3(1), 93-101.
2. George, Alex M. (2007). *Children's Perception of Sarkar- A critique of Civics Textbooks*. Eklavya: Bhopal.
3. NCERT. (2008) *Source Book on Assessment for Classes I-V*. Chapter 2: Environmental Studies. NCERT: New Delhi.

Unit 3

1. Bodrova, E. and D. Leong (1996) *Tools of the Mind: The Vygotskyan Approach*

to Early Childhood and Education. Merrill: New Jersey. Chapter 9.

Advanced Readings

Unit 1

1. Batra, Poonam (ed) (2010) *Social Science Learning in Schools: Perspectives and Challenges*. Sage: New Delhi.
2. Parker, W.C. (ed.) (2010) *Social Studies Today: Research and Practice* Routledge: New York.
3. Sainath, P. (1996) *Everybody Loves a Good Drought- Stories from India's Poorest Districts*. Penguin Books: New Delhi.
4. Shiva, Vandana. (2000) *Stolen Harvest: The Hijacking of Global Food Supply*. South End Press: Cambridge, UK.

Unit 2

1. Ausubel, David P. (1969) Some Psychological and Educational Limitations of Learning by Discovery in Anderson, Hans O. (Ed.). *Readings in Science Education for the Secondary School*. Macmillan: India pp 97-113.
2. Brophy, J. and J. Alleman (2005) Primary grade students' knowledge and thinking about families. *Journal of Social Science Research*. Spring 2005.
3. Bruner, Jerome S. (1960) *The Process of Education*. Atma Ram & Sons: New Delhi
4. Carey, S. (1985) *Conceptual Change in Childhood*. MA: Bradford Books. MIT Press: Cambridge.
5. Driver, Rosalind. et.al. (2006) *Making Sense of Secondary Science. Research into Children's Ideas*. : Routledge Falmer: London. Introduction, pp.1-13 Chap 1, p.17- 25; Chap12, pp.98- 103; Chap 13, p. 104-111.
6. Gilbert, J. et. al. (1982). Children's Science and Its Consequences for Teaching. *Science Education*. John Wiley & Sons, Inc: London. 66(4), 623-33.
7. Piaget, Jean (1930). *The Child's Conception of Physical Causality*. Kegan Paul, Trench, Trubner & Co. Ltd: London.
8. Rieber, Robert W. and Aaron S. Carton (1987) *The collected works of L.S. Vygotsky Volume 1*. Ch. 6-Development of scientific concepts in childhood. pp. 167-242.

Unit 3

1. Devereux, J. (2000) *Primary Science*. Paul Champman Publishing: London.
2. Harlen, W. (2006) *Teaching, Learning and Assessing Science 5 - 12*. Sage: London.
3. Howe, A. C. and L. Jones (1998) *Engaging children in Science*. Prentice Hall: New Jersey.

Unit 4

1. Fensham Peter J. et. al (eds.) (1994) The content of science; *A Constructivist approach to its Teaching and learning*. The Falmer Press, Taylor and Francis Inc: London.

2. Gilbert, J. (2004) *The Routledge Falmer Reader in Science Education.* Routledge London.
3. Mintzes, Joel J et.al. (1998) *Teaching science for Understanding: A Human Constructivist View.* Academic press: California.
4. Parkinson, J. (2004). Reflective Teaching of Science 11-18. Continuum:London.

School Textbooks

1. EVS textbooks for primary grades from the following NGOs:
   - Digantar, Todi Ramjanipura, Kho Nagoraniya Road, Jagatpura, Jaipur
   - Eklavya, E 10 Shankar Nagar, B.D.A Colony, Shivaji Nagar, Bhopal, MadhyaPradesh
   - Sangati, AVEHI-ABACUS Project Third floor, K.K. Marg Municipal School, Saat Rasta, Mahalaxmi, Mumbai- 400 011
2. NCERT (2007) *Looking Around* Environmental Studies. Textbooks for class III-V. New Delhi.
3. Ramadas Jayshree (ed) (2004) *Small Science:* textbooks and workbooks (developed by: Homi Babha Centre for Science Education (HBCSE). Oxford University Press: Mumbai.