

Syllabus : Semester - IV

MES553 - SP: 13 - Theme A /Theme B

Theme Based Specialization Course - III

Theme A : Pedagogy, Technology and Assessment in Education

Educational Technology

(Elementary/Secondary and Senior Secondary Education)

Objectives: After completing this course the students will be able to

- Understand the nature of Educational Technology and its importance in the teaching-learning process at Elementary/Secondary and Senior Secondary level.
- Analyse the different phases in the Evolution of Educational Technology.
- Analyse the stages in the development of an Instructional system at Elementary/Secondary and Senior Secondary level.
- Examine the criteria for evaluating system analysis project.
- Elucidate the educational implications of Cybernetics.
- Analyze the classification of media material and examine factors influencing the selection of media material at Elementary/Secondary and Senior Secondary level.
- Acquire the knowledge and skills of using computers as a supporting ICT tool in educational environments for Instruction, Learning and Assessment at Elementary/Secondary and Senior Secondary level.
- Acquire the skills of using MS-POWERPOINT 2007 for various applications at Elementary/Secondary and Senior Secondary level.
- Elucidate the uses of internet for Elementary/Secondary and Senior Secondary students and teachers.
- Apply the principles of Multi-media learning at Elementary/Secondary and Senior Secondary level.
- Understand the Cognitive theory of Multimedia learning at Elementary/Secondary and Senior Secondary level.
- Analyze the procedure of using Multimedia packages in teaching and learning.

Unit 1: Conceptual Bases of Educational Technology

- 1.1 Concept and Objectives of Educational Technology; Meaning, Nature, Scope and significance of Educational Technology; Evolution of Educational Technology- Audio-Visual phase, Psycho-sociological Phase, Cybernetic Phase, ICT phase.
- 1.2 Forms of Educational Technology: Teaching Technology, Instructional Technology and Behaviour Technology; Approaches of Educational Technology: Software, hardware.
- 1.3 Systems Approach: Concept of a System: Definition, Components of a system; Concept of Systems Approach: Systems Approach to Education: Need, Scope and Components – Goal Setting, Task analysis, Content analysis, Context analysis and Evaluation strategies; Systems Analysis – Meaning, steps, criteria for evaluating system analysis project; Teaching-Learning as a System; Design and development of Instructional System – stages; Cybernetics: concept, characteristics and educational implications.

Unit 2: Media Technology

- 2.1 Communication Technology : Concept, Nature and characteristics of Communication ; Process of Communication ; Elements of Communication ; Classroom Communication; Components of Communication – Kinesics ; Proxemics ; sound symbols, silence ; posture ; adornment and locomotion; Theories of communication; Aristotle and Lasswell's Theory, Shannon and Weaver's Theory and Berlo's Theory of Communication; Barriers in Communication ; Measures of overcoming barriers in Communication.
- 2.2 Audio Visual Education: Meaning, Use of Audio Visual Media at Elementary/Secondary and Senior Secondary level; Classification of media material – Presentation according to sensory channel, projected and non-projected material; NCERT Classification of Media materials; Dale's cone of Experience & its application to education.; Selection of Instructional Media - factors affecting selection of media.
- 2.3 Television in education – growth of television in the world and India, importance of educational television, SITE (Satellite Instructional Television Experiment): meaning, nature of programmes, usefulness, effects of television on other media, school TV programmes: production and role of teacher, merits and limitations, the future of television in education.
Films in education – Nature, stages of film making, Educational Films, Techniques of teaching with films, Selection of films, Advantages and Limitations.

Unit 3 : Information and Communication Technology (ICT)

- 3.1 Information and Communication Technology - Definition; ICT in Education –Need, Significance; Internet – Origin, concept, services and functions of the Internet; using search engine : keywords and search strategies; use of internet for students and teachers.
- 3.2 Computer as an Instructional Tool – Computer Assisted Instruction (CAI): Concept, Origin, Characteristics, Principles, desirable features, strategies, steps in the development of CAI, Advantages and Limitations; Computer as a Testing Tool: Computer Assisted Assessment (CAA)- Meaning, Assumptions, , Approaches to CAA-Optical Mark Reader, Computerized and On-line testing; Types of tests and CAA; Benefits of CAA; Computer Adaptive Testing (CAT): concept, values, advantages and limitations.
- 3.3 Computer as a learning tool – Computer Assisted learning (CAL) – Meaning, Educational Paradigms for CAL, CAL and Learners Motivation, Content of Curriculum, pupils role, teaching style and evaluation; E-learning : History of E-learning, Definition, Scope, Different perspectives, E-learning methods – Synchronous and Asynchronous, tools used, E-learning modalities - Individualized self-paced e-learning online, Individualized self-paced e-learning offline, Group-based e-learning synchronously and Group-based e-learning asynchronously; Virtual classroom: meaning, tools used, merits and limitations.

Unit 4: Introduction to Multimedia

- 4.1 Multimedia –definitions, Meaning, History of Multimedia; Scope of Multimedia, Multimedia approach –nature, procedure for adopting multimedia approach; Computer Multimedia – meaning, building blocks or elements of computer as a multi-media device – Text, Sound, Graphics, Animation and Video; hardware requirements of Multimedia systems, input/output devices of multimedia, Audio and Video impact in multi-media, networked multi-media.

4.2 Cognitive theory of Multi-media learning – Assumptions, Steps in a Cognitive Theory of Multi-media learning; Principles of Multi-media learning.

4.3 Development of Educational Multimedia Packages: Educational software packages – meaning, Pre-requisites – familiarity of disciplines; technical computer knowledge; design; outlining of goals; outlining the instructional methods; understanding the limitations in designing micro- computer software; Types – Drill and practice, Tutorial and Inquiry dialogues, Simulation, Modeling, Problem solving Multimedia Packages;

Practicum

- Preparation of Projected and Non projected learning materials.
- Critical Analysis of any 5 Television/Radio/ film as Educational programmes.
- Workshop on Developing effective MS POWERPOINT presentation
- Preparation and Presentation of MS POWERPOINT slides for teaching any topic at Elementary/Secondary and Senior Secondary level.
- Prepare a list of twenty educational websites suitable for use at Elementary/Secondary and Senior Secondary level in any subject of choice.
- A report on Evaluation of any 5 available Multimedia packages used at elementary level.
- Collection of any five Educational Multimedia games at elementary level.

(Any other relevant activity)

References :

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- Chitrasen, *Modern Educational Technology, Nature and Scope*, alfa Publications, New Delhi 2006.
- Clark, R.C. and Mayer, R.E. (2002), *E-Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning*. San Francisco: Jossey-Bass Pfeiffer.
- D'Souza Y.K, *Communication Today and Tomorrow*, Discovery Publishing House, New Delhi, 1999.
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