



MANGALORE UNIVERSITY
Master of Education (M.Ed.)

MES552 - 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 / Course Outcomes

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.
- Analyse 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.
- Analyse 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

1.1 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.

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

1.2 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 None 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:

- Bernard C., *Teaching for Effective Study*, Biddles Ltd., Croom Helm, Great Britain, 1987.
- Braskamp L.A., Brandenburg C., John C.O., *Evaluating/Teaching Effectiveness: A practical guide*, Sage Publications, New Delhi, 1984.
- Chatterji P.C., *Broadcasting in India*, New Delhi, Sage Publications, 1991.
- 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.
- Deepak Tiwari, *Methods of Teaching Communication*, Crescent Publishing Corporation, New Delhi, 2006.
- Duncan H., Chris B., *Evaluating and Assessing for Learning*, Nicholas Publishing Company, New York, 1986
- Goel S.K. (1999), *Communication Tomorrow*, Communication Publishers, New Delhi.

- Goel S.K., *Communication Media Information Technology*, Ajay Verma Commonwealth Publishers, New Delhi, 1999.
- Heinich R., Modenna M., Russell J.D., *Instructional Media and the New Technologies of Instruction*, 1990.
- Henry Ellington, Fred Percival and Phil Race, *Handbook of Educational Technology*, (Third Edition), Kagan Page Ltd., London, 2003.
- Hessein K.M, *Development of Information System for Education*, Prentice Hall Inc., New Jersey, 1973.
- John Vivian, *the Media of Mass Communication*, Allyn and Bacon, London 1999.
- Kokila S., *Instructional Technology and Curriculum Development*, Neelkamal Publications, Hyderabad, 2006.
- Kulshreshtha S.P. and Kulshreshtha A.K, *Foundations of Educational Technology*, Vinay Rakeja Publishers, Meerut, 2011.
- Kumar P., Gosh A.K., *Management Information and Communication System*, Manas Publications, New Delhi, 1991.
- Mangal S.K., Mangal Uma and Mangal Subha; *Technology of Teaching*, Arya Book Depot, Karol Bagh, New Delhi, 2003.
- Mangal S.K., Uma Mangal and Mrs. Shubra Mangal, *Technology of Teaching*, Arya Book Depot, 2003.
- Mohanthy Jaganth, *Modern Trends in Educational Technology*, Neelkamal Publications Pvt. Ltd., New Delhi, 2007.
- Moreno, R. & Mayer, R.E. (2002). Verbal redundancy in multimedia learning: When reading helps listening. *Journal of Educational Psychology*, 94 (1), 156-163.
- National Curriculum Framework, March, 2010, The Hindu, <http://www.thehindu.com/education/article258710.ece> , retrieved on 03/07/2011
- Pant M.M., *Case Studies*, Indira Gandhi National Open University, Platinum Edu.Ltd., Gurgaon, 2010.
- Perrot E., *Effective Teaching*, Logman Group UK Ltd., New York, 1989
- Ramanath Sharma and Chandra S.S, *Advanced Educational Technology*, Volume – I Atlantic Publisher, New Delhi, 2003.
- Rao, V.K., *Instructional Technology*, A.P.H. Publishing Corporation, New Delhi 2005.
- Robert Heinich, Michael Molenda and James D. Russel, *Instructional Media and the New Technologies of Instruction*, Macmillan Publishing Company, New York, 1990.
- Reeves, B., & Nass, C. (1996). *The Media Equation*. New York: Cambridge University Press.
- Ruth Clark , *Six Principles of Effective e-Learning: What Works and Why ; Learning Solutions*, Practical Applications of Technology for Learning, e-Magazine, September 10, 2002
- Sachdeva M.S., *New Approach to Educational Technology*, M.T. Publishers, 1991.
- Sampath K., Pannerselvam, Santhanam, *Introduction to Educational Technology*,
- Sharma R.A, (2008) *Information and Communication Technology in Teaching*, Soorya Publication, Meerut, 2008.
- Singh, Y.K., *Instructional Technology in Education*, A.P.H. Publishing Corporation 2005.
- Sterling Publishers, 1984.
- Saverinus Kaka, *The role of ICT in Education*, Inside Magazine, Vol. 02, July 2008
- Singh & Sharma, *E-Learning New Trends and Innovations*, Deep & Deep Publications Private Ltd., New Delhi, 2005

- Verma Romesh and Sharma Suresh, *Modern Trends in Teaching Technology*, Annol Publications Pvt. Ltd., New Delhi, 2006
- Vernon S. Gerlach, Donald P. Ely and Rob Melrick, *Teaching and Media – A Systematic Approach*, Prentice – Hall, INC, New Jersey 1980.

