INSTRUCTIONAL TECHNOLOGY FOR TEACHING OF TECHNICAL & GEOMETRICAL DRAWING

Course Code: EDBET372 **Credit Hours: 3**

Course Description

The course "Instructional Technology for teaching of Electronics" is designed to provide basic knowledge and understanding of the modern instructional technology used for teaching of Electronics. Upon completing of this course the students should be able to select, use and use reliable and valid instructional technology. They should also be able to select the most appropriate instructional best suited for the topic. The students will become familiar with the professional as well as ethical issues in use of using instructional technology. The course will also provide an understanding of the basic terminology, methods, designs and models as they relate to the area of Technical & Geometrical Drawing. It develops awareness about the procedures and options available worldwide in Instructional Technology in professional pursuit.

Learning Outcomes

After successful completion of this course the students will be able to:

1. Understand the concept of instructional technology.
2. Recognize the importance of instructional technology in Technical Education.
3. Relate the use of instructional technology with various methods of teaching.
4. Know the modern instructional technologies being used worldwide.
5. Design instructional technology with the help of low cost no cost material.
6. Plan science lessons incorporating instructional aides and best teaching method.
7. Know the advantages and limitations of various instructional technologies.
8. Make effective use of computers in teaching Technical & Geometrical Drawing.
9. Make effective use of laboratory apparatus in teaching concepts of Technical & Geometrical Drawing.

Contents

1. Nature of Technical & Geometrical Drawing as a field of Technical Education

1.1 What is the nature of Technical & Geometrical Drawing?
1.2 Application of Scientific Method to study Technical & Geometrical Drawing.
1.3 How do Technologists conduct research? Some classic work in field of Technical Education.
1.4 Technical Education and the human welfare

2. Classroom Communication

2.1 What is teaching, learning and instruction?
2.2 Elements of classroom communication
2 3 Barriers to classroom communication

3. Instructional Aids or Teaching Aids

3.1 What are the Instructional or teaching Aids
3.2 Importance of teaching aids
3.3 Different types of teaching aid material
3.4 Principles for selection of teaching aids
3.5 Principles for using of teaching aids

4. Media in Teaching and Learning of Technical & Geometrical Drawing

4.1 Materials for visual communications: Bulletin Boards, Chalk Boards, Flannel Boards, etc.
4.2 Graphic Materials: Graphs, Charts, Cartoons, Maps and Globes

4.3 Still Pictures:
- 4.3.1 Opaque projector
- 4.3.2 Over-head projector and transparencies
- 4.3.3 Slide projector and film slides
- 4.3.4 Filmstrip projector and filmstrip

4.4 Audio-Materials, Radio and Tape-Recorder
4.5 Motion Pictures, Films and Video
4.6 Real things, Models and Demonstrations
4.7 Games, Simulations

4. Methods and Procedures in Individualized Teaching Strategies for Technical & Geometrical Drawing

4.1 Rationales and significant features
4.2 Methods of Individualization
4.3 Programmed Instruction
4.4 Computer Assisted Instruction and Computer Managed Instruction
4.5 Modular Instruction
4.6 Personalized System of Instruction
4.7 Individually Prescribed Instruction
4.8 Audio-tutorial Method

5. Designing Instruction in Technical & Geometrical Drawing

5.1 Designing Instructional Sequence
5.2 Model for Systematic Planning of Instruction
5.3 Steps in Instructional Planning
5.4 Designing Individual Lesson/unit Planning

6. Designing Conceptual Toolkit for teaching Technical & Geometrical Drawing

6.1 What is the significance of low cost no material in teaching
6.2 Types of low cost no material
6.3 Use of low cost no cost material
6.4 Concept of toolkit
6.5 Use of low cost no material in developing toolkit for different arts n crafts concepts

7. Use of modern Instructional Technology in teaching of Technical & Geometrical Drawing

7.1 Use of smart interactive white boards for teaching Technical & Geometrical Drawing
7.2 Use of LCD projector for teaching Technical & Geometrical Drawing
7.3 Creating blogs and websites for teaching Technical & Geometrical Drawing
7.4 Use of on line media for teaching Technical & Geometrical Drawing

8. Designing Instructional modules for teaching Technical & Geometrical Drawing

8.1 What is modular instruction?
8.2 Lesson planning for modular instruction for teaching Technical & Geometrical Drawing
8.3 Planning technology for modular instruction

Assessment and Examinations

The students will be assessed according to the following criteria.

Examination	Marks Distribution
Sessional work	25 %
Mid Semester	35%
Final Semester	40%

Suggested Readings

Hassell-Corbiell, R. (2001).*Developing Training Courses : A Technical Writer's Guide to Instructional Design and Developmen*t._____.

Leonard, A. A. & Minogue, J.(2018). C*onnecting Science and Engineering Education Practices in Meaningful Ways: Building Bridges.*_____.

Campana, D. M. (2010). The *Teacher of Geometrical Drawing - For High Schools, Manual Training Schools, Technical Schools Etc.*Read Books.

AIOU. (2006). *Population Education Course* MA EPM 584. Islamabad: AIOU.

Govt. of Pakistan. (2003). *Education for All.* Islamabad: Ministry of Education Curriculum Wing.

Haltak, J. (1990). *Investing in the Future, Setting Educational Priorities in the DevelopingWorld.* Paris, UNESCO: McGraw-Hill Kogakusha.

Indira, M. (2003). *Changing Demands of Technical and Vocational Education.* New Delhi: Annual Publication.

Ministry of Education, Curriculum Wing (2010). *13 Modules on Various Core Themes of Population Education*, Islamabad:_____.

Newby, T. M., Lehman, J., Russell, J., Stepich, D. A. (2000). *Instructional Technology for Teaching and Learning: Designing Instruction, Integrating Computers, and Using Media (2nd ed).* Upper Saddle River, N.J.: Prentice Hall.

Rao, V. K. (2004). *Population Education.* New Delhi: Efficient Printer.

UNESCO. (2004). *Quality of education in Pakistan.* Islamabad: UNESCO.

Warren, S. E. (2016). A *Manual of Elementary Geometrical Drawing Involving Three Dimensions:* In Five Divisions, DIV. I. Elementary Projections DIV. II. Details of ... in Shades and Shadows DIV. IV. Isometrica.

Winter, S. H. (2010). *Elementary Geometrical Drawing. Part II - The Practical Geometry Of Planes And Solids.* _____.