CONTEMPORARY ISSUES & TRENDS IN GENERAL ELECTRONICS

Course Code: EDBET368   **Credit Hours: 3**

Course Description

The broad purpose of this course is to develop students' knowledge, skills, and abilities as technology educationist. In particular, this course aims to develop at high level of understanding and a critical analytic perspective across a diverse range of trends and issues in General Electronics by focusing on conceptual, theoretical and substantive research findings found in the academic research literature in the field.

Learning Outcomes Upon completion of this course, the students:

9. Will develop knowledge and skills that enable the student to evaluate, critique, and ultimately contribute to the scholarly literature in General Electronics.
10. Should have improved their written and verbal communication and analytical skills and feel comfortable discussing theoretical and methodological issues in a scholarly manner.
11. Will gain an appreciation of the development of knowledge in a range of topic areas.
12. will learn about the institutions, systems, and practices found in academic as well as research process in General Electronics

Contents

1 Education as a Complex Enterprise
   1.1 Diversity of aims and approaches in education.
   1.2 Variety of philosophical approaches to education.
   1.3 Education in different periods and societies

2 Technology Education
   2.1 Technical School: origin, aims and Learning Outcomes
   2.2 Role of madrassah in 21st century
   2.3 System of education in Technical School
   2.4 Technological reforms in Pakistan

3 Universal Literacy
   3.1 Literacy and individual rights
   3.2 Factors affecting program for universal literacy: medium of instruction
   3.3 Formal and Non formal education: Advantages and disadvantages

4 Gender Disparity
   4.1 Concept of gender equality
   4.2 Factors affecting the status and role of women
   4.3 Steps towards reducing gender disparity.

5 Population Education:
   5.1 Concept of Population Education.
   5.2 Factors affecting Population Education
   5.3 Impact of Population Growth on National Development.
   5.4 Roles and responsibilities of family, school, mosque and community in population education.
   5.5 Steps towards population planning and welfare.

6 Environmental Awareness
6.1 Types of pollution
6.2 Causes of pollution
6.3 Environmental education

7 Privatization of Technical Education
7.1 Government resources and multiple demands
7.2 Need of private sector education
7.3 Challenges of quality education

8 Information in Technical Education
8.1 New concept of information explosion
8.2 Expanding learning resources
8.3 Information and communication technology (ICT) literacy
8.4 Technology in education

Having studied these contents, the students will reflect over following trends and issues in specific context of Technical Education

Issues in Technical Education
1. Technological contents and religious conflicts
2. Globalization of Technical Education
3. Practical assessment in Technical education
4. One size fits all? Comparative effectiveness of various methodologies in teaching science
5. Problems of Science education in Pakistan
6. Technical Education in Pakistan across national educational policies and plans
7. Teacher education in Pakistan
8. Declining attitude of students towards Technical Education
9. Gender disparity in Technical Education
10. Regional disparity in Technical Education
11. Should science curriculum be diversified?
12. Medium of Instruction for Technical Education. An exploratory approach
13. Demands of 21st century and our Technical Education curriculum. An analytical approach.
14. Our Technical Education textbooks: source of knowledge or source of misconceptions

Trends in Technological Education
1. Scientific literacy: goal of Technical Education in 21st century
2. Trend in international Math and Scientific Studies (TIMSS): Introduction & Major findings in Science domain
3. Program for International Students Assessment (PISA): Introduction & Major findings in arts & Experimental crafts & domain
4. Constructivism in Technical Education: Theoretical background
5. Constructivism in Technical Education: Practices in classroom and challenges
6. Constructivism in Technical Education: Assessment practices and challenges
7. Use of concept mapping technique in teaching technology

8. Scientific Inquiry
9. The role of Technical Education in Environmental Literacy
10. Science, Technology , Society (STS) connections
11. Curricular reforms in Technical Education
12. ICT in Technical Education
13. Technical teacher recruitment standards: A comparative approach
14. Modern Assessment practices in technology disciplines
15. Introduction to major research journals in Technical Education
16. Role of argumentation in Technical Education
17. Standards for 21st century electronics laboratory
18. Standards for 21st century electricity laboratory
19. Standards for 21st century mechanical laboratory
20. Career opportunities with Technical Education
21. Technical Education at higher education level: an introduction to degree programs offered in Technical Education round the world
22. Use of low cost no cost material in Technical Education

Teaching-learning Strategies

The instructional strategies will focus on constructionist learning approach. These strategies will be diverse in line with the course contents. Therefore, these strategies will include but not limited to demonstration, cooperative learning, collaborative learning, teacher and student-led discussion, individual and group presentations, reflective practices and classroom activities.

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

Forrest. M. *Mims. III.* (2000). *Electronic Sensor Circuits and Projects.* Lincolnwood: Master Publishers.

Adafruit Industries, *Practical Electronics for Inventors*, (4th ed) - *The electronics know-how you* ._____

Bogart, T. F. Jr. (1997). *Electronic Devices and Circuits (11th ed)*._____: McGraw-Hill

Geier, M. J. (2011). *How to diagnose and fix everything electronic*. New York: McGraw-Hill.

Grob. *Basic Electronics*, (7th ed)._____: McGraw- Hill International Editions.

Floyd., *Electronic Devices*, (1999), _____(19th *edition*)_____

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 Developing World*. 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: _____.

Scherz. P., & Monk, S. (2016). *Practical Electronics for Inventors* (4th ed). New York: McGraw-Hill.

Shrader. R.L. (1994), *Electronic Communication*, (6th ed.). _____: McGraw -Hill

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

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