

UNIVERSITY OF EDUCATION, WINNEBA

COMPUTER APPLICATIONS IN EDUCATION

EDI 502 “Computer Applications in Education”

The Computer Applications in Education Course is a required course for all level 500 postgraduate programs. Course objectives are to provide technology foundations in:

1. Basic Computer/Technology Operations and Concepts
2. Personal and professional Use of Technology/Computers
3. Application of Technology/Computers in Instruction

The EDI 502 Course builds on student experiences and provides additional hands-on computer activities in application programs including use of educational software in teaching and learning. The course also introduces students to theoretical foundations of application of educational software in teaching and learning. The course assumes student knowledge in Fundamentals of Information Technology which includes Computer Concepts and Operations. However, conscious effort is made to provide instruction in computer concepts for those who may be deficient in this area. The Course is divided into; theory and practicals.

COURSE OUTLINE

ICT in Education

Section 1: Issues in ICT

Why should ICT be studied in schools?

What are the promises of ICT in:

Education

Business

Developing 21st Century Skills

Developing national economies

Ghana's ICT for Accelerated Development (ICT4AD) Policy

Section 2: The Conceptual Computer

Hardware

Input Unit

Central Processing Unit

Output Unit

Secondary Storage

Software

The Systems Software – Operating System

Application Software – Educational, Business, Health, Science

Architectural, etc.

Factors to consider when purchasing a computer

Section 3: Bringing Technology to Schools

1. Justifying the use of computers in schools
 - Research-based justification
 - The case of motivation
 - Unique instructional capability
 - Increased teacher productivity
 - Required skills for information age

2. Current climate for Technology in Schools: Issues to consider
 - Pro-technology movement
 - Anti-technology movement
 - Cultural and equity
 - Economic and ethnic equity
 - Gender Equity
 - Students with special needs
 - Educational issues: Role of Distance Education
 - Equipment types
 - Configurations
 - Types of applications

3. Planning and Implementing Technology
 - Elements of technology planning
 - Staff development and Training
 - Funding sources
 - Hardware and Software purchases
 - Types of technology facilities
 - Rules and responsible use policy
 - Maintenance and security issues

Section 4: Learning Theories and Integration Models

- Gagne Principles – What is Learning?
- Gagne conditions of learning “events of instruction”
- “ “ “ “ “types of learning”
- “ “ “learning hierarchies”
- Directed and Constructivist Instructional Methods
- Philosophical foundations of Directed learning
 - i. Objectivist – Behaviorist theory
 - ii. Information-Processing theory
- Systematic Design of Instruction
- Problems associated with Directed teaching
- Philosophical foundations of Constructivist theory
 - i. John Dewey – Ideas
 - ii. Vygotsky – Ideas
 - iii. Jean Piaget
 - iv. Jerome Bruner – Cognitive
- Characteristics of Constructivists
- Characteristics of Directed Teaching

Teaching and Learning with Technology

1. Integrating Software/Tools into teaching and learning
 - Classification of Instructional software
 - i. Drill and Practice
 - ii. Simulation
 - iii. Tutorials
 - iv. Instructional games
 - v. Courseware – Integrated Learning Systems
 - Evaluating and selecting instructional software
 - Integrating Word Processing, Spreadsheets and Database into teaching and learning.

2. Integrating Internet and Other Distance Resources into teaching and learning
 - Distance Learning
 - i. What is Distance Learning?
 - ii. Distance Learning Delivery Systems
 - iii. Current Research in Distance Learning
 - iv. Effectiveness of Distance Learning
 - v. Characteristics of Distance Learners

 - Web-Based Learning
 - i. Background of the Internet
 1. TCP/IP Protocols
 2. Getting Connected – ISP's
 3. Web Browsing and Searching Resources
 4. E-mail
 5. File Transfers/Downloading

 - ii. Webquests/Teaching with the Internet

HANDS-ON PRACTICALS COURSE OUTLINE

Running Application Programs: Microsoft Word

Objectives: Compose a document and process it in Microsoft Word. Identify the features of Microsoft Word Window; Enter text in MS-Word; Save and Close MS Word Document; Selecting Text and Blocks; Editing and Formatting text; Inserting and Deleting text; Using Word Art, Creating Tables and Columns, Bulleting and Numbering text; Using special tools (Spelling and Grammar Check, Using the Thesaurus, Clipart; and printing Documents).

Running Application Programs: Microsoft Excel

Objectives: Identify the features of Microsoft Excel Window; Entering and Editing Data; Saving and Closing MS Excel Document; Navigation and Movement Techniques. Editing Cell Contents; Working with Ranges; Inserting Rows and Columns. Moving and Copying Data; Number Formats and Text Alignment; Creating and using Multiple-Sheet Workbook; Working with

Functions and Formulas; Creating Chart Items; formatting Chart Text; Single and Multiple Level Data Sorting; Sorting Options; Filtering a List; Printing Options.

Microsoft PowerPoint, Internet Applications and Services

Objectives: Explain the Internet structure/backbone, world Wide Web, Search Engines and Browsing; Discussing Internet security; Voice/Video Conferencing; URLs; Opening a web page; using hyperlinks to navigate; Using the Search button; Saving/printing a web page; Making a web page available for offline use; using E-mails; Sending a web page link via e-mail; Emailing an entire web page. Design and Create Website using MS Word

SPSS

REFERENCES

1. M. D, Roblyer (2003) *Integrating Educational Technology Into Teaching*, Merrill Prentice Hall, Ohio
2. Foley K. Sen K. & Morin C. (1998) *Information Technology: The Breaking Wave* Boston, USA: Irwin McGraw- Hill (Book & CD ROM)
3. Hutchinson, S.E. & Coulthard G.J. (2000) *MS Excel 200* Boston USA: McGraw Hill
4. Kenneth C. Laudon & Kenneth Rosenblatt (1999) *Interactive Computing Series (Microsoft Windows 98) Boston USA Irwin/McGraw-Hill. To download student files visit [www/mmhe.com/cit/apps/laudon](http://www.mmhe.com/cit/apps/laudon)*
5. Williams B.K. and Sawyer Stacey (2001) *Using Information Technology: practical information to computers and communication. Boston: McGraw Hill.*
6. David O. Arnold Michel (1999) *Computers and Society* Boston USA: McGraw-Hill.

Additional reference books will be recommended including follow-up reading exercises for some units.