

## **COURSE TITLE: ICT 3010 (DATABASE AND WEB TECHNOLOGIES)**

**PRE-REQUISITE:** ICT 2010 COMPUTER PROGRAMMING

### **RATIONALE**

This is needed to prepare graduates in the field of database and Website designing. Organizations are increasingly managing their data in database hence the need to have a course which exposes learners to database designing. In addition, websites have become important in many organizations today. This course will also impart skills and knowledge to learners how to create websites and other web based applications.

### **AIMS**

This course introduces students to databases and Website design techniques.

### **OBJECTIVES**

Upon completion of this course, students should be able to:

1. Explain the concepts of database and website design
2. Design a database in MySQL
3. Design a website in HTML5, CSS and JQuery
4. Develop Web database applications in PHP and Java Script

### **CONTENT**

1. Information Systems
  - Definition of concepts
    - ✓ Data
    - ✓ Information
      - ✚ Value of information
    - ✓ Information System
  - History of Information Systems
  - Components of Information Systems
  - Types of Information Systems
  - Designing Information Systems
  - Managing Information Systems
    - ✓ Security and control
2. Database designing
  - Definition of concepts
  - History of database processing
  - Characteristics of database
  - Examples of database
  - Components of a database
  - Types of database
- Introduction to Structured Query Language (SQL)

- ✓ SQL background
- ✓ SQL commands
- Database design
  - ✓ Ways of designing a database
    - ✚ Design from existing data
    - ✚ Design from new system development
    - ✚ Design from redesign
  - ✓ Data modeling with the Entity-Relationship Model
    - ✚ Meaning of data model
    - ✚ Entity –Relationship Model
      - Entity
      - Attributes
      - Relationships
    - ✚ Data modeling process
    - ✚ Transforming data models into database designs
      - Creation of a table for each entity
        - Selection of primary key
        - Specifying candidate ( Alternative) Keys
        - Specifying column properties
        - Create relationships among tables
  - ✓ Transforming the database designs into real database
    - Creating tables in MySQL using SQL
    - Populating the tables with data
    - Querying tables using SQL
    - Updating the tables
    - Deleting the tables
  - ✓ Creating tables using Microsoft access

### 3. Website design and publishing

- Introduction
- Importance of websites
- The Internet and the World Wide Web Consortium (W3C)
- Web programming languages
- Tools for creating Web pages
- Web page creation using HTML5
  - ✓ History of HTML5
  - ✓ Types of tags
  - ✓ Formatting text with HTML5 tags
  - ✓ HTML5 tags to insert Multimedia into a web page
  - ✓ HTML5 tags for creating forms and tables
  - ✓ Form processing
- Graphical design of the webpage with Cascading Style Sheets 3 (CSS3)
- Website designing using Content Management Systems
  - ✓ Wordpress
    - History
    - Installation requirements and procedures
    - Configuration of Wordpress Website
- Procedure to acquire website domain name and hosting space
- Uploading website files onto the web server

4. Web database application development with PHP and JAVA Script
  - Introduction to PHP and Web servers
  - Syntax
  - Variables
  - Statements
  - Operators
  - Form handling in PHP
  - PHP and MySQL Connection

5. Introduction to Java Script and its application to the University

**METHOD OF TEACHING**

Three lecture hours per week,  
 Two hours of practical computer laboratory work per week  
 Two field visits per year

**COURSE ASSESSMENT**

Continuous Assessment.....	60%
<b>One test and three practical assignments of equal weight</b>	
Examination.....	40%

**REQUIRED READING**

Deitel.P.J and Deitel.H.M (2009). *Internet & World Wide Web: How to Program*. New York: Pearson Educational International

Deitel.P.J and Deitel.H.M (2003). *C++: How to Program*. 4ed. New York: Pearson Educational International

Haag. S , Cummings. M and Philips. A (2007). *Management of Information Systems for the Information Age*. Beijing: China Machine Press

Kochtanek, T.R and Mathews, J.R (2002). *Library Information Systems: From Library Automation to Distributed Information Access Solutions*. Westport: Libraries Unlimited

Kroenke,D.M (2005). *Database Processing: Fundamentals, Design, and Implementation*. 10<sup>th</sup> ed. Beijing: Publishing House of Electronics Industry

Laudon, K.c and Laudon,J.P (2006). *Management of Information Systems*. 6<sup>th</sup> Ed. Beijing: Pearson Education

Malaga, R.A (2006). *Information Systems Technology*. Beijing: Publishing House of Electronics Industry

Schultz, David and Cook, Craig (2007). *Beginning HTML with CSS and XHTML: Modern Guide and Reference*.New York: Press

Williams, H.E and Lane,D (2005). *Building Effective Database-Driven Websites: Web database Applications with PHP and MySQL*. Mumbai: O'Reilly

**RECOMMENDED READING**

Gister; R. (2001) *PC Technician Handbook*. Scottsdale. Coriolis

Peter Zorckoozy. (1990) *Information technology: an introduction*. 3rd ed. London: Pitman.