



Management Information System

M I S

The MIS program is unique, with a unique sense of purpose. The focus is at the intersection of management and technology. A distinguishing feature of this program is its integrated approach to technical, organizational and systems elements within the curricula that will enable future managers and technical specialists to interact effectively in organizations.

Our mission is to educate and build a knowledge base around that focus. Our dream is to create a new breed of analysts and managers who will lead their companies in global markets through the effective and strategic use of technology.

Everything we will do in the MIS program begins with the conviction that for all firms in all future markets, sustainable competitive advantage will be built upon a technological foundation. Whether an entrepreneurial venture or a global giant, primarily service-based or manufacturing, software-oriented or capital intensive, high-tech or low, the firms that lead in global markets are those that build competitive strength around the merger of technological and business competencies.

The traditional approach to business education is isolated from technology. Aspiring technologists matriculate in schools of engineering and science, while aspiring business managers matriculate in schools of business. The latter learn about management but not technology, the former about technology but not management.

Canada College encourages all the students in MIS program to acquire solid knowledge of Macromedia (Dreamweaver, Flash 8.0, Fireworks, Director..). We also assume that you have solid knowledge of Ms Excel and introduction to Accounting and know at least one Accounting program such as Simply Accounting or Money.

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Courses:

Microsoft Access 2003: Level I

Microsoft Access 2003: Level II

Microsoft Access 2003: Level III

Management Of Information Systems

Introduction to SQL Training using MySQL Delivery

Accounting And Business Analysis

Introduction to PHP

Business Systems Program Development

Business Systems Analysis

Emerging Information Technologies

MIS Project

Microsoft Access 2003: Level 1

Performance-based objectives

Lesson objectives help students become comfortable with the course, and also provide a means to evaluate learning. Upon successful completion of this course, students will be able to:

- Understand database concepts and terminology in Access 2000/XP.
- Design and create tables.
- Enter and manipulate data in tables.
- Use Access queries to select and analyze information in a table.
- Create data forms for viewing and inputting data.
- Create reports that summarize and group data.
- Perform database maintenance procedures.

Course description

Overview: Students will learn the basic skills necessary to begin using Access 2000/XP. They will design and create databases, tables, queries, forms, and reports. This course contributes toward the Microsoft Proficiency Guidelines for Access 2000/XP.

Prerequisites: *Windows 95: Introduction; Windows 98: Introduction; or 98: Making the Transition,*

Delivery method: Instructor-led, group-paced, classroom-delivery learning model with structured hands-on activities.

Benefits: Students will learn how to create and use database objects, including tables, queries, forms, and reports.

Target student: Students enrolling in this course should understand the basic concepts involved in working with a personal computer (PC). For example, students should be familiar with terms such as computer memory, data files, and program files. Students should also be familiar with the components that make up the PC, including input, output, and storage devices. Students should also be fairly comfortable working in the Windows environment. No prior knowledge of databases or Access is assumed.

What's next: *Access 2003/XP: Level 1* is the first course in this series. *Level 2* database designs by using the principles of normalization and table relationships. Students also learn how to query multiple tables for data that is used in customized forms and reports. Students who want to learn advanced features can take the third course in this series, *Access 2003/XP: Advanced*. In that course, students learn to create advanced queries,

create more efficient forms and reports, and work with macros. The final course in this series, *Introduction to Application Design* applications.

Course content

Lesson 1: Overview of Access 2000/XP

- Introduction to Database Concepts and Terminology
- Introduction to Access 2003/XP
- Database Planning and Design

Lesson 2: Creating Tables

- Examining a Table
- Creating a Table With the Table Wizard
- Creating a Table in Design View
- Types of Primary Keys

Lesson 3: Working with Tables

- Modifying a Table Using Design View
- Finding and Editing Records
- Filtering and Sorting Records

Lesson 4: Creating and Using Select Queries

- Creating a Select Query to View Specific Fields
- Specifying Criteria in a Query to View Specific Records
- Using Queries to Perform Calculations
- Joining Tables in a Query

Lesson 5: Creating and Using Forms

- Creating a Form With the Form Wizard
- Modifying the Form Design
- Using a Form to Locate and Organize Information
- Multiple-Table Forms

Lesson 6: Creating and Using Reports

- Creating a Report With the Report Wizard
- Creating a Report That Contains Totals

Lesson 7: Creating and Maintaining a Database

- Creating a Database

- Managing a Database and Its Objects
- Database Maintenance

Microsoft Access 2003: Level 2

Performance-based objectives

Lesson objectives help students become comfortable with the course, and also provide a means to evaluate learning. Upon successful completion of this course, students will be able to:

- Normalize tables through fifth normal form.
- Establish relationships between tables and enforce referential integrity.
- Maintain data integrity in tables by setting properties, creating a Lookup list, and creating indexes.
- Use queries to calculate expressions and extract data from multiple tables.
- Improve form designs by adding bound controls, calculated fields, and a combo box.
- Create and modify data access pages, and integrate data with other applications.
- Create and modify reports with the Report Wizard and Design view, add a subreport. And add a calculated control.

Course description

Overview: Students will learn how to enhance database designs by using the principles of data normalization, table relationships, and referential integrity; by querying multiple tables for data used in customized forms, reports, and subreports; and by creating data access pages. This course meets many of the Microsoft Proficiency Guidelines for Access at the Expert level.

Prerequisites: The prerequisite for this course is *Access 2003/XP: Level 1* or equivalent knowledge.

Delivery method: Instructor-led, group-paced, classroom-delivery learning model with structured hands-on activities.

Benefits: Students will learn how to take the guesswork out of creating databases by using data normalization techniques. They will learn how to take advantage of relational database efficiency to maintain data by establishing relationships and enforcing referential integrity. In addition, students will save data entry time by using sound table design techniques to control data entry and automate tasks. Students will also benefit by becoming familiar with Access features that will enable them to customize forms and reports, and to share data over an intranet or the Internet by creating and using data access pages.

Target student: Students enrolling in this course should have a basic level of understanding of the Access 2003/XP interface, and should have experience designing tables, simple queries, forms, and reports.

What's next: *Access 2003/XP: Level 2* is the second course in this series. *Access 2000/XP: Advanced*, the next course in this series, teaches students how to use a variety of query techniques, and how to create more efficient forms and reports, and macros. After taking the Advanced course, students who want to learn how to develop an application and tie the objects together into a cohesive system by using macros and Visual Basic for Applications code can take *Access 2003/XP: Introduction to Application Development*.

Course content

Lesson 1: Principles of Table Design

- Normalizing Data
- Normalizing Data for Fourth and Fifth Normal Forms

Lesson 2: Principles of Table Relationships

- Analyzing Table Relationships
- Establishing and Testing Referential Integrity

Lesson 3: Table Design Techniques

- Data Validation Techniques
- Indexing Techniques

Lesson 4: Designing Select Queries

- Using Calculated Fields in Queries
- Creating Multiple-Table Queries

Lesson 5: Customizing Form Designs

- Customizing the Form Design
- Performing Calculations on a Form
- Adding Combo Boxes to a Form
- Adding Unbound Controls

Lesson 6: Working with Data Access Pages

- Creating Data Access Pages
- Integrating with Other Applications

Lesson 7: Customizing Reports

- Customizing a Report Created by the Report Wizard
- Working with Subreports

- Creating a Report in Design View

Microsoft Access 2003/XP: Level 3

Performance-based objectives

Lesson objectives help students become comfortable with the course, and also provide a means to evaluate learning. Upon successful completion of this course, students will be able to:

- Make select queries more versatile and useful by using parameters; use action queries to update data values and add or delete records.
- Generate different query types by creating various types of joins between tables; use crosstab queries to summarize data.
- Use advanced form features including properties, functions, and design tools to facilitate data entry and improve accuracy in forms; display table information that has a one-to-many relationship by creating forms that contain subforms.
- Automate tasks by creating macros to open forms and control form properties.
- Make forms more functional by using macros to provide user interaction and automate data entry.
- Make reports more concise and easier to understand by using properties and functions in report controls.
- Use Internet-related Access tools by inserting hyperlinks and using the Web toolbar; integrate Access data with other Office 2003/XP applications.

Course description

Overview: Students will learn how to use a variety of complex query techniques, create more efficient forms and reports, and create and use macros to automate their forms. In addition, students will gain experience with Internet-related features, including hyperlinks and the Web toolbar. This course meets the Microsoft Proficiency Guidelines for Microsoft Access at the Expert level.

Prerequisites: *Access 2003/XP: Level 1* and *Access 2003/XP: Level 2* or equivalent knowledge.

Delivery method: Instructor-led, group-paced, classroom-delivery learning model with structured hands-on activities.

Benefits: Students will learn how to analyze data by creating complex queries, make forms and reports more efficient, speed repetitive tasks by creating macros, and become familiar with Internet-related Access tools.

Target student: Students enrolling in this course should be able to work with Access at an intermediate level and understand Access terminology.

What's next: *Access 2003/XP: Introduction to Application Development*, the next course in this series, teaches students how to develop custom applications by using Access.

Course content

Lesson 1: Parameter and Action Queries

- Creating Parameter Queries
- Creating Action Queries

Lesson 2: Query Joins and Crosstab Queries

- Joining Tables and Working with Join Properties
- Creating Crosstab Queries
- Editing Limitations in Query Datasheets

Lesson 3: Using Advanced Form Techniques

- Organizing Field Placement
- Using Functions to Control Data Entry
- Adding an Option Group to a Form
- Using a Form as the User Interface
- Creating a Form that Contains a Subform

Lesson 4: Creating Basic Macros to Automate Forms

- Macro Basics
- Attaching a Macro to a Command Button
- Revising a Macro

Lesson 5: Using Macros to Provide User Interaction and Automate Tasks

- Using a Macro to Provide User Interaction
- Using a Macro to Automate Tasks
- AutoKeys and AutoExec Macros

Lesson 6: Using Advanced Report Techniques

- Customizing the Appearance and Functionality of a Report

Lesson 7: Web Capabilities and Data Integration

- Using Hyperlinks
- Data Integration

Appendix A: Replicating Databases

Appendix B: Encrypting Databases

Appendix C: Mailing Labels

Management Of Information Systems

Course Description

A capstone seminar to integrate the behavioral, organizational, operational, and technical aspects of information systems concepts and structures. Emphasis is on the internal management of information resources and on the management of information technology. Coverage of the subject matter will be through case studies, lectures, class discussion, independent readings and research.

Course Educational Objectives

Upon successful completion of the course, the students will be able to:

- Explain the content and process of formulating a strategic plan for the information resource and how it must mesh with the strategic plan for the firm;
- Explain the potential of electronic commerce.
- Explain the role of internationalism in managing information resources;
- Explain the ethical implications of information technology.
- Explain the value of systems theory to managing information resources.
- Explain the procedures for successfully managing information systems projects.
- Explain the unique characteristics of functional information systems.
- Use the computer as a problem-solving tool.
- Apply the principles of any of the above to a real-world case or firm;
- Be conversant with the current topics in information systems, and
- Demonstrate significant expertise in an emerging technology of the student's own choosing.

Introduction to SQL Training using MySQL Delivery

Classes for private groups are delivered onsite at your offices or a location of your choice. They can also be delivered via the Internet for geographically distributed staff.

Introduction to SQL Training using MySQL Course Overview

This MySQL training course is designed for students new to writing SQL queries using MySQL.

Introduction to SQL Training using MySQL Course Goals

- Understand how MySQL works
- Learn to use SQL to output reports with MySQL
- Learn to modify MySQL data with SQL
- Learn to create a simple MySQL database

Introduction to SQL Training using MySQL Course Prerequisites

There are no formal prerequisites for this class.

Introduction to SQL Training using MySQL Course Outline

- Relational Database Basics
 - Brief History of SQL
 - Relational Databases
 - Tables
 - Rows
 - Columns
 - Relationships
 - Datatypes
 - Primary Keys
 - Foreign Keys
 - Relational Database Management System
 - Popular Databases
 - Commercial Databases
 - Popular Open Source Databases
 - SQL Statements
 - Database Manipulation Language (DML)
 - Database Definition Language (DDL)
 - Database Control Language (DCL)
- Simple SELECTs with MySQL
 - Introduction to the Northwind Database

- Some Basics
 - Comments
 - Whitespace and Semi-colons
 - Case Sensitivity
- SELECTing All Columns in All Rows
- Exploring the Tables
- SELECTing Specific Columns
- Sorting Records
 - Sorting By a Single Column
 - Sorting By Multiple Columns
 - Sorting By Column Position
 - Ascending and Descending Sorts
- The WHERE Clause and Operator Symbols
 - Checking for Equality
 - Checking for Inequality
 - Checking for Greater or Less Than
 - Checking for NULL
 - WHERE and ORDER BY
- The WHERE Clause and Operator Words
 - The BETWEEN Operator
 - The IN Operator
 - The LIKE Operator
 - The NOT Operator
- Checking Multiple Conditions
 - AND
 - OR
 - Order of Evaluation
- Writing SELECTs with Multiple Conditions
- Advanced SELECTs with MySQL
 - Calculated Fields
 - Concatenation
 - Mathematical Calculations
 - Aliases
 - Aggregate Functions and Grouping
 - Aggregate Functions
 - Grouping Data
 - Built-in Data Manipulation Functions
 - Common Math Functions
 - Common String Functions
 - Common Date Functions
- Subqueries, Joins, and Unions with MySQL
 - Subqueries
 - Joins
 - Table Aliases
 - Multi-table Joins
 - Outer Joins

- Unions
 - UNION ALL
 - UNION Rules
- Inserting, Updating and Deleting Records with MySQL
 - INSERT
 - UPDATE
 - DELETE
- Creating and Modifying Tables with MySQL
 - Creating Tables
 - Datatypes
 - Altering Tables
 - Adding a Column
 - Dropping a Column
 - Renaming Tables
 - Dropping Tables
- Views and Stored Procedures Creating Views with MySQL
 - Dropping Views
 - Creating Stored Procedures
 - Benefits of Stored Procedures

ACCOUNTING AND BUSINESS ANALYSIS

This course presumes no prior knowledge of business administration. It is required by for MIS diploma as well as for certain other programs.

COURSE OBJECTIVES

1. Introduce students to the current methods used in developing financial statements.
2. Provide students with an introduction to the analytical management tools that assist business decision-making.
3. Increase problem-solving capabilities.
4. Improve communications skills (both oral and written).
5. Provide a common base of knowledge as a building block for the first year of the Under-graduate Business Program.
6. Provide a foundation of business knowledge as required for various other degree programs at Western (e.g., Administrative and Commercial Studies).

Students will understand why and how accounting principles are used to develop financial statements, learn basic analytical techniques, gain a better understanding of the workings of small business, and appreciate the difficulties involved in making decisions using incomplete or imperfect information.

COURSE STRUCTURE AND CONTENT

The course is divided into two segments: the first term deals with the preparation of financial statements; the second term focuses on the analysis of quantitative and qualitative data needed to make business decisions.

The Preparation of Financial Statements Segment

Generally accepted accounting methods of presenting the financial condition and performance of a firm will be outlined and discussed in a series of questions, exercises, problems and cases. In addition to manipulating, correcting and summarizing data to produce financial statements (balance sheet, income statement, etc.), students will be expected to recognize the uses and limitations of these statements.

Analysis and recording of accounting transactions using the T-account system will be the primary tool used in this segment of the course.

The Business Analysis and Managerial Accounting Segment

This portion of the course emphasizes the interpretation and use of the accounting information developed in the first term from the decision-maker's perspective. Students are expected to analyze the financial and non-financial aspects of a given firm and to evaluate future courses of action. This material is more subjective than the preceding term and requires students to make decisions using incomplete and imperfect information. The second term uses mostly cases based on small- to medium-sized businesses, as teaching vehicles, for applying the following concepts.

Business Planning

1. Cost Behaviour

This section involves the classification of costs according to their behaviour with respect to the sales volume of a firm. Such analysis is useful for preparing financial projections and budgets, controlling and monitoring performance, and making operating decisions. An understanding of cost behaviour is fundamental to quantitative analysis in the second term.

2. Marketing Management

The basic tenets around how to establish a marketing strategy are studied to understand the "fit" between a product or service and its intended consumers.

3. Cash Management

This section is divided into two segments—future and past. The cash budget (future) is a tool used in forecasting cash needs and surpluses in order to help manage a firm's cash position. The statement of cash flows (past) helps answer questions about cash usage and cash sources during the past accounting period.

4. Financial Management and Planning

This section introduces ratio analysis and projected financial statements. These tools enable a manager to assess the financial condition of a firm, plan for future financing needs, and choose the proper financing sources.

Managerial Accounting

Cost-volume classifications, overhead allocation rates and risk/return analysis,

highlighted earlier in the course, are re-examined. Topics include the setting of retail selling prices, evaluating sub-unit performance, and assessing short-term opportunities—the differential cash flow model.

Comprehensive Cases

The course will conclude with comprehensive cases which integrate the material covered in the second term.

FEASIBILITY STUDY

The group project integrates many concepts taught in the course. Students work in groups of seven people to undertake a feasibility study of a new enterprise and must complete a written report and give an oral presentation to the class. Field research and investigation are necessary. The project involves a significant amount of time (outside of regular classes) during the second term. Students should be cautioned that there will be out-of-pocket costs associated with the project; however, students are encouraged to keep these costs to a minimum. In the past, several projects have been implemented by students and have developed into successful small businesses.

COURSE MATERIALS

1. Text—*Financial Accounting: Tools for Business Decision-Making*, Kimmel, Weygant, Kieso, Trenholm, Canadian edition, 2001, John Wiley & Sons Canada, Ltd.
2. *Casebook—Business 257* (one volume for first term, one volume for second term)
3. Super-T Worksheets

TEACHING METHODOLOGY AND EXPECTATIONS

This course is taught primarily by the case method, which requires a much greater involvement of students in class than does the traditional lecture method. Students are expected to be fully engaged in the entire learning process. This means devoting time and energy to preparation before class, listening to others during class discussions and engaging in class discussions. Collective reasoning and discovery are critical to the successful application of the case method. *Prior to any case discussion, engaging in discussions with (or examining notes from) others who may have already experienced the case class is a clear violation of our norms.*

The workload for this course is heavy and students spend a considerable amount of time in preparing for each session since emphasis is upon day-to-day preparation for each class.

Using your computer during class for personal activities such as reading/writing email, writing letters, surfing the Web, playing games, etc. is distracting for others, not conducive to your own learning, and violates our norms.

Detailed note-taking during class can often be distracting for others and counterproductive to your own learning. Instead, try to be selective in taking notes during class. At the end of each class or at the end of the day it is a good idea to consolidate what you have learned.

Introduction to PHP

In this PHP training course, students will learn to create database-driven websites using PHP and MySQL or the database of their choice.

Introduction to PHP

- Learn how PHP works
- Learn the basic syntax of PHP
- Learn to create dynamic interactive pages with PHP
- Learn to work with arrays in PHP
- Learn to process and validate forms with PHP
- Learn to write functions in PHP
- Learn/Review basic SQL
- Learn to manipulate and manage database data with PHP

Introduction to PHP Training Course Prerequisites

Experience in the following areas is required.

- HTML

Experience in the following areas would be beneficial.

- CSS
- Basic Programming

Introduction to PHP Training Course Outline

- PHP Basics
 - How PHP Works
 - The php.ini File
 - Basic PHP Syntax
 - PHP Tags
 - PHP Statements and Whitespace
 - Comments
 - PHP Functions
 - Hello World!
 - PHP Tags
 - PHP Statements and Whitespace
 - Comments
 - PHP Functions
 - Hello World!
 - Variables

- Variable Types
 - Variable Names (Identifiers)
 - Type Strength
 - Hello Variables!
 - Variable Scope
 - Superglobals
 - Constants
 - Variable-Testing and Manipulation Functions
- Variable Types
- Variable Names (Identifiers)
- Type Strength
- Hello Variables!
- Variable Scope
- Superglobals
- Constants
- Variable-Testing and Manipulation Functions
- PHP Operators
- Creating Dynamic Pages
 - Single Quotes vs. Double Quotes
 - Howdy World!
- Single Quotes vs. Double Quotes
- Howdy World!
- Conclusion
- Flow Control
 - Conditional Processing
 - If Conditions
 - If Conditions
 - Loops
 - while
 - do...while
 - for
 - break and continue
 - while
 - do...while
 - for
 - break and continue
 - Conclusion
- Arrays
 - Enumerated Arrays
 - Initializing Arrays
 - Appending to an Array
 - Reading from Arrays
 - Looping through Arrays
 - Initializing Arrays
 - Appending to an Array
 - Reading from Arrays

- Looping through Arrays
- Associative Arrays
 - Initializing Associative Arrays
 - Reading from Associative Arrays
 - Looping through Associative Arrays
 - Superglobal Arrays
- Initializing Associative Arrays
- Reading from Associative Arrays
- Looping through Associative Arrays
- Superglobal Arrays
- Two-dimensional Arrays
 - Reading from Two-dimensional Arrays
 - Looping through Two-dimensional Arrays
- Reading from Two-dimensional Arrays
- Looping through Two-dimensional Arrays
- Array Manipulation Functions
- Conclusion
- PHP and HTML Forms
 - HTML Forms
 - How HTML Forms Work
 - A Sample HTML Form
 - Form Variables
 - How HTML Forms Work
 - A Sample HTML Form
 - Form Variables
 - Conclusion
- String Manipulation
 - Formatting Strings
 - Concatenation
 - String Manipulation Functions
 - Examples of String Functions
 - Concatenation
 - String Manipulation Functions
 - Examples of String Functions
 - Magic Quotes
 - magic_quotes_gpc
 - magic_quotes_runtime
 - Recommendation on Magic Quotes
 - Conclusion
 - magic_quotes_gpc
 - magic_quotes_runtime
 - Recommendation on Magic Quotes
 - Conclusion
- Reusing Code and Writing Functions
 - Including Files
 - require

- require_once
 - auto_prepend_file and auto_append_file
 - require
 - require_once
 - auto_prepend_file and auto_append_file
 - User Functions
 - Defining and Calling Functions
 - Default Values
 - Variable Scope
 - By Reference vs. By Value
 - Defining and Calling Functions
 - Default Values
 - Variable Scope
 - By Reference vs. By Value
 - Form Processing
 - Code Organization
 - Code Organization
 - Conclusion
- Simple SELECTs
 - Introduction to the Northwind Database
 - Some Basics
 - Comments
 - Whitespace and Semi-colons
 - Case Sensitivity
 - Comments
 - Whitespace and Semi-colons
 - Case Sensitivity
 - SELECTing All Columns in All Rows
 - SELECTing Specific Columns
 - Sorting Records
 - Sorting By a Single Column
 - Sorting By Multiple Columns
 - Sorting By Column Position
 - Ascending and Descending Sorts
 - Sorting By a Single Column
 - Sorting By Multiple Columns
 - Sorting By Column Position
 - Ascending and Descending Sorts
 - The WHERE Clause and Operator Symbols
 - Checking for Equality
 - Checking for Inequality
 - Checking for Greater or Less Than
 - Checking for NULL
 - WHERE and ORDER BY
 - Checking for Equality
 - Checking for Inequality

- Checking for Greater or Less Than
- Checking for NULL
- WHERE and ORDER BY
- The WHERE Clause and Operator Words
 - The BETWEEN Operator
 - The IN Operator
 - The LIKE Operator
 - The NOT Operator
- The BETWEEN Operator
- The IN Operator
- The LIKE Operator
- The NOT Operator
- Checking Multiple Conditions
 - AND
 - OR
 - Order of Evaluation
- AND
- OR
- Order of Evaluation
- Conclusion
- Subqueries, Joins and Unions
 - Subqueries
 - Joins
 - Table Aliases
 - Multi-table Joins
 - Table Aliases
 - Multi-table Joins
 - Outer Joins
 - Unions
 - UNION ALL
 - UNION Rules
 - UNION ALL
 - UNION Rules
 - Conclusion
- Inserting, Updating and Deleting Records
 - INSERT
 - UPDATE
 - DELETE
 - Conclusion
- Managing Data
 - Querying a Database
 - mysqli() Overview
 - mysqli Methods and Properties
 - Inserting and Updating Records
 - mysqli Prepared Statements
 - mysqli() Overview

- mysqli Methods and Properties
- Inserting and Updating Records
- mysqli Prepared Statements
- Conclusion

Business Systems Program Development

Course No: 235

Title: Business Systems Program Development

Credits: 3 credits - Lecture 2 hours; Lab 1 hour

Objective:

This course is directed at providing students with structured program development concepts for business application systems. Students will learn about programs as a problem solving technique, and will use a variety of concepts to develop structured programs. The language employed will be C++, Java, and the bulk of program development will occur in the PC environment.

Outline:

- Basic structure of a C++ program
- The C compiler features
 - Integrated development environment
 - Memory models
 - Debugger
- Data types
 - Basic types - char, int, float, etc.
 - Arrays and strings
 - Structures and unions
 - Storage classes (scope, duration, linkage)
 - Dynamic memory allocation
- Statements
 - Declaration
 - Expressions (simple, compound)
 - Program structures (sequence, selection, iteration)
- Functions
 - User defined
 - I/O function library (formatted, character, direct)
 - Video functions
- File manipulation
 - Creation
 - Maintenance
 - Report generation
 - Variable length records
- User interfaces
 - Input
 - Output
 - Dialog
- Program documentation
 - Structure

- Logic
- Program validation
 - Verification with specifications
 - Test planning
 - Testing

Business Systems Analysis

OBJECTIVES: Business Analysis is about understanding business requirements so that information systems will meet business needs. Many IT development projects fail to deliver because not enough effort is spent on analysing and prioritising business requirements.

This course introduces delegates to the skills and knowledge needed to do this. The central theme is that system development should be business driven rather than led by technology. It encompasses the view that information systems include business processes as well as information technology.

This course covers both the traditional structured approach to analysis and Rapid Applications Development. It is practical and interactive delivered using a mixture of lectures, workshops and case study exercises. Participants will learn how to construct high level business models, understand the techniques of fact-finding, produce more detailed business models and analyse user requirements. Teams will then develop a proposal for a new system and present their findings to management.

After the course participants will apply their new skills on your development projects to help ensure that business requirements are met.

Participants will be able to:

- Identify and analyse business requirements
- Identify and model business processes
- Construct a data model
- Plan and conduct a fact finding exercise
- Plan and present a structured walkthrough

COURSE CONTENT: Introduction to Systems Analysis

The impact of Information Technology

Information System Components

Understanding the Business

- Business profile, business model, company type –production, service, brick-and-mortar, dot com

Impact of the Internet

- B2C, B2B, web-based development

How business uses Information systems

- Enterprise computing, transaction processing, business support, knowledge management, user productivity

Information System Users and their Needs

Systems Development Tools and Techniques

Systems Development Methods

- Structured Analysis, O-O analysis, JAD, RAD, others

Systems Development Lifecycle

- Systems planning, analysis, design, implementation, operation and support, development guidelines

Information Technology Department

Systems Analyst position

- Responsibilities, required skills

Analysing the Business Case

Strategic planning – IT systems development

- Overview, from plans to results, business example, changing role of IT

Information Systems Projects

- Reasons for, factors affecting (internal and external), project management tools

Evaluation of Systems Requests

Overview of feasibility

- Operational, technical, economic, schedule

Setting priorities

- Factors affecting, discretionary and non-discretionary projects

Preliminary Investigation Overview

- Interaction with management and users, planning, understand problem or opportunity, define project scope and constraints, fact-finding, evaluate feasibility, estimate project development time and costs, present to management

Requirements Modelling

Systems Analysis Phase Overview

Joint Application Development

Rapid Application Development

Modelling Tools

- CASE, Functional Decomposition Diagrams, Unified Modelling Language

System Requirements Checklist

- Outputs, inputs, processes, performance, controls

Future growth, costs and benefits

- Scalability, total cost of ownership

Fact-finding

- Interviews, document review, questionnaires, sampling, research, observation

Documentation

Enterprise Modelling

Entity Relationship Diagrams

Context Diagrams

Data Flow Diagrams

- Levelling, balancing

Data Dictionary

Process Description Tools

- Modular Design, Structured English, Decision Tables, Decision Trees

Logical vs Physical Models

Development Strategies

Web-based software trends

Software Outsourcing Options

In-house Software Development Options

Cost-Benefit Analysis

Software Acquisition Example
Systems Requirement Document
System Design guidelines
Prototyping

Financial Analysis

Cost Classifications
Benefit Classifications
Payback Analysis
Return on Investment Analysis
Present Value Analysis

Communication

Written communications

- Style, readability, emails, memos, letters, reports

Oral communications

- Defining audiences, objectives, organizing presentations, preparing visual aids

Additional material also provided for individual study covering project management tools.

Case Study

A real-life case study runs throughout the course, giving delegates the chance to put theory into practice.

Emerging Information Technologies

Course No: 435

Title: Emerging Information Technologies

Credits: 3 credits - Lecture 2 hours; Lab 1 hour

Objective:

This course will introduce students to technologies that they will be exposed to in the corporate IS environment. It would involve lectures and demonstrations of emerging and potentially popular new information technologies, and labs for hands-on application and experimentation with the technology. Other possible activities include field trips, guest speaker sessions, etc. The content of this course will vary with time.

Relevant Curricula:

- (Implementation of PC Network Systems)
- (Software and Hardware Architectures)

Outline:

Lecture topics

- Communications technology
 - Local area network technology
 - Network operating systems
 - Long-haul communications
 - Client/server computing
- Distributed applications
 - Groupware
 - Interconnectivity
 - Teleworking
- Multimedia technology
 - Integrating audio and video
- Operating systems (DOS, Unix, OS/2, Windows)
- Hardware
 - Resources and devices (CPU, memory, disk, etc.)
 - Interfaces (cards, network interfaces, communications interfaces)

Lab Topics

- Load a system from scratch
- Add a new operating system to an existing system
- Add new devices
- Add new interfaces, including resolving addressing conflicts

- Add/upgrade resources
- Develop applications using multiple packages
- Perform LAN administration functions
- Hardware/software benchmarking and evaluation
- Make hardware/software purchase decisions
- Develop PC/LAN policies and procedures

MIS Project

Course No: 433

Title: MIS Project

Credits: 3 credits

Objective:

This represents the capstone course in the MIS program. It requires students to work on a IS development project, including phases of requirements, design, and implementation of a working system. Project management issues, including estimation, monitoring, and control, will be stressed. Interpersonal skills, including interviewing, working in small groups, coordinating activities will form a significant part of the project.