



**The University of the West Indies
Cave Hill Campus
Faculty of Pure and Applied Sciences
Department of Computer Science, Mathematics and Physics
Diploma in Information Technology**



Student Handbook

September 2011 - September 2012



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INTRODUCTION

In the Caribbean, during the last 15 to 20 years, we have seen a spectacular growth in the pervasiveness of information technology as developing countries try to position themselves closer and closer to those of the developed. With I.T. becoming more and more entrenched, the need for qualified personnel becomes even greater.

The University of the West Indies' Department of Computer Science, Mathematics & Physics is offering the Diploma in Information Technology as a 3 -Trimester (1 year) program designed essentially for persons who have some background in IT, or a background in a discipline other than Information Technology, who wishes to fine-tune their skills in this rapidly advancing field. This program gives students in non-computing disciplines a sound and solid foundation in many aspects of IT, thus providing a great opportunity to further develop their computer knowledge, skills, and aptitude.

Students completing the Diploma will considerably increase their market value, as they will be in an excellent position to understand and manage information technology-related issues in the workplace. Our objective is to prepare students for such challenges and opportunities by providing an excellent foundation in the major aspects of computing that drive business.

STAFF LIST

Head of Department	Prof. Tane Ray
Consultant	Dr. Jeffrey Elcock
Coordinator	Mr. Dale Franklyn
Contact Number	417-4380

APPLICATION PROCEDURE

Application Forms are available from the Department of Computer Science, Mathematics and Physics (CMP), University of the West Indies. Forms must be completed and returned to the CMP Department along the receipt for the Application Fee of BDS\$10.00 (non-refundable). Completed application forms must also be submitted along with two passport-size photographs. All fees should be paid to the Cashier in the Campus Bursar's office. **Incomplete applications will not be processed.**

You will be contacted as soon as possible of the decision regarding your application. Successful applicants will be required to pay the following fees before the commencement of the term:

Tuition	\$ 4,500.00
Caution Fee	\$ 100.00 (Refundable)
Identification Card	\$ 5.00

Tuition fees may also be paid in three instalments of \$1600.00 each, at the beginning of the Trimester. In the event that the fees have not been paid, the offer of a position on the programme would be considered to be have been rejected by the applicant.

The deadline for the submission of application forms is usually August 31st of the year of application.

REGULATIONS

1. **ENTRY REQUIREMENTS**

Completion of the Certificate in Information Technology is the normal entry requirement. However, applicants who have **relevant working experience in an appropriate environment and/or other qualifications may be admitted** directly to the programme. Such applicants may be interviewed before being admitted.

2. **PROGRAMME**

The programme of courses is designed as follows:

Trimester One

Desktop Publishing
Computing in Business
Basic Networking and Security

Trimester Two

Introduction to Website Development
I.T. Project Management
Introduction Wireless Tech & Services

Trimester Three

E-Business Fundamentals
Information Technology & Society
Elective of either:
i. Business Programming or
ii. Database Systems

Classes will generally be held on three evenings during the week between the hours of five and nine in the evenings, i.e. 5:00 p.m. – 9:00 p.m. at the Cave Hill Campus. However, depending upon the number of students and the availability of lecturers and classrooms, classes may be held outside these times.

COURSE OUTLINES

COMPUTING IN BUSINESS

Software Microsoft Office 2007

Contact Hours 40 hours

Performance-Based Objectives:

Students will be introduced to computer applications generally used to communicate, interact and share information in an office environment – task scheduling, email, presentations, forms, and other tools.

Students will learn the fundamentals of using Outlook 2007 to coordinate mail, appointments, events, and meetings

Students will learn how to create and edit bullet slides, use PowerPoint's drawing tools, and incorporate clip art into their PowerPoint presentations

Students will learn how to work with basic & advanced features of Excel 2007.

Students will also learn how to AutoFormat a document, use advanced Find And Replace skills, create forms, use form fields, add graphics, work with large documents, share documents.

Method of Evaluation:

Class Projects and Assignments	40%
Final Examination	60%

DESKTOP PUBLISHING AND IMAGE EDITING

Software: MS Publisher and Corel PaintShop Pro X2

Contact Hours: 40 hours

Course Objectives

On successful completion of this course, participants will be able to:

1. Demonstrate an understanding of basic desktop publishing fundamentals and concepts including the integration and manipulation of text and graphics.
2. Apply design concepts to various publications.
3. Edit publications using text, graphics, tints and styles
4. Edit and retouch digital images in different file formats.

5. Identify, evaluate and rectify common design pitfalls in various publications

Course Outline

Students will learn advanced applications using all components of desktop publishing. Course participants will learn desktop publishing terminology and concepts and create professional looking documents such as newsletters, brochures and promotional material.

This course will provide hands-on learning opportunities using Microsoft Publisher. The course is designed to develop critical thinking, decision making and creativity in planning, designing and evaluating business documents.

Image editing techniques using Corel Paint Shop Pro will also form a major component of the course.

Introduction to Corel Paint Shop Pro

1. Students will learn how to edit and retouch photographs for print and web publishing.
2. Black & White / Colour Photographs
3. Composite Photographs
4. File formats and their uses
5. Output for print vs. output for the Web
6. Using special effects

Method of Evaluation:

Class Projects and Assignments	40%
Final Examination	60%

INTRODUCTION TO WEBSITE DEVELOPMENT

Software Internet Information Services, Apache, MySql, PhpMyAdmin, Dreamweaver, Notepad++

Contact Hours 40 hours

Objectives

This course is designed to give students an introduction to the development of dynamic web and the use of popular technology in the industry today.

At the end of this course, students will have an appreciation of the use of CGI scripts, Server side scripting and Client side scripts.

Students will learn about and use ASP, VBscript, JSP/Java Servlets , Javascript, XML in the class practice sessions.

Course Content

Overview of html A history of html to its current form looking at its limitations and how they can be overcome.

Dynamic html An introduction to data driven web sites. The use of DHTML in producing dynamic pages. The Common Gateway interface and its use today.
The role played by webservers

Data formatting Tradition methods of dynamically formatting data.
Use of XML today and its integration into html.

Scripting languages : Server side scripts (ASP/JSP) and how their use to generate dynamic html.
Client side scripts (VBScript/Javascript) and their use in user interaction.
A look at the limitations of both paradigms.

Datasources: A look at common datasources to supply dynamic content to web sites.
Connection methods for client and server side scripts.
Basic data manipulation using SQL.

Data Models: A look at the levels of abstraction when doing web development and the models being used today.
A comparison of 1, 2 and 3 tier data models.

Method of Evaluation:

Class Projects and Assignments	40%
Final Examination	60%

IT PROJECT MANAGEMENT

Contact Hours: 40 hours

Course Objectives

Successful completion of this module enables students to:

1. Appreciate the practicalities of project evaluation and management;

2. Understand and use techniques for the evaluation, planning and management of projects;
3. Examine the issues and problems in being a project manager;

Experience the use of computer software in project evaluation and management. This will focus on the use of Microsoft Project.

Course Outline

Introduction to Project Management: This defines a project and its interaction with the wider environment.

The Role of the Project Manager: This looks at the role of the Project Manager and the issues and problems that arise in such a position.

Understanding the Project Life Cycle: This identifies the key stages of the project life cycle and the role they play in the success of a project.

Cost and Time Trade-offs: This focuses on time-cost trade-offs and the role they play in the success of projects and the achievement of the project being completed on time and on budget.

Planning, Scheduling and Implementation: This focuses on those factors which determine the need to undertake a project and through the use of scheduling techniques such as Critical Path Method/Project Evaluation and Review Technique (PERT) and the Gantt Chart, make a decision on how and when a project will be implemented.

Project Evaluation and Selection: This looks at appraisal techniques such as pay-back and net present value, to determine the worth of projects and the impact they have on resources, with a view to determining which project should be selected. It also focuses on those non-financial issues which play a part in project selection.

Method of Evaluation:

Class Projects and Assignments	40%
Final Examination	60%

BASIC NETWORKING AND SECURITY

Software Packet Tracer

Contact Hours: 40 hours

Objectives: This course is designed to give students basic knowledge of the principles and operations of computer networks. The security aspects of the course provide the fundamental knowledge necessary to understand Network Security. In addition, student will learn about some of the commonly available mechanisms for enhancing security.

Course Contents

Networking concepts: Essential information for understanding computer networks and includes: Computer Network concepts, Standard networking model (OSI model & TCP/IP). Network Ports and sockets.

Networking protocols: The function of a network protocol within a network. Different type of protocols. The TCP/IP protocol. TCP/IP Addressing schemes and Sub-netting. Static and Dynamic IP addressing.

Internetworking Components: Functions of networking Hardware such as Hubs, Bridges, routers, switches, cables, servers and clients. Network Topology (Ring, Bus, Star). DHCP and DHCP Server. Domain and Domain name Servers.

Operating Systems: The client/server model. Networking features of Windows XP professional and window 2000 server.

Network security Concepts: Network security concepts such Access control, Authentication, Authorisation, Data encryption and decryption Security, Common Network Security Protocols.

Network Security Issues: Forms of network base attacks. Understanding how virus and worms traverse and attack networks such as the Internet.

Security Protection Scheme: Network Address Translation, Firewall, Virtual private networks, Intrusion-Detection mechanisms.

Method of Evaluation:

Class Projects and Assignments	40%
Final Examination	60%

INTRODUCTION TO WIRELESS TECHNOLOGY

Contact Hours 40 Hours

Objectives:

In order to successfully implement mobile solutions and deploy mobile systems, a broad understanding of existing and available wireless technologies and services is required. This subject provides you with a broad overview of the wireless standards, wireless technologies, and wireless Internet services. Social issues relating to the implementation of wireless technologies and services will also be addressed.

Course Contents:

Electromagnetic Radiation

Concepts: Understanding the basic properties of electromagnetic radiation. This aspect of the course reviews concepts such as frequency, wavelength and wavespeed.

Wireless Transmission Media: An understanding of the various wireless media is required if we are to successfully deploy wireless systems. Wireless media to be dealt with are: Radio Wave, Microwave and Infrared. Modulation and Encoding such as AM, FM, PM, DSS, OFDM and FHSS also form part of this section.

Wireless LANs: This section introduces wireless LANs, standards such as IEEE802.11a, 802.11b and 802.11g. It also introduces the IrDA specifications for infrared wireless communication. Components of wireless Lans will also be dealt with here.

Wireless WANs: The Basics of the Cellular phone system will be taught in this section. The second part of this section would focus on how wireless WANs utilize cellular network infrastructure to give mobile users internet connectivity.

Other wireless Technologies:

The final section of this course introduces a number of wireless technologies i.e.: Fixed Wireless Broadband Access, Wireless Personal Area Networks (Bluetooth). Some of the social issued relating to the development and use of wireless technologies will be dealt with in this section.

Method of Evaluation:

Class Projects and Assignments	40%
Final Examination	60%

E-BUSINESS FUNDAMENTALS

Contact Hours: 40

Course Objectives

This program is structured and designed to provide participants with the basic knowledge and skills to become competent in the use and understanding of e-business applications. The program will help participants to understand the fundamentals of how e-business operates. It will cover the technology infrastructure in addition to important areas such as e-marketing and the basic legal issues in the online environment.

Course Outline

- **Introduction to e-business and e-commerce fundamentals:**
This section covers a simple introduction to e-business and e-commerce. Specifically, it examines the types of e-commerce, benefits and limitations of e-commerce and e-business, among other concepts within this environment.
- **Understanding the infrastructure for the online environment:**
Technology, Standards and Protocols: While there might be substantial variations in the content of various web sites, the underlying infrastructure is basically the same. Understanding this basic infrastructure therefore becomes necessary.
- **E-business enabling technologies:**
These technologies allow businesses and consumers to purchase goods and services, and exchange information on business transactions online. This section examines the basic function of these technologies in the online environment.
- **Electronic marketing, advertising & promoting:**
Online advertising attempts to attract individuals to web sites. It is therefore important that the various techniques used be examined and understood.
- **Understanding the basics of developing an e-business plan:**
The development of the e- business plan is critical to the success or failure of the e-business venture because it acts as a guide in the business achieving its goals. This module will examine the basic elements of the plan.
- **Online Security:**
Understanding the major types of security concerns described in this section will help in understanding and assessing the e-business security needs, the potential responses, and the wide range of security solutions available.
- **The role of an e-business in production and distribution operations:**
This section examines the role of e-business in production and distribution operations. Just as in other fundamental business functions, e-business has introduced opportunities and challenges. Whether in purchasing, product design, production, or delivery, e-business has changed the rules for large and small firms.
- **Legal Issues:**
The online environment requires that much attention be paid to such issues as the protection of intellectual property rights, consumer protection and other legal issues. This section seeks to provide some basic understanding of the issues involved.

Method of Evaluation:

Class Projects and Assignments	40%
Final Examination	60%

INFORMATION TECHNOLOGY AND SOCIETY

Contact Hours: 40 hours

Course Objectives

This course will seek to highlight the important role information technology plays in today's global society as well as analyse its impact on individuals, communities and institutions.

On completion students should be able to:

1. Define the characteristics of the "Information Age".
2. Understand the development of Information Technology and the Internet.
3. Demonstrate knowledge of the impact of Information Technology on society.
4. Analyse the moral and ethical issues which arise from the use of modern technology.
5. Assess the future trends in information technology.

Course Outline

The Development of Information Technology

Students will examine the characteristics of the "Information Age" and the history and development of information technology with special emphasis on the origin of the internet.

The Role of the Internet in Modern Society

This section explores the impact and significance of the Internet. Students will focus on such issues as the rise in E-commerce, Email and other Internet related activities.

The Impact of Information Technology on Societal Institutions

This investigates how technological innovations have impacted on some of our social institutions including schools, the workplace and hospitals. Students will examine how technology has changed the traditional way that tasks were accomplished in these organisations.

The Ethical Implications of Information Technology

This topic explores the ethical and moral issues that have arisen as a result of the global utilisation of technology. Some of the topics covered are software theft, hacking, privacy concerns and job losses.

The Future Trends in Information Technology

Students will examine future technological innovations that are likely to become integrated into society and analyse their likely impact.

Method of Evaluation:

Class Projects and Assignments	40%
Final Examination	60%

ELECTIVES

This course is included to provide the opportunity for participants to learn some aspects of a particular software package which provides them with a skill that is currently in demand. This year the options are:

- A. Business Programming
- B. Desktop Publishing/Computer Graphics: Level II.

Option A

MS OFFICE PROGRAMMING USING VBA (BUSINESS PROGRAMMING)

Software: MS Office Suite 2007, VBA Editor

Contact Hours: 40 hours

Course Description:

This course is design to equip students who have some programming skills and would like to stay abreast or further develop the latest programming techniques. It covers the four core Office applications (Word, Excel, PowerPoint and Access) and shows how to get the most out of these powerful applications using VBA.

Course content:

- 1. Introduction** Describes why Office programming is useful, and gives an overview of what the course covers.
- 2. Macros** Explains fundamental concepts you should understand to program the Office applications. It explains the general structure of those applications and how they use VBA as a macro language. It shows how to use the macro recorder to quickly generate simple macros.
- 3. Customizing Office** Explains different ways you can run a macro or make it easily available to others who need to use your code. It tells how to tie macros to custom toolbar buttons and menu items.
- 4. Automatic Customization** Explains how to make documents that install and remove their own customizations.
- 5. Office Programming the Easy Way: OLE** Explains how you can use OLE to avoid some possibly onerous programming chores. OLE lets you include the features of one Office application within another. For example, OLE lets you embed an Excel worksheet inside a Word document.

- 6. Introduction to Office Object Models** Introduces the object models you can use to manipulate the Microsoft Office applications. Discusses features and objects shared by the different applications.
- 7. Word** Explains Word programming and describes the most useful objects, properties, and methods in the object model.
- 8. Excel** Explains Excel programming and describes the most useful objects, properties, and methods in the object model.
- 9. PowerPoint** Explains PowerPoint programming and describes the most useful objects, properties, and methods in the object model.
- 10. Access** Explains Access programming and describes the most useful objects, properties, and methods in the object model.
- 11. Other Topics** Looks at other uses of programming Microsoft Office with VBA

Instructional Methods: Discussion, Questioning, Demonstrating, Individual Instruction

Option B

DATABASE MANAGEMENT SYSTEMS: LEVEL II

Software Microsoft Access 2007

Contact Hours 40 hours

Performance-based objectives:

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

- ❖ Understand and use the principles of good table design
- ❖ Understand and use the techniques of table relationships
- ❖ Create parameter and action queries
- ❖ Create query joins and crosstab queries
- ❖ Use advanced form techniques
- ❖ Create basic macros to automate forms
- ❖ Use Macros to provide user interaction and automate tasks
- ❖ Customise reports and sub-reports created by the report wizard
- ❖ Using advanced report techniques
- ❖ Understanding application design concepts
- ❖ Add Command Buttons to Guide User Navigation
- ❖ Create a Switchboard Form with switchboard manager
- ❖ Working with Command Bars: Toolbars and Menus
- ❖ Add security to an application

Method of Evaluation:

In either option, the course will be evaluated on 40% - 60% basis, for course work and final examination respectively.

CATEGORIES OF PASS: The Diploma shall be awarded in three categories as follows:

- (a) Pass with Distinction
- (b) Pass with Merit
- (c) Pass

To be awarded a Pass with Distinction a candidate must satisfy both of the following conditions:

- (i) pass all courses (including the project) at the first attempt,
- (ii) have an overall combined average of 80% or higher.

To be awarded a Pass with Merit a candidate must satisfy both of the following conditions:

- (i) pass all courses (including the project) at the first attempt,
- (ii) have a combined overall average of 70% or higher.

All other students will be awarded Pass.

Grading Scheme

80 - 100	A+
70 - 79	A
60 - 69	B+
50 - 59	B
0 - 49	Fail

Prizes A prize of BD\$1000.00 will be awarded each year based on the final results for candidates who are eligible for the award of the Diploma. The prize is awarded for the best overall performance.

Coursework

Students should endeavour to be present for **ALL** sessions where possible, however, where a student is absent particularly where he/she misses an examination, a copy of a doctor's certificate **MUST** be submitted within seven days to the office in order to be accommodated. In the instance where the individual has to travel on company business, a letter from the employer would suffice. In all other situations where the student is inexcusably absent, they will be given zero for that examination.

Where deadlines are set for the submission of coursework, students should apprise the course tutor of any difficulties experienced in meeting the appointed time at the

earliest opportunity. Tutors/Staff are not obliged to accept any assignment that is being submitted after the appointed time.

Student fees

Any student who has fully paid all fees and has started classes, will be refunded:

- a. Three thousand five hundred dollars if that application is to withdraw within the first month of the first Trimester.
- b. Two thousand dollars if that application withdraws before the start of the second Trimester.
- c. No money if that application withdraws after the second Trimester has already started.

STUDENT INFORMATION

Withdrawal Procedure

Any student wishing to withdraw from the programme or take a leave of absence must first complete the ***Withdrawal*** form and be interviewed by the coordinator. Any student who is inexplicably absent for an extended period, (e.g. end of Trimester one and beginning of Trimester 2), will be deemed to have withdrawn from the course and will forfeit all monies paid.

Supplemental Exams

The pass mark for all courses is 50%. Where a student fails to attain this percentage, he/she will be awarded a supplemental examination. Supplemental examinations for all courses will be held at the end of Trimester three, thus providing a second opportunity for students to pass courses.

Remedial classes will be held for those courses that were done in the first & second Trimesters only. These classes will only take place if there are at least six (6) students each of whom pays a fee of \$75 to the Department to cover the cost of lectures. A tiered method of payment will be used for those individuals who have more than one supplemental. (It is also to be pointed out here that these remedial classes are **NOT** mandatory, but only an aid to assist the student in passing the course.)

Note that supplemental examinations are evaluated out of 100%. No marks from course work done (project, assignment, etc) during the term are carried forward.

Conduct

Students are to be cognizant of the fact that they are students of the University, and by extension must follow the general rules as laid down by the University. They should be in possession of their identification cards at all times, as this will be required for access to some facilities of the University (e.g. the Main Library and Computer Laboratories).

In particular, students are to adhere to the rules governing the use of the computer laboratories as laid down by the Director of Information Technology on the Campus or any of his staff. Students at no time should “interfere” with the settings on any of the machines in the labs, as this may result in some penalty being inflicted on that individual.

Where a situation arises which has not been catered for here, the Head of Department, CMP, will arbitrate the issue.

Transcripts

Students will be allowed to have the first transcript of their results sent to any organisation of their choice free of cost. All subsequent transcripts will only be provided after paying the BDS \$5 fee.

Repeating Modules

It is expected that the normal course of study will last no longer than one **year**. Supplemental exams are also provided free of cost to every student failing any course. However, in the event that after the year in which the student was initially registered has passed, and they have a courses outstanding in order to receive the diploma, then that student is required to pay BDS\$400 for each course which is to be repeated.

Students can complete the DIT programme over a 2 year period, by taking individual units.

The cost of a single unit is \$600.00. It is recommended that students register for **at least** 4(four) units per year.