CXC Information Technology

Information For Students Thinking About Pursuing The Subject In The Upper School

Introduction

This document is specially prepared for students (and their parents) who are interested in studying Information Technology at CXC CSEC level while at secondary school. It seeks to give the student an overview of the content in the syllabus as well as an idea of how studying the subject will be useful in future study or occupation.

The subject – what it is

First you must be fully aware that it is not about spending all (or even most) of your time doing things on the PC. Even though the subject is called Information Technology, a look at the subject will show that it is a combination of **Information Technology** and **Computer Science**. What is the difference? Computer Science focusses on software development – popularly called *Problem Solving & Programming*. Information Technology is the broader study of all aspects of technology which is used for the production and movement of information, mainly in a modern world. This indicates that the study goes way beyond just computers, but includes many different machines, most of which are computer driven. It should be noted that CXC tends to emphasize the computer science aspect. In their words, students taking the subject must think more of becoming producers of programs rather than just being end users.

The syllabus – what are you expected to know after taking the subject

The syllabus is divided into eight sections. Each one will be described below.

Section 1 - FUNDAMENTALS OF HARDWARE AND SOFTWARE (theory)

This section explores the various types of computers and other components which constitute a computer system. It seeks to give students an understanding of each piece of hardware as well as its make-up and functions.

It also deals with the parts and functions of the PC (personal computer) and the role each part plays in making a complete system. This will include input, output and storage media.

The software sections deals with operating systems and application programs. It also includes an understanding of how the software works with the hardware, and the binary number system (machine language).

Section 2 & 3 - PROBLEM-SOLVING AND PROGRAM DESIGN | PROGRAM IMPLEMENTATION

This is the computer science section. Students are required to study and practice problem solving in a more real way than ever before. This leads to writing programs in **Pascal** language. The student is expected to use previously taught mathematics and logical concepts to arrive at solutions to given problems. The idea is to produce a sequence of steps – referred to as an algorithm – which will accurately and consistently give the required result. This process is preceded by an analysis of the problem, and followed by the coding of the solution in the Pascal language on the computer. It must be noted that unlike in the Mathematics class, no actual numbers are used in the problems considering that the emphasis is on *the process of solving the problem* rather than the outcome. A program which will repeatedly produce the correct result is all that is needed.

Section 4 - APPLICATIONS AND IMPLICATIONS OF INFORMATION AND COMMUNICATIONS TECHNOLOGY (theory)
This section explores communications techniques and devices. It includes areas such as internet, intranet and local networks. Devices and resources such as transition media and associated software (web browsers, remote controls etc) are considered for greater understanding of how we communicate electronically. Also included are topics such as computer crime and prevention, computer assisted production such as CAD-CAM, and careers in IT.

Section 5 - INFORMATION PROCESSING (theory)

On completion of this Section, students should develop an understanding of the principles, organization and operation of Information Processing Systems. This will include forms of Information Processing such as automation, process control, commercial, industrial, and scientific data processing and information retrieval and management. They will also examine validation and verification of data / information.

Sections 6, 7 & 8 – PRODUCTIVITY TOOLS

These sections cover areas such as *word processing, spreadsheet management*, *database management*, *presentations (as in Power Point) and webpage design*. Note that the objectives here differ drastically from the sister subject – EDPM, in that the focus is not on the actual production of documents, but the mastery of the programs used. In each case, the student is expected to show that they can manipulate the program used, to produce a solution to a problem in an effective *and* efficient manner. To this end, the marking of projects is based <u>on the students' ability to demonstrate how their solutions were arrived at</u>. Of course, good presentation is also considered.

What Does This Mean For The Student?

Information Technology for CXC is not a subject which can be approached in a laid-back fashion. The material mentioned above has to be covered in a very short time leading up to the final examination. What is required of the student is:

- Sustained focus
- Self-learning (lots of reading)
- Review, practice & application of math concepts which were taught earlier
- The ability to relate the subject material to real life
- The completion of an SBA
- Completion of a final 2 part examination

Two text books are supplied. Others are brought to the classes as is necessary.

Many of the notes and work sheets are teacher prepared and are posted on the website: classjump.com/parris

Students are encouraged to download a copy of the CXC official syllabus from CXC's website.

Future Study & Careers

Students must note that if it is their intention to study **CXC CAPE Information Technology** or to pursue the Barbados Community College **Associate Degree in Information Technology / Computer Studies**, <u>CSEC Information Technology is required</u>.

In terms of career choices, the field is extremely wide, especially when you begin thinking beyond these shores. Some of the choices include but are not limited to network administration, network technician, computer building & repair, programming, software engineering, game design & development, apps development, webpage design, computer graphics artist, Computer Information Technician, Computer Systems Manager, teacher, Computer Graphics Designer and several others.