



Information Technology Syllabus

Term1 -Year 2020-2021

General Information

Description

RATIONALE

Information Technology (IT) continues to evolve in response to the need for more efficient techniques to manage the significantly increased volume and sophistication of the knowledge reservoir of mankind. It merges the study of Computer Science, Information and Communications Technology (ICT) and Office Automation. It involves the collection, processing, storage, retrieval, and dissemination of information, and impacts both work and social activities. The evolution of the field of Information Technology continues at a rapid pace. New technologies are constantly emerging and existing ones become obsolete soon after they appear. The rapid advances in technology undoubtedly have a profound effect on information technology education and, as such, Information Technology curricula must be refreshed to remain relevant.

In a world characterized by rapid technological innovations, it is imperative that Information Technology students are equipped with the requisite knowledge and skills that will enable them to function effectively both as producers and consumers of technology. It is also important to prepare students for the future by establishing foundational competencies which will enable them to be flexible to adapt to emerging technologies and new situations. To this end, the CSEC® Information Technology syllabus is designed to provide knowledge and skills in the essential Information Technology domains which include: computer fundamentals, problem-solving, networks, Web Technologies, productivity tools, computer and cybersecurity, as well as the social implications of information and communications technology. The goal is to use learner-centred and problem-based teaching, and assessment strategies to develop core competencies that will provide pathways to multiple postsecondary destinations.

Information Technology is the key to development and productivity in this modern era and as such, Information Technology education must be seen as integral to meeting the developmental needs of our region.

All citizens should have practical exposure to the applications of Information Technology in order to narrow the gap between Caribbean and developed nations. Consequently, this programme of study in Information Technology promotes the development of computer-related skills and encourages the development of analytical and design skills which are applicable in all subject areas, the work environment and the wider society. The syllabus aims to provide a blend of knowledge and practical experience that fosters innovation, self-confidence, together with critical thinking skills that will prepare students to meet the ICT needs of the region and beyond.

The Information Technology syllabus is based on objectives, skills and content which will cultivate the attributes of the Ideal Caribbean Person as articulated by CARICOM. That is, a Caribbean person who demonstrates multiple literacies, as well as independent and critical thinking, and questions the beliefs and practices of the past and brings this to bear on the innovative application of science and technology to problem-solving. Such a person will inevitably demonstrate a high level of self-confidence and self-esteem, a positive work ethic, and display and nurture creative imagination in the economic and entrepreneurial spheres and other areas of life. Also, in keeping with the UNESCO Pillars of Learning, this course of study will contribute to the development of a person who will learn to be, learn to know, learn to do, learn to live together, and learn to transform oneself and society.

Expectations and Goals

The syllabus aims to:

1. Prepare students to function effectively in a dynamic technological era;
2. Promote the development of computer-related skills for application to real-life situations;
3. Prepare students to use information technology responsibly;
4. Facilitate the development and application of problem-solving and other twenty-first century skills;
5. Provide a foundation for post-secondary education; and,
6. Prepare students for suitable employment.

Course Materials

Required Materials

- Laptop
- Textbook
- Necessary software to complete the course.

Required Text

Information Technology for CSEC Author: Glenda Gay and Ronald Blades

Information Technology for CSEC Author: Howard Campbell

Information Technology for CSEC Author:

Course Schedule Term1

Month	Week	Topic	Reading	Exercises	Assessments
August	17-21	Fundamentals of hardware and software (Section I) 1. explain the concept of Information Technology 2. Distinguish among the major types of computer systems in terms of processing speed, storage and portability; 3. Explain the functions of the major hardware components of a computer system; 4. Explain how the major hardware components of a computer system interrelate;	Notes online	Homework Questions. Page 18 GG and RB	Quiz
	24-28	5. Evaluate the relative merits of cloud storage and local storage; 6. select appropriate input/output devices to meet the needs of specified applications; 7. explain the role of the different types of software in computer operation;		Multiple choice questions.	Test
	31-04	8. discuss the relative merits of the various types of user interface; 9. evaluate the suitability of a given computer system for a specific purpose; 10. troubleshoot basic computer hardware problems;		Page 12 questions GG and RB Page 20 and 23 GG and RB	Assignment
Objectives:		Covers objectives 1-10 from the CSEC syllabus			
September	07-11	Data Validation and Verification 11. distinguish between data and information; 12. evaluate the reliability of information obtained from online sources;	Textbook and online resources	Pages 104-106 HC	Test/Assignment
	14-18	13. differentiate between validation and verification of data; 14. identify appropriate validation and verification checks given a particular scenario;			Quiz

Month	Week	Topic	Reading	Exercises	Assessments
Objectives:		Covers objectives 11-14 from the CSEC syllabus			
	21-25	File organization and access 15. select appropriate file organization for particular application.	Textbook and online resources	Pages 104-106 HC	Test
	28-02				Quiz
Objectives:		Covers objective 15 from the CSEC syllabus			
October	05-09	MID- TERM BREAK	(Section 2)		Test
	12-16	Data Communication and the Internet 1. distinguish among types of networks; 2. explain the functions of the basic components of a network;	Textbook and online resources	Pages 60-61 HC	
	19-23	3. Assess the importance of mobile communication technologies as a component of modern communication networks;			Quiz
	26-30	4. Explain the interrelationship among key Web technology concepts.			Assignment
Objectives:		Covers objectives 1 to 4 section 2 from the CSEC syllabus			
	26-30	Data Security and Integrity 1. outline the concepts of computer security, cybersecurity and computer misuse;	(Section 3) Textbook and online resources	Pages 122-123 HC	Quiz
November	02-06	2. assess the potential impact of computer systems misuse based on the main entities impacted;			Assignment
	09-13	3. describe suitable countermeasures to mitigate effects of identified threats;			Test

4. assess the effect of automation on job security;

Objectives:

Covers objectives 1 to 4 from the CSEC syllabus

REVISION WEEK 16 NOV to 20 NOV

23 NOV to 4 NOV TERM1 EXAMS

Exam Schedule

Date	Subject
Date 1	Enter subject
Date 2	Enter subject
Date 3	Enter subject

Course Schedule Term2

Month	Week	Topic	Reading	Exercises	Assessments
December	7-11	Data Security and Integrity 5. Describe the roles of various personnel in computer-related professions; 6. Assess the impact of information and communications technology on select Fields.			Test
	14-18	Database Definition of database: (a) repository of information; and, (b) collection of tables that are related to each other. Purpose of database. 2. Use terminology commonly associated with a database; Database terminology: table, row (record), column (field), primary key, secondary key, candidate key, foreign key. Data types: numeric; text; logical; date /time; currency.		Pages 268-261 GG and RB	Practical Assignment Practical test checking to see tables in design view and use of primary key
CHRISTMAS BREAK :21/12/2020 to 1/1/2021					
January		3. Create a database; and, Table structure with at least three data types and populated with at least 25 records. Modify a table structure: adding new fields, deleting fields, changing field definitions. Establish primary keys. Establish relationships: show the joins between tables (one-to-one and one-to-many).			Test Practical: Query single and multiple criteria

Month	Week	Topic	Reading	Exercises	Assessments
		<p>4. Manipulate data in a database.</p> <p>(a) Forms:</p> <p>(i) Use of form wizard only;</p> <p>(ii) select suitable fields; and,</p> <p>(iii) use of sub-form.</p> <p>(b) Queries:</p> <p>(i) more than one criterion;</p> <p>(ii) use of select;</p> <p>(iii) use of calculated field; and,</p> <p>(iv) two or more fields involving the use of relational and logical operators.</p>			Test Practical: Creating forms and Sub forms.

February & March	Problem-Solving and Programming	Textbook and online content		
	<p>1.Steps in problem-solving:</p> <p>(a) define the problem;</p> <p>(b) propose and evaluate solutions;</p> <p>(c) determine the most efficient solution;</p> <p>(d) develop the algorithm; and,</p> <p>(e) test and validate the solution.</p>		Pages 298 GG and RB	Test
	<p>2. use the divide-and-conquer approach to decompose large everyday problems into smaller tasks;</p> <p>Basic treatment of the structured approach for solving complex problems.</p> <p>Note: It is not necessary to give a detailed treatment of the approach. Simple illustrations can be provided to help students recognize that most problems involve multiple tasks and that they should understand how to approach such problems in a structured manner.</p>		Pages 95-96 GG and RB	Practical programming test

3. define a problem by decomposing it into its significant components;
The components are: input; process; and output. A defining diagram (IPO Chart) may be used to delineate the components.

Quiz

Assignment

4. distinguish between variables and constants;
Variables as an area of storage whose value can change during processing; the value of a constant never changes.

5. explain the concept of algorithms; Definition of algorithms.

Characteristics: finite number of steps, precise, unambiguous, flow of control from one process to another, terminate.

6. represent algorithms in the form of flowchart and pseudocode; and,
Use of flowchart symbols: input/output, process, decision, directional arrows, start/stop.

Pseudocode – Use of read, input, store, write, print, output, display, conditional branching (if-then, if-then-else, nested conditions); loops (for, while, repeat).

Use of relational operators: <, >, =, <=, >=, <>.

Logical operators: AND, OR, NOT; use of truth tables.

Arithmetic operators: +, -, *, /, MOD, DIV.

7. Test algorithms for correctness. Desk checks/dry run: construction and use of trace tables to verify results. Trace tables consist of variable names (identifiers) as column headings and values in the cells, one row for each pass.

Course Schedule Term3

Month	Week	Topic	Reading	Exercises	Assessments
March- April		Web page designing	Textbook and online resources	Page 249 HC	Project to design a web page:
		1. plan a website structure and organization of page;			Test : Web page terms
		2.create simple web pages using a variety of design features;			
		3. Insert hyperlinks within different locations of a typical web page; and,			
		4. Evaluate a website for accuracy, user friendliness and effective display.			
May		Revision of all the topics covered throughout the school year. <ul style="list-style-type: none">• Word processing assignments• Excel			
June		Preparation of exams.			