



Grade 12 Computer Science Course Outline



Computer Studies Department September 2024-2025

Important dates:

1. Midterm – **October 21 - 23**
2. 1st Sixth week test- **October 14 - 18**
3. 2nd sixth week test- **December 9 - 13**
4. Term ends: December 20, 2024

Class Information

Class title:	Computer Science Unit 1
Class summary:	<p>This course is designed for grade 12 students who are preparing to complete their first year of the 2-year CAPE programme. It is designed for students who have successfully completed their fourth year of Information Technology and who have EXCELLED in the aspect of Programming. The course focuses on the development of the following skill areas:</p> <p>Creativity, collaboration, communication and critical thinking skills using appropriate Information and Communication Technologies.</p>
Teacher(s):	T. Cushnie, D. Coburn
Delivery date:	September 2024
Enrollment duration:	Students will take this class for two terms
Delivery format:	Online(Google Classroom)/Face-to-Face (F2F)
Delivery method:	Combination of Synchronous and Asynchronous
Class structure:	Chronological (week by week)

Required tools:	<p>Access to Google classroom</p> <p>An Edulastic platform</p> <p>Devices</p> <p>Smartphone/Tablet/ Desktop computer/ Laptop computer</p>
Acceptable formats:	<p>Microsoft Word for text documents: .doc, .docx</p> <p>Microsoft PowerPoint for presentations: .ppt, .pptx</p>
Required student materials:	<p>Notebooks</p> <p>Past Paper Booklets</p>
Guidelines/Suggestions for Teaching Methods and Student Learning Activities:	<p>Lectures: Provide contextual background and detailed analysis of each topic.</p> <p>Group Discussions: Facilitate discussions on the computer system.</p> <p>Research Projects: Assign research on a topic related to the components of a computer system.</p> <p>Differentiated Instruction: Tailoring instruction to meet the needs, strengths, and interests of each student.</p> <p>Lecture-Demonstration: Combining lectures with demonstrations to enhance understanding through verbal and visual learning</p> <p>Peer Teaching: Students teach their peers, which can reinforce their own learning and enhance their understanding.</p>
Guidelines/Suggestions for Methods of Student Evaluation:	<p>Quizzes and Tests: Regular assessments to check understanding of key concepts.</p> <p>Classwork: Assignments completed during class that help monitor ongoing student progress and understanding.</p> <p>Homework Assignments: Tasks assigned for completion outside of class, reinforcing concepts taught and promoting independent study.</p> <p>Class Participation: Assessment based on engagement in discussions and activities.</p> <p>Presentations: Students present their research findings to the class.</p>

Final Exam: A comprehensive exam covering all course material.

Group Projects: Team assignments that assess collaborative and interpersonal skills along with individual contributions.

Peer Reviews: A process where students evaluate each other's work, providing feedback and gaining insights from peers.

Reflections: Written insights by students on their learning experiences, often discussing what they learned and areas for improvement.

Self-Grading: Allowing students to evaluate their own work, fostering self-reflection and critical thinking about their performance.

Online Quizzes and Exams: Digital tests that make use of technology to assess students' understanding in a more flexible or remote setting.

**Suggested Readings,
Texts, Objects of Study:**

Duncan, O'Neil *Information Technology and Computer Science for CAPE and College Students*, LMH Publishing Limited, Jamaica, 2017.

C How to Program, 8th edition, Pearson, 2016.

Outline of the Course Content:

Content

- Motivational Activity.
 - Introduction and Recap of Concepts Problem solving Concepts done in grade 11.
 - Discuss expectations for grade 12 Computer Science and goals for Grade 12 and strategies to achieve their goals
 - Discuss expectations students have for the teacher and term.
 - Diagnostic Quiz to refresh students' memory in coding.
 - Definition of the term Problem Solving
 - The stages in the problem solving process
 - Define the term Algorithm
 - The properties of a well-designed algorithm
 - Representing Algorithms.
- Constructs used in programming
 - Input and output statements
 - Control Structures: Sequencing; selection; iteration or repetition (bounded, for example, fixed number of iterations and unbounded, for example, sentinel control).
Assignment statement
- Determination of output and correctness of a given algorithm
 - Determine whether an algorithm achieves its stated objective and if not provide a correct algorithm
- Determine a general solution to the case
 - List clearly defined and unambiguous steps, finite number of steps, and flow of control from one process to another.
 - The need for developing the logic of a computer program.

- Implement Algorithms as logically sequenced instructions.
- Characteristics of different programming paradigms.
- Explain the need for different programming languages

SIX WEEKS TEST

- Program Translation
- Stages in the translation process
- Programming Language Translators
- Variable declaration and assignment
- Input and Output
- Statements Good programming practices
- Conditional and Iterative Constructs
- Arrays
- Functions
- Algorithm Implementation
- Records
- Files
- **SIX WEEK TEST**