CCGP Learning Academy

Course Outline: **ICS2O**

Department	Computer Studies
Teacher	Monzu Ali
Course Development Date	August 20, 2020
Course Reviser	Shafeen Manzur
Course Revision Date	August 31, 2020
Course Title	Introduction to Computer Studies, G-10

Course Description
This course introduces students to computer programming. Students will plan and write simple computer programs by applying fundamental programming concepts, and learn to create clear and maintainable internal documentation. They will also learn to manage a computer by studying hardware configurations, software selection, operating system functions, networking, and safe computing practices. Students will also investigate the social impact of computer technologies, and develop an understanding of environmental and ethical issues related to the use of computers.

Course Details

Name of Curriculum Policy Documents	The Ontario Curriculum, Grade 10 to 12 Computer Studies, 2018
Course Type	Open
Ministry Course Code	ICS2O
Study Year	2020-2021
Credit Value	1
Pre requisite	None

Module	Name	Length
1	Understanding Computers	35
2	Introduction to Programming	30
3	Computers and Society	35
	Assessment and Final Exam	10
Total		110 Hrs

Overall Curriculum Expectations

Module-1: Understanding Computers

By the end of this course, students will:

- Describe the functions of different types of hardware components, and assess the hardware needs of users
- Describe the different types of software products, and assess the software needs of users
- Use the basic functions of an operating system correctly
- Demonstrate an understanding of home computer networking concepts
- Explain the importance of software updates and system maintenance to manage the performance and increase the security of a computer

Module-2: Introduction to Programming

By the end of this course, students will:

- Describe fundamental programming concepts and constructs
- Plan and write simple programs using fundamental programming concepts
- Apply basic code maintenance techniques when writing programs

Module-3: Computers and Society

By the end of this course, students will:

- Describe key aspects of the impact of computers and related technologies on society
- Describe computer use policies that promote environmental stewardship and sustainability
- Describe legal and ethical issues related to the use of computing devices
- Describe postsecondary education and career prospects related to computer studies

Module Description

Module-1: Understanding Computers

Specific Expectations are:

1.1 Hardware Components

- Use correct terminology to describe computer hardware, speed measurements
- Describe the functions of the internal components of a computer
- Describe the functions of common computer peripheral devices
- Assess user computing needs and select appropriate hardware components for different situations

1.2 Software Products

- Explain the difference between software used for applications, programming, and systems
- Assess user computing needs and select appropriate software for different situations

1.3 Operating Systems

- Describe operating system functions that meet various user needs
- Use file management techniques to organize and manage files
- Use general keyboard shortcuts to perform common tasks
- Describe the features and limitations of various operating systems

1.4 Home Computer Networking

- Identify various networking applications and protocols
- Describe the features and functions of wired and wireless networking hardware
- Demonstrate an understanding of various methods for sharing network resources

1.5 Maintenance and Security

- Describe different types of malware and common signs of an intrusion, and explain how to prevent malware attacks
- Explain the importance of maintaining software updates to increase computer security and maintain hardware and software compatibility
- Explain the importance of preventive maintenance to manage computer performance.

Module-2: Introduction to Programming

Specific Expectations are:

2.1 Programming Concepts

- Use correct terminology to describe programming concepts
- Describe the types of data that computers can process and store
- Explain the difference between constants and variables used in programming
- Determine the expressions and instructions to use in a programming statement, taking into account the order of operations
- Identify situations in which decision and looping structures are required
- Describe the function of Boolean operators, comparison operators, and arithmetic operators, and use them correctly in programming.

2.2 Writing Programs

- Use a visual problem-solving model chart and diagram; flow chart; storyboard) to plan the content of a program
- Use variables, expressions, and assignment statements to store and manipulate numbers and text in a program
- Write keyboard input and screen output statements that conform to program specifications;B2.4 write a program that includes a decision structure for two or more choices
- Write programs that use looping structures effectively; B2.6 explain the difference between syntax, logic, and run-time errors
- Compare and contrast the use of different programming environments to solve the same problem

2.3 Code Maintenance

- Write clear and maintainable code using proper programming standards
- B3.2 write clear and maintainable internal documentation to a specific set of standards
- Use a tracing technique to understand program flow and to identify and correct logic and run-time errors in a computer program;
- Demonstrate the ability to validate a computer program using test cases

Module-3: Computers and Society

Specific Expectations are:

3.1 Social Impact

- Describe a variety of adaptive technologies that help to improve computer accessibility
- Explain the impact on privacy of techniques for collecting and processing data
- Describe how portable computing devices
- Describe how electronic access to information influences our everyday lives, as well as the lives of people in various countries around the world, in both positive and negative ways
- Describe issues associated with access to online services

3.2 Environmental Stewardship and Sustainability

- Describe the negative effects of computers and computer use on the environment and on human health
- Identify measures that help reduce the negative effects of computers on the environment and on human health
- Describe ways in which computers are or could be used to reduce resource use and to support environmental protection measures
- Describe, on the basis of research, how and where recycled electronic waste is processed, and identifies local companies and institutions that offer such services.

3.3 Ethical Issues

- Describe legal and ethical issues related to the use of computers
- Describe safeguards for preventing the unethical use of computers.

3.4 Postsecondary Opportunities

- Research and describe trends in careers that require computer skills, using local and national sources
- Research and report on postsecondary educational programs leading to careers in the field of information systems and computer science
- Identify groups and programs that are available to support students who are interested in pursuing non-traditional career choices in computer-related fields
- Identify the Essential Skills and work habits that are important for success in computer studies, as defined in the Ontario Skills Passport.

Assessment and Evaluation Categories and Weights:

Achievement Chart Categories	
Achievement Category	**Percentage**
Understanding	14%
Thinking	14%
Communication	14%
Application	28%

`

Evaluation/Weight of Marks	
Evaluation	**Percentage**
Term Evaluation	70%
Final Evaluation (Exam)	30%

Teaching/Learning Strategies

A variety of strategies will be used in the delivery of this course. Some instructional strategies include:

- ✓ Digital and multimedia presentation
- ✓ Demonstration and modeling
- ✓ Practice exercises
- ✓ Diagram, terminology and analogy
- ✓ Group work
- ✓ Hands-on activities
- ✓ Individual and group discussion
- ✓ Researches and analysis
- ✓ projects
- ✓ Quizzes
- ✓ exams

Evaluation

The final grade will be determined as follows:

Seventy per cent of the grade will be based on evaluation conducted throughout the course. This portion of the grade should reflect the student's most consistent level of achievement throughout the course, although special consideration should be given to more recent evidence of achievement.

Thirty per cent of the grade will be based on a final evaluation administered at or towards the end of the course. This evaluation will be based on evidence from one or a combination of the following: an examination, a performance, an essay, and/or another method of evaluation suitable to the course content. The final evaluation allows the student an opportunity to demonstrate comprehensive achievement of the overall expectations for the course.

Reporting

Four point scale

E-Excellent	*G-Good*	*S-Satisfactory*	*N-Needs Improvement*

Resources

- Growing Success: Assessment, Evaluation and Reporting in Ontario Schools.
- The Ontario Curriculum Grades 10 to 12, Computer Studies (2008)

-0-