

Canada World Education Centre

Course Outline

Course: Computer Engineering			
Grade: 10	Type: Open	Credit Value: 1	Course code: TEJ 1O
Teacher: J.F. Michaud		Development date: 04, 15, 2019	
Course Reviser: Vizarat Shaikh Date:		Prerequisites: None	
Ministry Curr. Doc: The Ontario Curriculum Grades 9 to 12, Course Descriptions and Prerequisites, 2018			
Course Description This course introduces students to computer systems, networking, and interfacing, as well as electronics and robotics. Students will assemble, repair, and configure computers with various types of operating systems and application software. Students will build small electronic circuits and write computer programs to control simple peripheral devices or robots. Students will also develop an awareness of related environmental and societal issues and will learn about secondary and postsecondary pathways and career opportunities in computer technology.			
Overall Expectations for Student Learning			
Strand 1: Computer Technology Fundamentals identify and describe the functions of, as well as important advances related to, electronic and computer components; demonstrate a basic understanding of computer networks and their components; demonstrate a basic understanding of binary numbers and digital logic.			
Strand 2: Computer Technology Skills install and configure the hardware and operating system of a workstation, and use file-management techniques effectively; construct and test simple interfaces and other electronic circuits; assemble and configure a simple computer network; install and use a variety of software; apply fundamental programming concepts to develop a variety of simple programs, including a program to control an external device.			
Strand 3: Technology, the Environment, and Society identify the harmful effects of the widespread use of computers and associated technologies on the environment, as well as agencies that reduce these effects; identify the effects of the widespread use of computers and associated technologies on society.			

Strand 4: Professional Practice and Career Opportunities

follow appropriate health and safety procedures when assembling, using, and maintaining computer systems;
demonstrate an understanding of ethical and security issues related to the use of computers;
identify various careers related to computer technology, and describe the education and/or training required for them.

Outline of course content

Unit:	Hours:
Unit 1. Computer Hardware	15
Unit 2. Electronics, Robotics, and Computer Interfacing	20
Unit 3. Networking	14
Unit 4. Data Representation and Digital Logic	15
Unit 5. Software	15
Unit 6. Computer Programming	15
Unit 7. Technology and the Environment	4
Unit 8. Technology and Society	4
Unit 9. Health and Safety Management	4
Unit 10. Ethics and Security	2
Unit 11. Career Opportunities	2

Teaching and Learning Strategies

Teachers use a variety of teaching strategies to maximize student learning. The following teaching strategies will be used in this course:

Helping students become self-directed.

In order to address the unique learning styles of students in this course, a variety of activities and learning experiences should be offered, including, but not restricted to: questioning, demonstrations, role-plays, simulations, co-operative group learning, brainstorming, discussion, peer coaching, interviewing, reflective writing, reflective

thinking exercises, concept mapping, reading, tutoring, direct instruction, one-on-one teaching, and experimental learning.

Teachers will find ways throughout the course for students to make authentic learning connections with their other courses, the school, local community and the world at large.

Assessment & Evaluation of Student Performance

Assessment & Evaluation

The primary purpose of assessment and evaluation is to improve student learning and to help students assume responsibility for their learning.

Mid-semester and final marks are determined through evaluations or Assessments *of* Learning, which typically occur towards the end of a unit and end of semester. During the learning process, information about a student's learning is gathered and used by the teacher and student to inform decisions that affect goal setting and teaching in the classroom. The data gathered as Assessment *as* Learning and Assessment *for* Learning do not carry a mark weight, but do play a crucial role in student success as they help inform the teacher about each student's progress. All types of assessments allow teachers to provide descriptive feedback that is clear, specific, meaningful, and timely to support improved learning and achievement.

Learning Skills and Work Habits (responsibility, organization, independent work, collaboration, initiative, self-regulation) will be reported by a letter (E = Excellent, G = Good, S = Satisfactory, N = Needs Improvement). These skills and habits support a high level of success in meeting the course expectations in addition to contributing to the development of positive life and work skills for the future.

Considerations for Program Planning

Program Planning Considerations • Individual Education Plan: Accommodations to meet the needs of exceptional students as set out in their Individual Education Plan will be implemented within the classroom program. Additional assistance is available through the Special Education program. • The Role of Technology in the Curriculum. Using information technology will assist students in the achievement of many of the expectations in the curriculum regarding research, written work, analysis of information, and visual presentations. • English As a Second Language (ESL): Appropriate accommodations in teaching, learning, and evaluation strategies will be made to help ESL students gain proficiency in English, since students taking ESL at the secondary level have limited time in which to develop this proficiency.

Resources

Technological Devices:

CWEC supports the use of technology to enhance learning, but the use of such electronic technology in the classroom is at the discretion of the teacher. Working together we can ensure the appropriate use of technology by all members of our school community.