Computer Engineering Technology - TEJ3M
Course Information & Evaluation

This course examines computer systems and control of external devices. Students will assemble computers and small networks by installing and configuring appropriate hardware and software. Students will develop knowledge and skills in electronics, robotics, programming, and networks, and will build systems that use computer programs and interfaces to control and/or respond to external devices. Students will develop an awareness of related environmental and societal issues, and will learn about college and university programs leading to careers in computer technology.

PREREQUISITE: None

Overall Expectations

Fundamentals

A1. describe how computer components function, and discuss trends in the development of computer hardware;

A2. describe the functions of BIOSes and operating systems, and how they interact with each other and with computer hardware;

A3. describe the function of electronic components and the use of these components in control systems and other circuits, and calculate values for circuit components;

A4. describe network concepts, services, and security;

A5. demonstrate an understanding of the use of binary numbers, hexadecimal numbers, and Boolean algebra in computer logic and data processing.

Skills

B1. build, configure, and maintain a computer system, and connect peripheral devices;

B2. set up, optimize, and back up a computer system;

B3. design, construct, create diagrams for, and troubleshoot electronic circuits and interfaces for control systems;

B4. design, install, configure, test, and troubleshoot networks;

B5. demonstrate an understanding of fundamental programming concepts, and develop a program that interacts with an external device.

Technology, The Environment & Society

C1. describe environmental issues related to the widespread use of computers and associated technologies;

C2. describe societal issues related to the widespread use of computers and associated technologies.

Professional, Practice & Careers

D1. demonstrate an understanding of relevant safety practices, standards, and legislation;

D2. describe ethical and security issues related to the use of computers;

D3. describe various careers related to computer technology and electronics, and the entry requirements for these careers.

Strands/Units Topics

1. Number Systems	8. Working with Microcontrollers
2. Logic Gates and Circuits	9. Control Systems
3. Hooking up Logic Circuits	10. Working with Motors
4. Electricity Concepts, and the Difference Between Digital and Analog Electronics	11. Networking
	12. The Impact of Modern Technology on Society and the Environment
5. Soldering	SUMMATIVE 2: Robotic Vehicle that can autonomously perform a specified task
6. Electrical Sensors	
7. Programming and Interfacing SUMMATIVE 1: Alarm System	

Course Text and Reference Resources

Online resources, and Technical resources

Assessment & Evaluation Policy

Refer to the attached SWL Assessment and Evaluation Policy April 2011

Attendance Policy

Students are responsible for catching up on class notes and completing any assignments or tasks involving equipment for which they were absent. *It is up to the students to ask the instructor what they missed when they return*. Parents will be contacted for any student who skips class. After three such skips, the student will be referred to the Vice-Principal.

70% Formative Evaluation

Student evaluation is based on the Overall Expectation found in the Ontario Curriculum using various forms, such as, but, not limited to, quizzes, tests, assignments, projects, presentations, safety practices, and activities.

30% Summative Evaluation

Each student will complete two summative projects representing 30% of their mark.

Certain forms of these summative evaluations (exams, final tests, performance based tasks, etc.) are time sensitive. This means they must be completed at and within a specific time. Students must be present for these summative evaluations. Any absence will result in a mark of zero, unless validated by an official certificate. (ex. Medical Certificate). Students and parents will be informed well in advance of summative evaluation dates.

Classroom Expectations

1. Students are expected to be willing and active participants in all course activities. This includes completing all assignments both on time and with sufficient effort, and honoring all of their commitments.

2. Students will contribute to a positive learning environment by: • practicing safe work habits at all times • being respectful to others and respecting their property • treating all equipment with care and ensuring proper knowledge of its operation • reporting unsafe or hazardous situations to the instructor • reporting software or equipment problems to the instructor • cleaning up their workspace and putting everything away before they leave the class*** Electronic storage devices, headphones and open toed shoes cannot be used in the shop areas * No food or drink is permitted in any of the equipment areas.**