



Bur Oak Secondary School
COURSE OUTLINE FOR COMPUTER ENGINEERING TECHNOLOGY

Course Title: Computer Engineering Technology
Course Code: TEJ4M
Grade: 12
Course Type: University/College Preparation
Credit Value: 1.0
Prerequisite: TEJ3M

Curriculum Policy Document: [The Ontario Curriculum, Grades 11 and 12: Technological Education, 2009 \(revised\)](#)
Department: Technological Education
Developed by: Angeera Wall-levtushenko, RN, BScN, BEd., OCT
angeera.wall-levtush@gappp.yrdsb.ca

THE IMPORTANCE OF TECHNOLOGICAL EDUCATION IN THE CURRICULUM:

Technological innovation influences all areas of life, from the daily lives of individuals to the work of business and government, to interactions on a global scale. It helps meet basic human needs and provides tools for improving people's lives and exploring new frontiers. The policy outlined in this document is designed to ensure that technological education in Ontario enables students to meet the challenges and opportunities of the twenty-first century.

COURSE OVERVIEW:

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:

COMPUTER TECHNOLOGY FUNDAMENTALS

- A1. demonstrate an understanding of internal buses and storage devices, and of advances in computer technology;
- A2. demonstrate an understanding of system optimization and of permissions, attributes, firmware, and communication standards used in computer systems;
- A3. demonstrate an understanding of devices and electronic circuits in interfaces and control systems;
- A4. demonstrate an understanding of network addressing and routing;
- A5. demonstrate an understanding of computer logic circuits and the representation, manipulation, and transmission of data by computers

COMPUTER TECHNOLOGY SKILLS

- . build computer systems and connection media to meet specific requirements, using appropriate procedures, tools, and equipment;
- B2. maintain and troubleshoot a variety of computer hardware and software;
- B3. design, build, test, and troubleshoot interfaces and other circuits that meet specific design requirements;
- B4. design, build, configure, maintain, and troubleshoot networks, and set up various network services for users;
- B5. demonstrate an understanding of programming concepts, and create programs that interact with external devices.

TECHNOLOGY, THE ENVIRONMENT AND SOCIETY

- C1. analyse environmental issues related to the widespread use of computers and associated technologies, and apply strategies to reduce environmental harm from computer use;
- C2. analyse societal issues related to the widespread use of computers and associated technologies.

PROFESSIONAL PRACTICE AND CAREER OPPORTUNITIES

- D1. explain the importance of safety standards and practices, and use appropriate techniques to avoid health and safety problems;
- D2. describe ethical and security issues related to the use of computers and related technology;
- D3. assess career opportunities related to computer technology and electronics, and explain the importance of postsecondary education and lifelong learning in the computer technology industry

Evaluation will take the form of the four level system as provided by [Ontario Ministry of Education. \(2010\). Growing success: Assessment, evaluation, and reporting in Ontario schools. Toronto: Author](#)

Level 1	50 - 59%	<ul style="list-style-type: none"> - Limited effectiveness in relating: Knowledge and Understanding, Thinking, Communication and Application - Represents achievement that falls much below the provincial standard. - Improving learning in specific areas, as necessary, if they are to be successful in the next grade/course
Level 2	60 - 69%	<ul style="list-style-type: none"> - Some effectiveness in relating: Knowledge and Understanding, Thinking, Communication and Application - Represents achievement that approaches the provincial standard. - Performing at this level need to work on identifying learning gaps to ensure future success.
Level 3	70 - 79%	<ul style="list-style-type: none"> - Considerable effectiveness in relating: Knowledge and Understanding, Thinking, Communication and Application - Represents the provincial standard for achievement Prepared for work in subsequent grades/courses.

Level 4	80 - 100%	<ul style="list-style-type: none"> - High Degree of effectiveness in relating: Knowledge and Understanding, Thinking, Communication and Application - Identifies achievement that surpasses the provincial standard.
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Grades will be based on the following:

- **90%** of the course grade is based on assessments **throughout the semester, and will include both formative and summative evaluations.**
Each unit will be weighted based on the **Categories of Achievement Chart** from the [Ontario Ministry of Education. \(2010\). Growing success: Assessment, evaluation, and reporting in Ontario schools. Toronto: Author.](#) and will be worth 22.5% (totalling 90%).
 - **Knowledge & Understanding**
 - Understanding subject-specific content and comprehension of its meaning and significance. Knowledge and understanding will be assessed through a variety of question formats including multiple choice, matching, diagrams and short answer questions during summative assessments.
 - **Thinking & Inquiry**
 - Use of planning skills. Use of processing skills. Use of critical/creative thinking processes
 - **Communication**
 - Expression and organization of ideas and information in oral, visual, and written forms. Communication for the specific audience in oral, visual, and/or written forms. Use of conventions vocabulary, and terminology of the discipline in oral, visual, and written forms
 - **Application**
 - Application of knowledge and skills in familiar contexts. Transfer of knowledge and skills to new contexts Making connections within and between various contexts
- **10 %** of the course grade is based on the student reflection portfolio completed at the end of the semester and submitted after the last unit.

Assessment marks will be posted on the YRDSB Teach Assist where they are available for viewing by students and parents/guardians.

UNITS OF STUDY

Unit 1: Introduction to Computer Technology, Society and the Environment Length: 15+ days (approximately)		
Overall Expectations C.1. to C.2.	Focus Current communications technology on the environment (disposal of	Assessment Knowledge and Understanding

	<p>obsolete equipment)</p>	<p>Thinking Communication Application</p> <p>Frequent formative assessments</p> <p>Summative for Unit: Report (Independent)</p> <p>Infographic (Group)</p>
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<p>Unit 2 and 3: Computer Fundamentals and Technology Skills Length: 40+ (approximately)</p>		
<p>Expectations <i>A.1 to A.5 & B.1. to B.5</i></p>	<p>Focus Parts of the Computers - Safety, Hardware, Software, Electronics, Robotics, Computer Systems, Networking, Computer Interfacing and Programming</p>	<p>Assessment Knowledge and Understanding Thinking Communication Application</p> <p>Frequent formative assessments Skills assessment</p> <p>Summative for Unit: Test via Google Form (Independent)</p>

<p>Unit 4: Professional Practice and Careers, Ethics and Security Length: 15+ (approximately)</p>		
<p><i>D.1. to D.3.</i></p>	<p>Focus Careers Related to Computer Technology Standard and Legislation, Ethical and Security Issues</p>	<p>Assessment Knowledge and Understanding Thinking Communication Application</p> <p>Frequent formative assessments Skills assessment</p>

[Ontario Ministry of Education. \(2010\). Growing success: Assessment, evaluation, and reporting in Ontario schools. Toronto: Author, p. 17](#)

LEARNING SKILLS AND WORK HABITS	BEHAVIOUR/DESCRIPTORS
Responsibility	<ul style="list-style-type: none"> ● completes and submits class work, homework, and assignments according to agreed-upon timelines ● punctual ● academic honesty
Organization	<ul style="list-style-type: none"> ● devises and follows a plan and process for completing work and tasks ● establishes priorities and manages time to complete tasks and achieve goals ● preparedness
Independent Work	<ul style="list-style-type: none"> ● uses class time appropriately to complete tasks ● follows instructions with minimal supervision
Collaboration	<ul style="list-style-type: none"> ● responds positively to the ideas, opinions, values, and traditions of others ● shares information, resources, and expertise ● promotes critical thinking to solve problems and make decisions ● encourages and motivates others
Initiative	<ul style="list-style-type: none"> ● demonstrates the capacity for innovation and a willingness to take risks ● demonstrates curiosity and interest in learning ● actively participates in class
Self-Regulation	<ul style="list-style-type: none"> ● sets own individual goals and monitors progress towards achieving them ● seeks clarification or assistance when needed ● takes responsibility for and manages own behavior ● stays on task

LEARNING SKILLS AND WORK HABITS EVALUATED
E – Excellent
G – Good
S – Satisfactory
N – Needs Improvement

Assessment/Evaluation Techniques

Methods of assessment and evaluation include a wide variety of approaches to enhance the learning environment. Assessment methods may include: performance assessment such as project deliverables and skill demonstrations; personal communication assessment such as instructional questions and answers, conferences, classroom discussions, reflections; and standardized tests such as classroom assessments. Self and peer assessment assist the student by providing directions to improve performance. Assessment charts included in each activity provide the basis for teacher evaluation rubrics, student self-assessment, and peer assessment.

Teaching/Learning Strategies

A variety of teaching and learning strategies are used throughout the course, including: classroom lessons, brainstorming, collaborative and cooperative learning, student–teacher conferencing, design process, independent study, demonstrations, practical applications, theory lessons and assignments, research and reflection.

Special Education

1. Students Requiring Accommodations

Accommodations allow access to the course without any changes to the knowledge and skills the student is expected to demonstrate. The accommodations required to facilitate the student’s learning must be identified in their IEP.

- *Instructional accommodations* are changes in teaching strategies, including styles of presentation, methods of organization, or use of technology and multimedia.
- *Environmental accommodations* are changes that the student may require in the classroom and/or school environment, such as preferential seating or special lighting.
- *Assessment accommodations* are changes in assessment procedures that enable the student to demonstrate his or her learning, such as allowing additional time to complete tests or assignments or permitting oral responses to test questions

2. Students Requiring Modified Expectations

Modified expectations represent specific, realistic, observable, and measurable achievements and describe specific knowledge and/or skills that the student can demonstrate independently, given the appropriate assessment accommodations.

- If a student requires modified expectations, assessment and evaluation of their achievement will be based on the learning expectations identified in the IEP and on the achievement levels outlined in this document.

Attendance Related Matters:

Students are expected to log in daily during scheduled course time (via Google Meet, found in Google Classroom)

It is the student’s responsibility to find out what they have missed.

- Students who are absent for part or all of a class may miss important learning opportunities.
- Students are responsible for work covered during any absence, and can expect to be evaluated on all information covered in the course.
- Persistent absences may place the student in jeopardy of losing the credit.
- Sometimes absences from class are unavoidable.
 - If a student has an anticipated absence on the day of summative assessment the student must notify the teacher two days prior to the absence and arrange for submission or completion of the assessment prior to the absence.

- Students with unauthorized absences will be given a mark of zero on missed evaluations.
- If a student has an unscheduled, authorized absence on the due date for a summative assignment **the student will be expected to make arrangements to submit the assignment directly to the teacher on the scheduled due date despite the absence.** This may be achieved by having a friend, sibling or parent/guardian hand the assignment directly to the teacher or by submitting evidence of the completed assignment via email or Google Classroom.
- All assignments must be submitted on time. Students are expected to submit completed projects at the beginning of class on the due date.
- Work submitted later than the beginning of the class on the due date will be considered late. Incomplete work handed in on time will be assessed using the assessment outline and rubric.

Late/Missed Assignments

Consequences for late and missed assignments will be determined using the teacher's professional judgment in consultation with board and ministry policies, with consideration of any extenuating circumstances. Consequences may include (but are not limited to):

- Deduction of marks for late assignments.
- A mark of zero if a student does not submit an assignment after reasonable opportunities have been provided.
- Referrals to the administration for additional consequences

Plagiarism:

To assist students in recognizing and avoiding plagiarism most summative work will be done in the Google Classroom. Students will be expected to show evidence of their process in the Google Classroom and as instructed all work should be done in the Google Classroom on the documents provided by the teacher. Students **may be** asked to submit some assignments to Turnitin. If a project expectation is submission through Turnitin then the project will not be graded until this step is completed.

Equity and Inclusive Education

Throughout the units of study in the Health Care Technology course students are guided to explore and discuss a variety of social, economic and cultural perspectives related to the application of health care skills and policies. Concepts of health care are presented so that students can see themselves, and their own and their classmates' lived experience, reflected in what and how they are learning.

We will work together to minimize the barriers that limit students' ability to achieve and to pursue their chosen pathways after graduation while supporting the choice of appropriate pathways to work, college, apprenticeship, or university.

Mrs. Wall-Ievtushenko's email address is angeera.wall-ievvtush@gapps.yrdsb.ca - parents/guardians please contact us with any questions, comments or concerns that you have throughout the semester. Thank you.

Acknowledgement Form below:

Acknowledgement Form TEJ20, Computer Technology, Grade 10, Open

By signing this form, I am acknowledging that I have read through the course outline with my parent(s) or guardian(s). I am also acknowledging that I have understood the course policies as listed above.

Student name _____ Course _____

Student signature _____

Parent / guardian signature _____

Parental Contact

Course information and updates will be e-mailed periodically throughout the semester and posted on our course moodle. Mark updates are available on Teach Assist and can be accessed by asking your child for the password. Mark updates can also be sent via email if requested. Should you wish to contact me, e-mail is the fastest form of communication. I will return your email as soon as possible.

Please take a moment to complete the following information:

- Have you registered a parental email address with the school? yes no

- If you have not, please provide an email _____