

	Ontario Ministry of Education www.edu.gov.on.ca/eng/		Toronto District School Board www.tdsb.on.ca		R.H. KING ACADEMY http://schools.tdsb.on.ca/rhking/
COURSE OF STUDY OUTLINE					
Department	<i>Computer Studies</i>		Course Type	<i>University/College</i>	
Teacher	<i>Mr. Raptou & Mr. Powell</i>		Grade	<i>10,11,12</i>	
Course Title	<i>Computer Technology</i>		Credit Value	<i>One</i>	
Course Code	<i>TEJ2O, TEJ3M, TEJ4M</i>		Prerequisites	<i>TEJ2O/ICS2O for 11 and 12</i>	
Ministry Document	<i>The Ontario Curriculum. http://www.edu.gov.on.ca/eng/curriculum/secondary/computer10to12_2008.pdf</i>				
Learning Resources	<i>Course Electronic folder, Textbook, Student binder, Course Web site, Visual Studio Programming Environment, C# programming Language for Interfacing</i>				

TEJ2O, TEJ34M COURSE: COMPUTER ENGINEERING ROBOTICS

COURSE OVERVIEW – COMPUTER TECHNOLOGY, ROBOTICS

A. COURSE DETAILS Course Description and Overview

This course will focus on the construction, design, programming and troubleshooting of robots in multiple platforms. Students are assessed as teams and focus will be placed on the team and a co-operative environment. This mixed level class will provide mentors for grade 10 students and several challenges for senior students.

This course is team taught in two different environments, a computer lab and an auto shop. In these different environments, students will be broken up into teams based on their skills and interests.

B. OVERALL EXPECTATIONS

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 environmental and societal issues related to the use of computers, and will learn about college and university programs leading to careers in computer engineering. Robots may be entered into competitions throughout the school year and participation from all students is required.

C. CLASSROOM ROUTINES & PROCEDURES

1. Students must be in class at the start of each period, prepared to begin before the bell rings. Regular attendance and punctuality is a must. Get into the habit of writing down homework into your student planner. Prepare for each class by reading and doing the homework assigned by the teacher. Students are responsible for catching up on missed homework and in-class assignments. The student can expect up to six hours of homework and review in each 5-day school cycle. Additional time may be required as a result of the student's own challenges and ability to complete assignments.
2. All work submitted to the instructor shall be original work from the student. Plagiarism will immediately receive a zero and referred to the vice-principal.
3. Students will be evaluated on all course expectations. See the bottom of this page for an example of the

evaluation criteria.

4. There will be three formal reporting periods. The Interim, Mid-term and Final reports will be distributed according to administration (only the last two reports will receive a numerical grade.) The Student mark is a cumulative mark representing the standing of the student at the end of the reporting period. Comments will be made around student performance, learning skills, attendance and lates.

5. If a student must be away, he or she must arrange to write the test in advance. Documented explanations will be given due consideration for missed tests. It is ESSENTIAL that you communicate with the teacher prior to the test that you will be away. Arrangements will be made to write the test at a mutually agreeable time.

6. Assignments are due at the beginning of the class on the due date, all assignments handed in past the ultimate due date (the last date the assignment will be accepted) will no longer be accepted.

7. A final exam (120 minutes) will be a required component of this course. It will be worth 20% of the course mark

D. OVERALL EVALUATION OUTLINE

Item	Percentage
Quizzes & Tests (Knowledge/Thinking)	10%
Assignments and Projects (Application)	15%
Programming (Application)	5%
Robot Design (Application/Communication)	10%
Robot Build(s) - Application/Thinking/Knowledge)	40%
Robot Competition (Application)	10%
Project 1(Careers) (Communication)	5%
Project 2(Environment) (Communication)	5%

Assessments

Students will be given assessments throughout the school year. These assessments will come in the form of quizzes, assignments, group work and practical work.

Evaluation

Tests and Written Work

Tests will be given out for each major unit. All evaluated work will be the same for the whole class. If there is a missed evaluation accompanied with appropriate documentation, the student will be required to make up this evaluation at an agreed upon time. All missed evaluations will be given a mark of 0.

Performance Based Assessment

Students will be evaluated based on their performance in class and at competitions. Students will also evaluate each other's performance in the group as well as the whole group. Performance based assessment will be marked on the individual student's responsibilities as follows:

1. the effectiveness of task execution
2. the level refinement that was used to complete a project
3. the co-operation amongst colleagues
4. the level of detail and care that was taken to complete a project
5. the amount of time that was taken to complete a project
6. the student's gracious professionalism
7. the student's work ethic and effort
8. the ability to meet deadlines
9. the student's ability to take initiative

WRITTEN PROJECTS

Students will be required to complete two written projects at the end of each term. One independent will involve the exploration of careers in technology and robotics and the other will look at the environmental impact that robotics has had on society.

ROBOT BUILD

The robot build(s) will be a project that gives students the freedom to select their own design within a given scope and rules. Their goal is to create a finished product based on their design. The aim of the robot build is to encourage students to work in teams, thus developing initiative, leadership, time management, and other collective work habits. While the project is done in groups, teachers will scaffold the robot build through different means such as periodic check-ins, collecting a list of sources and rough drafts (design), conferencing, and/or peer editing. King's unique feature Clinic was created to give students time during the school day to work on their robot build when time permits.

Learning Skills

Student Learning Skills will also be monitored and evaluated throughout the year. The report card provides a record of the learning skills demonstrated by the student in the following five categories: **Responsibility, Organization, Work Independent, Collaboration, Initiative and Self-regulation**. These learning skills are evaluated using the following four point scale: (E) Excellent, (G) Good, (S) Satisfactory, (N) Needs Improvement.

Learning Skills and Work Habits	Sample Behaviours. The Student:
Responsibility	<ul style="list-style-type: none"> • fulfils responsibilities and commitments within the learning environment; • completes and submits class work, homework, and assignments according to agreed-upon timelines; • takes responsibility for and manages own behaviour.
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; • identifies, gathers, evaluates, and uses information, technology, and resources to complete tasks.
Independent Work	<ul style="list-style-type: none"> • independently monitors, assesses, and revises plans to complete tasks and meet goals; • uses class time appropriately to complete tasks; • follows instructions with minimal supervision.
Collaboration	<ul style="list-style-type: none"> • accepts various roles and an equitable share of work in a group; • responds positively to the ideas, opinions, values, and traditions of others; • builds healthy peer-to-peer relationships through personal and media-assisted interactions; • works with others to resolve conflicts and build consensus to achieve group goals; • shares information, resources, and expertise and promotes critical thinking to solve problems and make decisions.
Initiative	<ul style="list-style-type: none"> • looks for and acts on new ideas and opportunities for learning; • demonstrates the capacity for innovation and a willingness to take risks; • demonstrates curiosity and interest in learning; • approaches new tasks with a positive attitude; • recognizes and advocates appropriately for the rights of self and others.
Self-regulation	<ul style="list-style-type: none"> • sets own individual goals and monitors progress towards achieving them; • seeks clarification or assistance when needed; • assesses and reflects critically on own strengths, needs, and interests; • identifies learning opportunities, choices, and strategies to meet personal needs and achieve goals; • perseveres and makes an effort when responding to challenges.

