## ACESLogo.gif2014/2015 RSGC ACES Program

### It is the belief of the RSGC ACES program that the majority of the leaders of tomorrow will emerge from the ranks of the *makers* and *doers*. To support our philosophy, we offer a set of six complementary courses (*2 streams/3 courses per stream*) designed to prepare engineering-minded Georgians for the future that we envision. Our curriculum can aptly be described as *problem immersion* with an emphasis on project-based solutions and skill development. Students engage continuously in problem-solving contexts with the primary aim of developing deeper thinkers. *Design* and *communication* technologies are fully integrated into the *engineering* technology process to produce remarkably comprehensive outcomes. Please tour [our website](http://darcy.rsgc.on.ca/) to see the manifestation of our philosophy.

**ICS2O** (10) ⎯ (Mr. R. Gordon)   
*Introduction to Computer Studies.* The half-course provides an introduction to Internet and WWW technologies. Specifically, students are introduced to HTML5, CSS3 and JavaScript for the purpose of online presentation and interactivity skill development.

**ICS3U** (11) ⎯ *Introduction to Computer Science.* This course provides an introduction to Java programming using the ‘Robots’ environment developed by Professor Byron Becker of the University of Waterloo. Topics include class and object design methodology, fundamental data types, decisions, iteration, and elementary data structures that include arrays and lists. Projects include a look and parametric and polar equations and the Mandelbrot and Julia Sets.

**ICS4U** (12) ⎯ *Computer Science*

Graduates of ICS3U deepen their software experience through their study of recursion, data structures and algorithms. In the process, student will incorporate use modular design principles and patterns to create complex and fully documented programs. A special emphasis is placed on mathematics and algorithms relating to advanced fractal geometry and recursive descent parsing.

**TEI4M** (12) ⎯ *Microcontroller Engineering Technology: Interfacing II.* Graduates of TEI3M deepen their interfacing experience in the context of client-based projects and solutions. The 50th Anniversary of the College this year and the installation of our new 50MW solar array offers the backdrop for a number of unique projects undertaken around the community. These include commemorative classroom clocks and solar insolation monitoring stations.

**TEL3M** (10) ⎯ *Computer Engineering Technology: Electronics.* This hands-on half-course extends the Grade 9 introduction to Electricity by introducing students to concepts involving analog and digital circuitry. This course provides the foundation for Grade 11 *Microcontroller Engineering Technology* course.

**TEI3M** (11) ⎯ *Microcontroller Engineering Technology: Interfacing I.* Students are introduced to the architecture and implementation of microcontroller applications using the Arduino/AVR platform. Students explore analog and digital concepts including the binary number system, ADC and DAC, PWM and interrupts. Circuit board layout and production together with CAD/CAM exposure enables complete prototyping of projects based on light, sound, temperature, distance, pressure and power.

**University Placement in Computer, Electrical, Mechanical or Software Engineering Mathematics, or Science**