## ACESLogo.gif2016/2017 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 sequence of three courses 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.

**TEL3M ⎯ Circuits 10.**This hands-on half-course builds on the Science 9 introduction to Electricity. Students work their way through concepts in and analog and digital circuitry employing curriculum designed specifically for our RSGC ACES program. Topics include power, prototyping, semiconductors, integrated circuits, communication as well as safety, environmental, and societal awareness. This course provides the foundation for our subsequent **TEI3M Arduino 11** course.

**TEI4M ⎯ AVR Optimization***.* Graduates of **TEI3M** deepen are ready to explore the deepest level of AVR microcontroller through the study of assembly language. Only through knowledge of assembly can these devices be truly optimized for application. On top of this core curriculum students have the privilege of undertaking three Independent Study Projects (ISPs) thereby affirming their passions and skill sets as they make crucial university-related decisions.

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



**TEI3M ⎯ Microcontrollers 11*.*** Students are introduced to the architecture and implementation of microcontroller applications using the AVR family of microcontrollers. 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. This course provides the foundation for our third course **TEI4M AVR Optimization.** course.



