

INDEPENDENT STUDY PROJECT (WITH CAD) PROPOSAL

SATURDAY, DECEMBER 15, 2018

COURSE: ICS3U

Use this page to submit a proposal for your **Independent Study Project**. You have read the underlying philosophy of the activity (<http://darcy.rsgc.on.ca/ACES/ISPs/Hardware.html>), explored various topics of pursuit and have understood the assessment criteria (<http://darcy.rsgc.on.ca/ACES/ISPs/ISPEvaluation.docx>).



1. **YOUR NAME:** _____

2. **PROJECT TITLE:** _____

3. **PROVIDE A BRIEF DESCRIPTION OF THE PROJECT, INCLUDING CAD ASPECT:** _____

4. **WHERE DID YOUR INSPIRATION FOR THIS PROJECT COME FROM?** _____

5. **WHAT IS YOUR PREVIOUS EXPERTISE IN THIS AREA?** _____

6. **LIST TWO ADDITIONAL CONCEPTS, SKILLS, AND/OR TECHNIQUES YOU HOPE TO IMPROVE/ACQUIRE IN COMPLETING THIS PROJECT.**

A) _____

B) _____

C) COMPUTER ASSISTED DESIGN AND FABRICATION (PCB, 2D LASER CUT AND/OR 3D PRINT)



7. **FOR EACH OF THE CRITERIA BELOW, INDICATE A POSITION ON THE RANGE SCALE AND ADD A COMMENT IF APPROPRIATE.**

	FEATURE	RANGE (MARK A POSITION)	COMMENT
A)	RISK	L _____ H _____	_____
B)	RESEARCH	L _____ H _____	_____
C)	ORIGINALITY	L _____ H _____	_____
D)	COLLABORATION	L _____ H _____	_____

NOTE: BE SURE TO CHECK ALL THE APPLICABLE BOXES ON THE REVERSE.

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Please check all boxes corresponding to the concepts and skills you intend to exploit in this project.

Hardware Components	Software Techniques	Power	Skills
<input type="checkbox"/> resistors <input type="checkbox"/> capacitors <input type="checkbox"/> potentiometers <input type="checkbox"/> transistors <input type="checkbox"/> diodes <input type="checkbox"/> push buttons <input type="checkbox"/> switches <input type="checkbox"/> LDRs <input type="checkbox"/> thermistor <input type="checkbox"/> temperature sensor <input type="checkbox"/> proximity sensor <input type="checkbox"/> IR (infrared) <input type="checkbox"/> Radio Frequency (RF) <input type="checkbox"/> Bluetooth <input type="checkbox"/> OpAmps <input type="checkbox"/> voltage regulators <input type="checkbox"/> MOSFETs <input type="checkbox"/> surface mount parts <input type="checkbox"/> Logic ICs (40xx) <input type="checkbox"/> shift registers <input type="checkbox"/> Specialty ICs (555,MSGEQ7, H-Bridge, LM3914, etc.) <input type="checkbox"/> Real Time Clock (RTC) <input type="checkbox"/> ATtiny85 <input type="checkbox"/> LEDs (single, Bi, RGB) <input type="checkbox"/> 7-segment display <input type="checkbox"/> Alphanumeric display <input type="checkbox"/> Bargraph <input type="checkbox"/> LED Matrix <input type="checkbox"/> LCD Panel <input type="checkbox"/> Graphics Panel <input type="checkbox"/> DC motor <input type="checkbox"/> servo motor <input type="checkbox"/> stepper motor <input type="checkbox"/> solenoid <input type="checkbox"/> microphone <input type="checkbox"/> audio line in <input type="checkbox"/> speaker <input type="checkbox"/> magnets <input type="checkbox"/> point-to-point board <input type="checkbox"/> perma-proto board <input type="checkbox"/> custom PCB <input type="checkbox"/> OTHER	<input type="checkbox"/> High-Level <input type="checkbox"/> Assembly <input type="checkbox"/> Arrays <input type="checkbox"/> Structs <input type="checkbox"/> bitwise operators <input type="checkbox"/> I ² C (TWI) <input type="checkbox"/> Libraries <input type="checkbox"/> ADC <input type="checkbox"/> PWM <input type="checkbox"/> Serial Comm. (ISP) <input type="checkbox"/> Debouncing <input type="checkbox"/> LookUp Table <input type="checkbox"/> Polling <input type="checkbox"/> Persistence of Vision <input type="checkbox"/> Interrupts <input type="checkbox"/> Recursion <input type="checkbox"/> ISP <input type="checkbox"/> EEPROM <input type="checkbox"/> Processing <input type="checkbox"/> Charlieplexing <input type="checkbox"/> Timing related <input type="checkbox"/> UML Design <input type="checkbox"/> OTHER	<input type="checkbox"/> Batteries <input type="checkbox"/> AC/DC Adapter <input type="checkbox"/> Transformers <input type="checkbox"/> coils/chokes <input type="checkbox"/> 12V <input type="checkbox"/> 24V <input type="checkbox"/> solar <input type="checkbox"/> manual <input type="checkbox"/> Peltier tiles <input type="checkbox"/> OTHER	<input type="checkbox"/> reading a schematic <input type="checkbox"/> through hole soldering <input type="checkbox"/> surface mount soldering <input type="checkbox"/> printed circuit board layout and manufacturing <input type="checkbox"/> DMM Debugging <input checked="" type="checkbox"/> CAD <input type="checkbox"/> 3D printing <input type="checkbox"/> acrylic fabrication <input checked="" type="checkbox"/> Word <input type="checkbox"/> Excel <input type="checkbox"/> Time-management <input type="checkbox"/> Fritzing <input type="checkbox"/> Presentation Overview <input checked="" type="checkbox"/> video creation <input checked="" type="checkbox"/> technical writing <input type="checkbox"/> OTHER
			Engineering Fields
			<input type="checkbox"/> electrical <input type="checkbox"/> computer <input type="checkbox"/> mechanical <input type="checkbox"/> software <input type="checkbox"/> OTHER