CO-OP 120
THE 'MAKER' COURSE
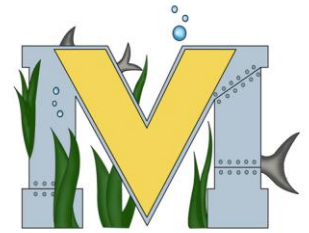
TEACHER: A. Hallihan

Textbook/Resources:

• MAKE: Electronics 1st Edition	• Arduino Uno
• MAKE: Electronic Components Toolkit	• MATE: Triggerfish Kit
• SparkFun Inventor's Kit & Redbot	• OpenROV: Fully Assembled Kit
• Raspberry Pi Deluxe Kit	• Makey Makey Kits

COURSE DESCRIPTION:

MVHS has been selected by a group called Brilliant Labs to do a technology project for the Fall of 2014. Brilliant Labs is a group that enables teachers to undertake creative, innovative and entrepreneurial projects in the classroom. The 'Underwater Robots on the Miramichi' project allowed students an opportunity to work with OpenROV technology as well as Makey Makey technology. This semester we plan to extend this project into a Maker course where other projects will be explored.

The course is designed to apply the 4 C's…Creativity, Critical Thinking & Problem Solving, Collaboration, and Communication. These skills are beneficial in any workplace and are essential for life-long learning. The goal of the course is to improve these skills so they can be used in any of your future endeavours. Students will learn the basics of electronics and how to apply these skills to hands-on activities/projects. As well, students will design and engineer their own project using these technologies.

SCOPE AND SEQUENCE:

- Engineering Design Process
  - Intro. to design and engineering (PBS Design Squad Challenges)
  - History of engineering
  - Documenting your work…keeping a journal & video editing
  - Basics of Making (Bristlebot Project)
- Safety Modules [http://nbcsa.ca/english/elearning.htm]
  - Orientation
  - WHMIS
- Basic Electronics [MAKE: Electronics]
- Arduino Code and Microprocessing [Sparkfun]
- Mini Design Challenges
- Final Projects

EVALUATION:

Journal	15%
Techpoints	15%
Minor Projects	20%
Quizzes/Assignments/Activities	20%
Final Project	30%

PROJECT COMPONENTS:

Completion of a student project is a requirement for this course. The components of the project are...

Part I: Documentation (25 % of final project mark)

- Submit an engineering proposal that outlines your project ideas.
- Maintain a journal that documents the design of your project with any notes.
- Each student will have access to a blog where project is discussed with classmates, teachers and mentor.

Part II: Presentation (25 % of final project mark)

- Develop an engaging presentation for the class that summarizes your project.
    - Visuals should be included (graphs, pictures, videos, etc.).
    - Duration will be 10 minutes.

Part III: Creation (50 % of final project mark)
- Demonstration of the project
- Video that summarizes your project.

TECHPOINTS:

Complete a choice of optional activities that demonstrate the following three components:
    o Promotion of technology
    o Exploration of technology
    o Application of technology
- A maximum of 100 TechPoints may be accumulated.
- Accumulation of these points will be done on an inventory sheet.

WEBSITES:

- ➢ **COURSE HOMEPAGE:** http://mvhs.nbed.nb.ca/underwater-robots
- ➢ **COURSE BLOG:** http://dt16community.nbed.nb.ca/blogs/underwaterrobots/
- ➢ **TWITTER ACCOUNT:** @MVHS_ROV
- ➢ **YOUTUBE CHANNEL:** https://www.youtube.com/channel/UC-hZtA0UUEzndBMm1wlme4Q
- ➢ **OPENEXPLORER BLOG:** https://openexplorer.com/expedition/xxxx14/#post-3423777