ELECTRONICS/ROBOTICS 9

COURSE OUTLINE

COURSE OBJECTIVE:

The main objective of this course is to introduce the student to the world of electronics robotics. Students will learn about the different components that are used in everyday electronics devices and use these components to build circuits. Students will also design and build a small robot. To do all this, students will learn how to design and draw in 3D and use 3D printers and a laser cutter. This is a hands on course that is based on labs, theory and projects.

RESPONSIBILITY OF THE STUDENT:

1) Always show responsibility and maturity while operating in the shop. Unsafe or foolish behaviour is unacceptable and could result in removal from the class.
2) Treat tools carefully so that they will always work properly for you and for others.
3) If an accident occurs report it to the teacher immediately.
4) If a tool or machine is broken report it to the teacher immediately.
5) If you are ever in doubt, ask the teacher.
6) If a student is absent, it is his/her responsibility to make-up missed work. All materials and assignments can be found here Makerspace.Isfeldschool.com
7) You will need a NOTEBOOK, PENCIL and ear buds (NOT your cell phone) for most classes.

LABS

- These will be completed throughout the course. The labs will be completely hands on activities. They will be given at specific points in the course to help students become familiar with components, basic principles, and usage of test equipment.
- All lab work will be marked.

THEORY

- This will be given throughout the course. The lessons will be both formal and informal. All lessons will be directly related to the hands on approach that this course is based on.
- Quizzes will be given based on lessons presented in class.

ASSIGNMENTS/PROJECTS:

1) Arduino – Useless Box

   This project uses a programmed microprocessor that controls a servo. When the switch is moved, an arm comes out of a box and flips the switch off. The student will program, breadboard and build the circuit, then assemble it all into a small case that has been 3d printed.

2) Sumo Robot

   You will design and build a small tethered sumo robot and compete against others in the class. The objective is simple, get the other opponent out of the ring. Winning robots in the classroom competition will be eligible (and encouraged) to compete in the Skills Canada Regional Event in March.

CLEANUP

Cleanup is called about 5 minutes prior to the end of the class. It is important that all students put away their own equipment. No student is permitted to open the door or leave until all the tools are accounted for. When the teacher is satisfied with the cleanup, you will be dismissed.

COURSE EVALUATION

Assignments/Projects	80%
Theory	20%