



**Newton Moore Senior High School**  
**Science**  
**Year 10 Engineering Specialist**  
**2016**



## Course Description

The aim of this unit is to introduce the basic principles underlying electricity and electronic circuitry.

Students will work through a series of self-paced activities that enable them to build electronic models and then troubleshoot and revise designs to improve their own model performance. They will gain hands-on practical and theoretical experience whilst also using mathematical, science and technology concepts.

## Technology Process

Students apply technology processes to understand and build robots using learnt knowledge and mathematical ideas.

Investigating – Students investigate issues, needs and opportunities.

Designing – Students devise and generate ideas in preparation for assembly.

Producing – Students assemble, operate and manage production processes

Evaluating – Students evaluate intentions, plans and actions

## Course Outline

Week	Content
Term 1	
1	Introduction: course outline, safety in the lab, station allocations, Work booklet
2	Soldering and De soldering
3	Work book: Measuring Current , AC, DC p6-11 Voltage, Soldering and De soldering
4	Project 1 – Solder sculpture, Work book: Voltage, Resistance p11- 18
5	Project 1 – Solder sculpture Work book: Series, Parallel p19 -24
6	Assignment 1 – Symbols p25
7	Lab Book: Project 1 – Solder sculpture form parts
8	Activity 1 Series and parallel circuits
9	Activity 2 Using a multi meter
10	Work book: Ohms Law p26-29
Term 2	
1	Lab book: Project 2 Model
2	Student Assignment 2 –Ohms law p30 Test conditions
3	Lab book: Project 2 Model
4	Lab book: Project 2 Model BIG SCIENCE COMPETITION TEST
5	Work book: Transistors p36-44
6	Test 1 (p1 – 44)

<b>Week</b>	<b>Content</b>
7	CREST AWARD /Lab book: Project 2 Model
8	Task 6 PCB Power point
9	Task 6 PCB Power point
10	DVD – Electronics – revision of theory/CREST Award
Term 3	
1	Task 7 Making a buggy
2	Task 6 PCB Power point – make PCB board for buggy
3	Work booklet 2 -Theory
4	Task 7 Making a buggy
5	Work booklet 2 –Theory
6	Task 7 Making a buggy
7	Work booklet 2 –Theory
8	DVD – Electronics – revision of theory
9	Task 7 Making a buggy
10	Work booklet 2 -Theory
Term 4	
1	Task 7 Making a buggy
2	Work booklet 2 -Theory
3	Task 7 Making a buggy
4	Work booklet 2 -Theory
5	Using Yenka
6	Using Yenka
7	3d printing balloon cars
8	3d printing balloon cars
9	3d printing balloon cars
10	3d printing balloon cars

This course outline may be subject to change, any changes will be communicated to students.

## Assessment Outline

Assessment Task	Outcome	Date Due	Max Score	% Weight
Semester 1				
Task 1 Student Assignment 1 –Symbols	<b>Technology Process</b>	Week 6	100	7.5
Task 2 Lab Book: Project 1 Solder Sculpture	<b>Technology Process</b>	Week 7	100	15
Task 3 Student Assignment 2 –Ohms law	<b>Technology Process</b>	Week 12	100	12.5
Task 4 Test 1	<b>Technology Process</b>	Week 17	100	15
Semester 1 Total				50
Semester 2				
Task 5 Lab book: Project 2 Model	<b>Technology Process</b>	Week 18	100	16.6
Task 6 PCB Power point	<b>Technology Process</b>	Week 23	100	16.6
Task 7 Making a buggy	<b>Technology Process</b>	Week 35	100	16.8
Semester 2 Total				50
<b>Total</b>				100

The above weightings are intended to show the importance of each task. The allocation of a grade at the end of a semester is determined based on grade related descriptors issued by School Curriculum and Standards Authority. \