



Newton Moore Senior High School
Technology and Enterprise
Year 9 Robotics
Semester 1 or 2
2016



Course Description

Summary of course content:

Students have opportunities to use design and technologies knowledge and understanding, processes and production skills, and design thinking to produce solutions to identified needs or opportunities. They work independently and collaboratively. Students specifically focus on solutions, taking into account social values; economic, environmental and social sustainability factors. They have the opportunity to use creativity, innovation and enterprise skills with increasing confidence, independence and collaboration.

Using a range of increasingly sophisticated technologies, including a variety of graphical representation techniques, students have opportunities to generate and represent original ideas and production plans in two-dimensional and three-dimensional representations.

Students identify and establish safety procedures that minimise risk and manage projects. They learn to transfer theoretical knowledge to practical activities.

Technology Process

Students apply a technology process to create or modify products, processes, systems, services or environments to meet human needs and realise opportunities.

Investigating – Students investigate issues, values, needs and opportunities.

Designing – Students devise and generate ideas and prepare production proposals.

Producing – Students produce solutions and manage production processes

Evaluating – Students evaluate intentions, plans and actions

Information

Students design, adapt use and present information that is appropriate to achieving solutions to technology changes.

The Nature of Information – Students understand the form, structure, quality and purpose of information products and processes.

Students apply an understanding of the nature of information when designing and presenting information products and processes to meet a need.

Course Outline

| Week | Content |
|------|---|
| 1 | Introduction to course Rules and Procedures/Care of Equipment Responsibilities and Student Agreement Tasks and Assessment Outline Introducing the Brick and Sensors |
| 2 | Complete the building of the first robot – The Riley Rover |

| | |
|---------|--|
| | Moving and Turning |
| 3 | Algorithms and Flowcharting Revise Moving and Turning How Far? |
| 4 | How Fast? |
| 5 | On/Off Mode, Move Block, Move Tank, Loops. Waiting, Repeating, Multitasking |
| 6 | Introducing Sensors Infrared Sensors Coloured Sensors |
| 7 | Introducing Sensors Touch Sensors Touch Sensors |
| 8 | Robot Exercises Evaluation Worksheet |
| 9/10 | Multimedia Presentation - Advertising |
| 11 | Introducing Electronics Safety in the workshop and with Equipment |
| 12 | Introducing Circuits |
| 13 - 15 | Building Simple Circuits Soldering, Batteries, Resistors, Capacitors, Inductors Magnets and Electromagnets |
| 16 | Review /Test |
| 17-20 | Engines Cams Project Google Sketchup |

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

Assessment Outline

| Type of assessment | Weighting |
|---------------------------------------|-----------|
| Task 1: Investigation Robots research | 15% |
| Task 2: Devising – Planning the Robot | 20% |
| Task 3: Production and Construction | 40% |
| Task 4: Evaluation | 10% |
| Review Test | 15% |
| Total | 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.