



Success Criteria

Engineering Science

Advanced Higher

All the success criteria points listed below will have an impact on the potential success of pupils undertaking this course. Performance in all of these areas will be taken into consideration when teacher estimated grades are submitted.

In order to be successful, the following skills must be demonstrated:

- researching and investigating complex engineering problems.
- designing, developing, simulating, building, testing and evaluating solutions to complex engineering problems in a range of contexts.
- applying mathematical techniques to analyse and solve engineering problems.
- communicating complex engineering concepts clearly and concisely, using appropriate terminology.
- applying engineering knowledge and understanding, and skills in a range of contexts.
- ability to plan, manage and implement a challenging engineering project independently.

In order to be successful, the following knowledge and understanding must be demonstrated:

- the wide role and impact of engineering on society and the environment, including ethical implications.
- aspects of electronic and microcontroller-based systems, and their application.
- aspects of mechanisms and structures, and their application.
- the relevance of energy, efficiency and sustainability to complex engineering problems and solutions.

In order to be successful, the following must be achieved:

- Completion of all homework tasks and home assignments.
- Completion of all classwork tasks and assignment.
- Appropriate levels of study at home to ensure understanding of all theory elements of the course.
- Appropriate preparation for all Formal Assessment(s).
- Successful completion of the Course Assessment Task (provided by the SQA) - submitted by the given deadline (50% of final grade).
- Participation in final SQA exam (50% of final grade).

In order to be successful, the following topics will be studied:

- The systems approach
- Energy and efficiency

Engineering project management:

- Engineering roles and disciplines
- Impacts of engineering
- Real-world engineering projects

Electronics and control:

- Analogue electronics
- Digital electronic control systems
- Generation and transmission
- Investigation
- Simulation and/or construction

Mechanisms and structures:

- Drive systems
- Structures and forces
- Materials
- Investigation
- Simulation and/or construction