



# Success Criteria

## Engineering Science

### 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:

- analysing engineering problems with complex features.
- designing, developing, simulating, building, testing and evaluating solutions to engineering problems in a range of contexts.
- investigating and evaluating existing and emerging technologies.
- communicating engineering concepts clearly and concisely, using appropriate terminology.
- applying engineering knowledge, understanding and skills in a range of contexts.

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

- the many types of engineering and their roles.
- the wide role and impact of engineering on society and the environment.
- the workings of a range of engineered objects.
- key concepts related to electronic and microcontroller-based systems, and their application.
- key concepts related to mechanical, structural and pneumatic systems, and their application.
- the relevance of energy, efficiency and sustainability to 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 assignments.
- 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 (32% of final grade).
- Participation in final SQA exam (68% of final grade).

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

- The systems approach
- Energy and efficiency
- Engineering roles and disciplines
- Impacts of engineering
- Analogue electronic control systems
- Digital electronic control systems
- Drive systems
- Pneumatics
- Structures and forces
- Materials