



**OVERVIEW**

The Engineering course prepares students for a career in engineering, it provides in depth knowledge of nine sectors and the careers available in all these areas. Students will develop an understanding of how to manufacture products from orthographic drawing, through manufacture to evaluation, using a range of media and materials, from hand tools to CAD, metal to ceramics.

The synoptic brief is released early September, students will have all knowledge needed prior to participation, but there are teaching opportunities available as an introduction/recap to each section of the synoptic project.

**Autumn**

**Synoptic Project released by NCFE**

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|--|--|
| 1. Analysis of the project brief   | 1. Production plan 2   |
| 2. Materials research 1  | 2. Production plan 3   |
| 3. Materials research 2  | 3. Production plan 4   |
| 4. Engineered drawing recap <b>progression task – materials research</b>         | 4. Prototype preparation <b>progression task – production planning</b> |
| 5. Engineered drawing 1  | 5. Prototype – manufacture 1   |
| 6. Engineered drawing 2  | 6. Prototype – manufacture 2   |
| 7. Engineered drawing 3  | 7. Prototype – manufacture 3   |
| 8. CAD drawings 1 <b>progression task – engineered drawings</b>                  | 8. Prototype – manufacture 4   |
| 9. CAD drawings 2  | 9. Prototype – manufacture 5   |
| 10. CAD drawings 3   | 10. Prototype – manufacture 6  |
| 11. CAD drawings 4   | 11. Evaluation 1 <b>progression task – prototype manufacture</b>       |
| 12. Production plan – recap/ preparation- <b>progression task – CAD drawings</b> | 12. Evaluation 2   |
| 13. Production plan 1  |  |

**Assessment:**

Teacher assessment – Students will be assessed in each of the sections shown on the left and marked according to the exam board criteria shown below:

- AO1 Recall knowledge and show understanding  
AO2 Apply knowledge and understanding  
AO3 Analyse and evaluate knowledge and understanding  
AO4 Demonstrate and apply technical skills and processes  
AO5 Manage and evaluate the project

**Spring**

**Exam preparation**

- Unit 1 revisit – mechanical engineering, electrical and electronic, aerospace, telecommunications, chemical, civil, automotive, biomedical, software, Health, and Safety.
- Unit 2 revisit – SI units – applications of equations - **progression task engineering sectors**
- Unit 3 revisit – Drawing conventions and BS8888 - **progression task SI units**
- Unit 4 revisit - Properties and characteristics of materials – properties
- Unit 4 revisit - Properties and characteristics of materials – characteristics
- Unit 4 revisit - Properties and characteristics of materials – metals- **progression task properties and characteristics**
- Unit 4 revisit - Properties and characteristics of materials – polymers
- Unit 4 revisit - Properties and characteristics of materials – wood
- Unit 4 revisit - Properties and characteristics of materials – composites/ceramics
- Exam preparation - **progression task materials**
- All practice exam papers will be either marked in class as self-assessment, by teacher as a full marking or as a progression task with sampled marking.**

**Assessment:**

For each unit revisited there will be an end of unit test, these will be marked using exam board marking criteria.

All practice exam papers will be either marked in class as self-assessment, by teacher as a full marking or as a progression task with sampled marking.

**Summer**

External exam will take place during the summer exam series.

**Useful resources for supporting your child at home:**

Excellent design sketching tutorials:

[product designer maker - YouTube](#)

Student access to Focus eLearning – direct link given to students.

**Homework:**

Homework will be set fortnightly; students will have a digital Unit book which they will respond to research and questions online.