



PLUME ACADEMY - LEARNING OVERVIEW

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| Year | Eleven |
| Course | Cambridge Nationals in Engineering Manufacture |
| Specification Number/Exam Board | J842 OCR Level 1/2 Cambridge National Certificate in Engineering Manufacture |
| End of course assessment and weightings | 25% of the grade comes from a 1 hour exam, 75% of the grade comes from 3 centre assessed tasks |

Prior Learning

The subject builds on your child's key stage 3 experience in Year 9 engineering by developing their skills and knowledge much further through a variety of design and make projects and theory lessons.

Curriculum Intent – What are the curriculum aims?

Engineering manufacture is a discipline of engineering dealing with different manufacturing practices and processes using machines, tools and equipment that turn raw materials to new products.

The Cambridge Nationals in Engineering Manufacture is aimed at learners who wish to study the processes involved in manufacturing new engineered products. Learners are provided with the knowledge and skills required to operate manufacturing tools and equipment used to make products from the requirements of a design specification. Learners will develop their understanding of the processes and systems required to transfer a design concept into a product. A practical approach to teaching and learning will provide learners with knowledge in engineering technology and develop critical thinking, creativity and dexterous skills through engaging practical experiences.

Curriculum Implementation – What will my child will be learning?

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| Term 1 | R111 Computer aided manufacturing | Learning Outcome 1: Be able to plan the production of components on Computer Numerical Control (CNC) machines Learning Outcome 2: Be able to interpret information from Computer Aided Design (CAD) to manufacture components on CNC equipment |
| | R112 Quality control of engineered products | Learning Outcome 1: Understand the importance of quality control Learning Outcome 2: Be able to assess product quality from inspection and quality control techniques |



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| Term 2 | R111 Computer aided manufacturing | Learning Outcome 2: Be able to interpret information from Computer Aided Design (CAD) to manufacture components on CNC equipment Learning Outcome 3: Be able to set-up and use CNC equipment to manufacture components |
| | R112 Quality control of engineered products | Learning Outcome 2: Be able to assess product quality from inspection and quality control techniques Learning Outcome 3: Know how modern technologies can be used in quality control |
| Term 3 | R111 Computer aided manufacturing | Learning Outcome 4: Know about applications of computer control processes used to manufacture products 10-12 hour centre assessed task |
| | R112 Quality control of engineered products | Learning Outcome 3: Know how modern technologies can be used in quality control Learning Outcome 4: Know the principles of lean manufacturing 10-12 hour centre assessed task |

Curriculum Impact – How will progress be assessed as I learn?

Students will use the Onedrive to access resources and store their completed portfolio work for R111 and R112. This allows their teacher to monitor their work and provide feedback. Each Unit is worth 25% of the overall grade. R111 and R112 have a centre assessed task set by OCR; students have approximately 10-12 hours of curriculum time to complete each task in the Spring and Summer of Year 11

Super-Curricular Opportunities – Support and Extending Learning

| Useful study resources | If a student is really passionate about this subject... | As a parent/carer, I can assist my child in this subject by: |
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| Download and install a copy of Autodesk Fusion 360 at home. Make sure it is the free educational version! BBC Bitesize www.technologystudent.com | Develop their engineering skills at home; being creative and designing and making anything, possibly with older siblings or relatives. | Encouraging students to watch engineering related, or visit places of interest with an Engineering connection, e.g. The Science Museum, The Museum of Power, IWM Duxford. |