



## PLUME ACADEMY - LEARNING OVERVIEW

Year	Ten
Course	Cambridge Nationals in Engineering Manufacture
Specification Number/Exam Board	J823 OCR Level 1/2 Cambridge National Certificate in Engineering Manufacture
End of course assessment and weightings	40% of the grade comes from a 1 hour 15 minute exam, 60% of the grade comes from 2 non examined assessments (NEAs)

### 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 be learning?

Term 1	R014 Principles of Engineering Manufacture	Topic Area 1: Manufacturing Processes 1.1.1 The types of manufacturing processes 1.1.2 How each process changes the form of materials to create a product 1.2.1 Wasting processes 1.2.2 Shaping processes 1.2.3 Forming processes 1.2.4 Additive manufacturing
	R015 Manufacturing a one-off product	Topic Area 1: Planning the production of a one-off product Topic Area 2: Measuring and marking out Topic Area 3: Safely use processes, tools and equipment to make a one-off product <b>Nutcracker Project</b>



Term 2	R015 Manufacturing a one-off product	Topic Area 1: Planning the production of a one-off product Topic Area 2: Measuring and marking out Topic Area 3: Safely use processes, tools and equipment to make a one-off product <b>Non-Examined Assessment 1 (Set annually by OCR)</b>
Term 3	R014 Principles of Engineering Manufacture	Topic Area 1: Manufacturing Processes 1.2.5 Joining processes 1.2.6 Finishing processes Topic Area 2: Engineering materials 2.3.1 Metals 2.3.2 Polymers 2.3.3 Ceramics 2.3.4 Composites
	R015 Manufacturing a one-off product	Topic Area 1: Planning the production of a one-off product Topic Area 2: Measuring and marking out Topic Area 3: Safely use processes, tools and equipment to make a one-off product <b>Oscillating Engine Project</b>

#### 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 R014 and R015. This allows that teacher to monitor their work and provide feedback. In R015 practical lessons there will be a lot of verbal feedback as students complete their practical work, aiming to meet tolerances on each component they produce. Each Non-Examined Assessment is worth 30% of the overall grade. Students' knowledge of R014 will be assessed by a one-hour fifteen-minute mock exam in the Summer Term of Year 10. R015 is a centre assessed task set by OCR; students have approximately 10-12 hours of curriculum time to complete this in the Spring term of Year 10*

#### 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:
<p>Cambridge National in Engineering Manufacture Revision Guide and Workbook with Digital Access (2 Years): Level 1/Level 2</p> <p>Download and install a copy of Autodesk Fusion 360 at home. Make sure it is the free educational version!</p> <p>BBC Bitesize</p> <p><a href="http://www.technologystudent.com">www.technologystudent.com</a></p>	<p>Develop their engineering skills at home; being creative and designing and making anything, possibly with older siblings or relatives.</p>	<p>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.</p>