

OCR Cambridge National Certificate in Engineering Manufacture

Engineering manufacture is a discipline of engineering dealing with different manufacturing practices and processes using the machines, tools and equipment that turn raw materials into new products. This qualification enables you to study these processes and also operate the tools and equipment used to make products. As well as practical methods you will use relevant computer applications and equipment such as CAD (Computer Aided Design)/CAM (Computer Aided Manufacture).

Unit Title (Each unit worth 25% of qualification)	R109 Engineering Materials, processes and production	R110 Preparing and Planning for Manufacture	R111 Computer Aided Manufacture	R112 Quality Control of Engineered Products
Assessment	Exam	Coursework	Coursework	Coursework
Learning Outcome 1	Know about properties and uses of materials	Be able to plan for the making of a pre-production product	Be able to plan the production of components on CNC machines	Understand the importance of quality control
Learning Outcome 2	Understand engineering processes and their application	Be able to use processes, tools, and equipment safely to make a pre-production product	Interpret information from CAD to manufacture components on CNC equipment	Be able to assess product quality from inspection and quality control techniques
Learning Outcome 3	Know about developments in engineering processes	Be able to modify a production plan for different scales of production	Be able to set-up and use CNC equipment to manufacture components	Know how modern technologies can be used in quality control
Learning Outcome 4	Understand the impact of modern technologies on engineering production		Know about applications of computer control processes used to manufacture products	Know the principles of lean manufacturing
What's involved	1 hour exam 60 marks	Interpret drawings and make a one off item safely in the workshop to a production plan. Modify the production plan. Write a diary of manufacture including pictures.	Plan and make 5 identical items using a CNC machine from a CAD drawing. Write a report.	Assess the quality of the items you have made and write a report on Quality Control and Lean Techniques.

Each element of the course is worth 25% (one exam and three pieces of coursework).

There are 60 marks available for each part making a maximum of 240. Below are the approximate percentages that you will need for each grade and their approximate GCSE equivalent.

OCR Grade	% (Approx)	GCSE Grade (Approx)
Level 2 Distinction*	90	8.5
Level 2 Distinction	80	7
Level 2 Merit	70	5.5
Level 2 Pass	60	4
Level 1 Distinction	50	3
Level 1 Merit	40	2
Level 1 Pass	30	1.25