

What are the aims and intentions of this curriculum?

This qualification is intended for post-16 learners who want to continue their education through applied learning and who aim to progress to higher education and ultimately employment. It aims to provide a coherent introduction to study of the engineering sector.

Term	Topics	Knowledge and key terms	Skills developed	Assessment
Autumn 1	Unit: 41: Manufacturing Secondary Machining Processes	Unit:41 <ul style="list-style-type: none"> Traditional secondary machining processes Health and safety requirements when setting up secondary process machines Features of traditional secondary machining processes <p>Lessons learned from machining a component</p>	Unit: 41 - Learners explore and carry out secondary machining processes to manufacture shapes by the safe removal of material.	Learners will produce evidence that includes a balanced evaluation of the secondary machining processes, including energy consumption, disposal of fluids and waste material for different batch sizes and why particular processes were chosen. The evidence will detail how each process will accommodate different tolerances and batch sizes and how they relate to sustainable manufacture of components.
Autumn 2	Unit: 41: Manufacturing Secondary Machining Processes	Unit:41 <ul style="list-style-type: none"> Traditional secondary machining processes Health and safety requirements when setting up secondary process machines Features of traditional secondary machining processes Lessons learned from machining a component 	Unit: 41 - Learners explore and carry out secondary machining processes to manufacture shapes by the safe removal of material.	Learners will produce evidence that includes a balanced evaluation of the secondary machining processes, including energy consumption, disposal of fluids and waste material for different batch sizes and why particular processes were chosen. The evidence will detail how each process will accommodate different tolerances and batch sizes and how they relate to sustainable manufacture of components.

Spring 1	Unit: 41: Manufacturing Secondary Machining Processes	Unit:41 <ul style="list-style-type: none"> • Traditional secondary machining processes • Health and safety requirements when setting up secondary process machines • Features of traditional secondary machining processes • Lessons learned from machining a component 	Unit: 41 - Learners explore and carry out secondary machining processes to manufacture shapes by the safe removal of material.	Learners will produce evidence that includes a balanced evaluation of the secondary machining processes, including energy consumption, disposal of fluids and waste material for different batch sizes and why particular processes were chosen. The evidence will detail how each process will accommodate different tolerances and batch sizes and how they relate to sustainable manufacture of components.
Spring 2	Unit: 3 - Engineering Product Design and Manufacture	Unit: 3 <ul style="list-style-type: none"> • Design triggers • Design challenges • Equipment level and system level constraints and opportunities • Material properties • Mechanical power transmission • Manufacturing processes • Design for a customer • Regulatory constraints and opportunities • Market analysis • Performance analysis • Manufacturing analysis • Design proposals • Communicating designs • Iterative development process • Statistical methods • Validating designs 	Unit: 3 - Learners will explore engineering product design and manufacturing processes and will complete activities that consider function, sustainability, materials, form and other factors.	This unit is assessed under supervised conditions. Learners will be provided with a case study two weeks prior to a supervised assessment period to carry out three hours of independent preparatory research. The supervised assessment period is ten hours and can be arranged over a number of sessions within a three-week assessment period timetabled by Pearson. During the supervised assessment period learners will complete a task that will require them to follow a standard development process of interpreting a brief, scoping initial design ideas, preparing a design proposal and evaluating their proposal. Pearson sets and marks the task and the number of marks for the task is 60.

Summer 1

Unit:
3 - Engineering Product Design
and Manufacture

Unit: 3

- Design triggers
- Design challenges
- Equipment level and system level constraints and opportunities
- Material properties
- Mechanical power transmission
- Manufacturing processes
- Design for a customer
- Regulatory constraints and opportunities
- Market analysis
- Performance analysis
- Manufacturing analysis
- Design proposals
- Communicating designs
- Iterative development process
- Statistical methods
- Validating designs

Unit: 3 - Learners will explore engineering product design and manufacturing processes and will complete activities that consider function, sustainability, materials, form and other factors.

The assessment availability is May/June each year. The next assessment availability is May/June 2021.