

# It's easy to join us

## Moving to the new Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering from BTEC Level 3 in Engineering

Are you currently teaching the BTEC Level 3 in Engineering (first teaching September 2016)?

This guide will take a look at our Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering, show you how it compares to the BTEC Level 3 in Engineering and how you can easily move to teaching our specification.

Developed with the support of teachers, our new Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering has a number of key benefits for teachers and students:

- teacher-friendly specification based on extensive research and engagement with the teaching community.
- straightforward for teachers to deliver and accessible for students.
- structure of the qualification can be tailored to suit your needs.

The unit grade awarded is based on the **total** number of achieved criteria for the unit. The total number of achieved criteria for each unit can come from achievement of any of the criteria (Pass, Merit or Distinction). This is **not** a 'hurdles-based' approach, so students do not have to achieve all criteria for a specific grade to achieve that grade (e.g. all Pass criteria to achieve a Pass).

### Your students will develop:

- **practical skills** in mechanical engineering and electrical/electronic engineering, such as computer aided design, robotics, and additive manufacturing.
- **problem solving skills** using engineering principles and practical abilities to design, produce and/or improve products, circuits and/or systems.
- **analytical and evaluative skills**, by using software and mathematical methods to design, simulate and test ideas
- their ability to **communicate effectively**, by creating and presenting information appropriately
- a whole host of **transferable skills** including creativity, time management, planning, research along with project-based working and reflective learning skills.

The portfolio of evidence produced by students may be presented to potential employers and/or higher education providers, which will help them to progress and motivates them to pursue a career in engineering.

### Our specification offers:

- **three mandatory units** that cover general engineering, by providing both practical skills and knowledge and understanding of mechanical engineering and electrical/electronic engineering. This helps students progress onto a wide range of engineering degrees.
- **two mandatory externally assessed units** that assess the principles of mechanical engineering and electrical/electronic engineering (including relevant mathematics) and materials science and technology
- **one mandatory non-examined assessment (NEA) unit** exploring practical computer aided drawing/ simulation and manufacturing skills needed to produce prototypes and to evaluate the outcome.
- **five optional NEA units** (of which two must be chosen) that explore different practical engineering topics, which allow students to deepen their knowledge and understanding in certain areas.

# About our support

**We believe in developing specifications that help you bring the subject to life and inspire your students to achieve more.**

We've created teacher-friendly specifications based on extensive research and engagement with the teaching community as well as representatives from higher education. The new specifications are designed to be straightforward and accessible so that you can tailor the delivery of the course to suit your needs. We've clarified the depth and breadth required throughout, and we've made the assessment criteria clearer.

We offer a range of support services to help you at every stage, from preparation to delivery and assessment:

- **free OCR resources** to help you plan your teaching and get your students ready for assessment
- an extensive **range of free professional development courses** covering everything from getting started to hands-on assessment practice. There are also regular Q&A opportunities with moderators and examiners. To find out more, visit our professional development page.
- Active Results: our **free results analysis service** to help you review the performance of individual students or whole school
- ExamBuilder: our **free question-building platform** that helps you to build your own tests using past OCR exam questions
- **expert Subject Advisors** who are part of their subject communities and here to support you with advice, updates on resources, and information about training opportunities.
- **textbooks and teaching and learning resources from leading publishers.**

**To find out more about all of our support services, please visit [Teach Cambridge](#).**

# At a glance specification comparison

	OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering	Pearson BTEC National Extended Diplomas in Engineering
Structure	<p><b>Extended certificate (360 GLH):</b></p> <p>Students must complete two mandatory externally assessed units, one mandatory NEA unit and at least two optional units to achieve the qualification.</p> <p>Three mandatory units are:            F130: Principles of engineering            F131: Materials science and technology            F132: Engineering in practice</p> <p>And two optional units from:            F133: Computer aided design (CAD)            F134: Programmable electronics            F135: Mechanical product design            F136: Computer aided manufacture (CAM)            F137: Electrical devices and circuits</p>	<p><b>Extended certificate (360 GLH/465 TQT):</b></p> <p>Students must complete two mandatory externally assessed units, one mandatory NEA unit and at least one optional units to achieve the qualification.</p> <p>Three mandatory units are:            Unit 1: Engineering principles            Unit 2: Delivery of engineering process safely as a team            Unit 3: Engineering product design and manufacture</p> <p>And one optional unit from:            Unit 7: Calculus to solve engineering problems            Unit 9: Work experience in the engineering sector            Unit 10: Computer aided design in engineering            Unit 11: Engineering maintenance and condition monitoring techniques            Unit 12: Pneumatic and hydraulic systems            Unit 19: Electronic devices and circuits            Unit 25: Mechanical behaviour of metallic materials            Unit 30: Mechanical measurement and inspection technology            Unit 35: Computer programming            Unit 41: Manufacturing secondary machining processes            Unit 44: Fabrication manufacturing processes            Unit 45: Additive manufacturing processes</p>
	<p><b>Certificate (180 GLH):</b></p> <p>Two mandatory units:</p> <ul style="list-style-type: none"> <li>one externally assessed</li> <li>one NEA unit.</li> </ul> <p>F130: Principles of engineering            F132: Engineering in practice</p>	<p><b>Certificate (180GLH/260 TQT)</b></p> <p>Two mandatory units:</p> <ul style="list-style-type: none"> <li>one externally assessed</li> <li>one NEA unit.</li> </ul> <p>Unit 1: Engineering principles            Unit 2: Delivery of engineering processes safely as a team</p> <p>This qualification is also available as Foundation Diploma, Diploma and Diploma Extended levels.</p>

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

## Pearson BTEC National Extended Diplomas in Engineering

<b>Grading</b>	<p>All results from each unit are awarded on the following scale:</p> <ul style="list-style-type: none"> <li>• Distinction</li> <li>• Merit</li> <li>• Pass</li> <li>• Unclassified</li> </ul> <p>The unit grade awarded is based on the total number of achieved criteria for the unit. The total number of achieved criteria for each unit can come from achievement of any of the criteria (Pass, Merit or Distinction). This is not a 'hurdles based' approach, so students do not have to achieve all criteria for a specific grade to achieve that grade.</p> <p>The overall qualification grades are awarded:</p> <ul style="list-style-type: none"> <li>• Distinction* (D*)</li> <li>• Distinction (D)</li> <li>• Merit (M)</li> <li>• Pass (P)</li> <li>• Unclassified (U)</li> </ul>	<p>All results from units are assessed on the following scale:</p> <ul style="list-style-type: none"> <li>• Distinction</li> <li>• Merit</li> <li>• Pass</li> <li>• Near Pass (externally-assessed only)</li> <li>• Unclassified</li> </ul> <p>To achieve a Distinction, a student must have satisfied all the Distinction criteria (and therefore the Pass and Merit criteria)</p> <p>Qualifications in the suite are graded using a scale of:</p> <ul style="list-style-type: none"> <li>• P to D*</li> <li>• PP to D*D</li> <li>• PPP to D*D*D*</li> </ul>
<b>Assessment</b>	<p>F130 Exam 1 hour 30 minutes F131 Exam 1 hour 15 minutes F132 NEA</p> <p>F133 optional NEA F134 optional NEA F135 optional NEA F136 optional NEA F137 optional NEA</p>	<p>Unit 1 Exam 2 hours Unit 2 NEA Unit 3 Externally assessed supervised assessment period to be completed within 8 hours across 5 days</p> <p>Unit 7 optional NEA Unit 9 optional NEA Unit 10 optional NEA Unit 11 optional NEA Unit 12 optional NEA Unit 19 optional NEA Unit 25 optional NEA Unit 30 optional NEA Unit 35 optional NEA Unit 41 optional NEA Unit 44 optional NEA Unit 45 optional NEA</p>

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

## Pearson BTEC National Extended Diplomas in Engineering

### Administration

External assessments available twice a year, with opportunity to resit.

Internal assessment with external moderation available in two assessment windows each year: January and June.

The NEA assignments will be valid for 2 year(s). The dates for which they are live will be shown on the front cover.

For external moderation, you must make unit entries for students before you can submit outcomes to request a visit.

Students can resit the examined unit twice before they complete the qualification.

Familiar administration for exam officers.

See the specification for full administration information.

### External assessment

Two assessment series available each year in January and June.

Learners may resit an external assessment to obtain a higher grade of near pass or above. If a learner has more than one attempt, then the best result will be used for qualification grading, up to the permitted maximum.

### Internal assessment

Assignments are issued to learners as an assignment brief with a defined start date, a completion date and clear requirements for the evidence that they need to provide.

A learner who has not achieved the level of performance required to pass the relevant learning aims after resubmission of an assignment may be offered a single retake opportunity using a new assignment. The retake may only be achieved at a pass.

# Detailed comparison of units

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F130**

**Principles of engineering**

**OCR set and marked**

**70 marks in total**

**90 GLH**

**Mandatory Unit**

**1 hour 30 minutes written examination**

## Pearson BTEC Level 3 in Engineering (first teaching September 2016)

Topic Area title	Teaching content reference	Teaching content title	Comparable teaching content
1: Mathematics	1.1	Application of Système International (SI) Units	Unit 1: Engineering Principles A Algebraic and trigonometric mathematical methods
	1.2	Mensuration	Unit 1: Engineering Principles A Algebraic and trigonometric mathematical methods
	1.3	Algebra	Unit 1: Engineering Principles A1: Algebraic methods (but does not include the laws of logarithms and indices, exponential growth and decay or the quadratic formulae)
	1.4	Trigonometry	Unit 1: Engineering Principles A2: Trigonometric methods
2: Mechanical principles	2.1	Systems of forces	Unit 1: Engineering Principles B1 Static engineering systems
	2.2	Simply supported beams	Unit 1: Engineering Principles B1 Static engineering systems
	2.3	Linear dynamic systems	Unit 1: Engineering Principles C1 Dynamic engineering systems (but does not include angular or circular motion)
3: Electrical/ electronic principles	3.1	Electrical principles	Unit 1: Engineering Principles E1 Static and direct current electricity E2 Direct current circuit theory (but not diodes) E3 Direct current networks (but not capacitor networks) F1 Magnetism (partial) G1 Single-phase alternating current theory (partial)
	3.2	Analogue and digital circuits	Unit 19: Electronic Devices and Circuits A4 Operational amplifier circuits (partial) B1 Logic gates and Boolean algebra (partial) B2 Combinational logic circuits (partial)

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F131**

**Materials science and technology**

**OCR set and marked**

**50 marks in total**

**60 GLH**

**Mandatory Unit**

**1 hour 15 minutes written examination**

## Pearson BTEC Level 3 in Engineering (first teaching September 2016)

### Comparable teaching content

Topic Area title	Teaching content reference	Teaching content title	Comparable teaching content
1: Material properties	1.1	Mechanical properties	Unit 3: Engineering Product Design and Manufacture A4 Material properties  Unit 25: Mechanical Behaviour of Metallic Materials A3 Mechanical properties of metallic materials  Unit 26: Mechanical Behaviour of Non-metallic A3 Mechanical properties of non-metallic materials
	1.2	Physical properties	Unit 25: Mechanical Behaviour of Metallic Materials A4 Grain structure of metallic materials  Unit 26: Mechanical Behaviour of Non-metallic A2 Structures of non-metallic materials
2: Types of material	2.1	Metals	Unit 25: Mechanical Behaviour of Metallic Materials A1 Types of ferrous metals and alloys A2 Types of non-ferrous metals and alloys
	2.2	Polymers	Unit 26: Mechanical Behaviour of Non-metallic A1 Types of non-metallic materials
	2.3	Engineering ceramics	Unit 26: Mechanical Behaviour of Non-metallic A1 Types of non-metallic materials
	2.4	Composite materials	Unit 26: Mechanical Behaviour of Non-metallic A1 Types of non-metallic materials
	2.5	Modern materials	Not covered
	2.6	Semiconductor materials	Not covered
	2.7	Smart materials	Not covered

*F131 comparison continues on next page.*

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F131**

**Materials science and technology**

**OCR set and marked**

**50 marks in total**

**60 GLH**

**Mandatory Unit**

**1 hour 15 minutes written examination**

## Pearson BTEC Level 3 in Engineering (first teaching September 2016)

### Comparable teaching content

Topic Area title	Teaching content reference	Teaching content title	Comparable teaching content
3: Effect of processing techniques on material properties	3.1	Processing techniques and heat treatment	Unit 3: Engineering Product Design and Manufacture A6 Manufacturing processes  Unit 25: Mechanical Behaviour of Metallic Materials A5 Effects of processing on the mechanical properties of metallic materials
4: Material failure mechanisms and prevention			Unit 25: Mechanical Behaviour of Metallic Materials C: Explore the in-service failure of metallic components and consider improvements to their design  Unit 26: Mechanical Behaviour of Non-metallic C: Explore the in-service failure of non-metallic components and consider improvements to their design
5: Sustainable materials and practices in engineering			Unit 3: Engineering Product Design and Manufacture A2 Design challenges (only in terms of sustainability issues throughout the product lifecycle)



## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F132**

**Engineering in practice**

**OCR set assignment**

**Centre assessed and OCR moderated**

**Mandatory unit**

**60 GLH**

## Pearson BTEC Level 3 in Engineering (first teaching September 2016)

### Comparable teaching content

Topic Area title	Teaching content reference	Teaching content title	Comparable teaching content
1: Product analysis	1.1	Product analysis of the components	Unit 2: Delivery of Engineering Processes Safely as a Team A1 Common engineering processes
2: Produce Computer Aided Design (CAD) mechanical and electronic engineering drawings	2.1	Produce a 2D CAD engineering drawing of a mechanical component	Unit 2: Delivery of Engineering Processes Safely as a Team B1 Principles of engineering drawing B2 2D computer-aided drawing
	2.2	Produce a CAD engineering drawing of an electronic circuit	Unit 2: Delivery of Engineering Processes Safely as a Team B1 Principles of engineering drawing B2 2D computer-aided drawing  Unit 19: Electronic Devices and Circuits* A5 Schematic capture and simulation of analogue circuits  * There are other units which also cover circuit simulation.
3: Plan the safe manufacture of a mechanical prototype and an electronic circuit prototype	3.1	Plan the safe manufacture of a mechanical prototype	Unit 2: Delivery of Engineering Processes Safely as a Team C4 Preparation activities for batch manufacture or batch service delivery
	3.2	Inputting formulae, functions and data	Unit 19: Electronic Devices and Circuits A1 Safe electronic working practices  * There are other units which also cover planning the manufacture of a circuit.

*F132 comparison continues on next page.*

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F132**

**Engineering in practice**

**OCR set assignment**

**Centre assessed and OCR moderated**

**Mandatory unit**

**60 GLH**

## Pearson BTEC Level 3 in Engineering (first teaching September 2016)

### Comparable teaching content

Topic Area title	Teaching content reference	Teaching content title	Comparable teaching content
4: Manufacturing processes	4.1	Manufacture a mechanical prototype	Unit 2: Delivery of Engineering Processes Safely as a Team C5 Delivery of manufacturing or service engineering processes
	4.2	Manufacture an electronic circuit prototype	If the strip board approach is used, then: Unit 2: Delivery of Engineering Processes Safely as a Team C5 Delivery of manufacturing or service engineering processes  If the printed circuit board approach is used, then: Unit 22: Electronic Printed Circuit Board Design and Manufacture C4 Manufacture of a single-sided PCB
5: Evaluate a prototype	5.1	Evaluate a mechanical prototype	Unit 2: Delivery of Engineering Processes Safely as a Team C5 Delivery of manufacturing or service engineering processes
	5.2	Evaluate an electronic circuit prototype	Unit 19: Electronic Devices and Circuits A6 Testing physical analogue circuits  Unit 22: Electronic Printed Circuit Board Design C4 Manufacture of a single-sided PCB

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F133**

**Computer aided design (CAD)**

**OCR set assignment**

**Centre assessed and OCR moderated**

**Optional unit**

**60 GLH**

**Pearson BTEC Level 3 in Engineering  
(first teaching September 2016)**

Topic Area title	Teaching content reference	Teaching content title	Comparable teaching content
1: Produce 3D models using Computer Aided Design (CAD)	1.1	Understanding the uses of CAD	Not covered
	1.2	Creating sketch geometry	Unit 10: Computer Aided Design in Engineering A1 3D parametric modelling
	1.3	Solid modelling tools used to create 3D shapes	Unit 10: Computer Aided Design in Engineering A2 Develop 3D components
	1.4	Variations and configurations	Unit 10: Computer Aided Design in Engineering A3 Develop a 3D model
2: Create a 3D assembly of multiple components within a CAD software	2.1	Aspects of assembly	Unit 10: Computer Aided Design in Engineering A3 Develop a 3D model
	2.2	Presentation of assemblies	Unit 10: Computer Aided Design in Engineering A3 Develop a 3D model
3: Creating technical drawings from 3D models	3.1	Drawing standards and conventions	Unit 10: Computer Aided Design in Engineering A4 Output of drawings from a model
	3.2	How to use projection and units	Unit 10: Computer Aided Design in Engineering A4 Output of drawings from a model
	3.3	Apply dimensioning and annotations	Unit 10: Computer Aided Design in Engineering A4 Output of drawings from a model
	3.4	Assembly drawings	Unit 10: Computer Aided Design in Engineering A4 Output of drawings from a model B3 Output of 2D drawings
4: Simulations in 3D modelling	4.1	Simulations in 3D modelling	Not covered
	4.2	Setting up and running simulations	Not covered
	4.3	Analysing results of simulations	Not covered
	4.4	Engineering principles of design	Not covered

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F134**

**Programmable electronics**

**OCR set assignment**

**Centre assessed and OCR moderated**

**Optional unit**

**60 GLH**

## Pearson BTEC Level 3 in Engineering (first teaching September 2016)

### Comparable teaching content

Topic Area title	Teaching content reference	Teaching content title	Comparable teaching content
1: Microcontrollers and microcontroller systems	1.1	Microcontroller types for different applications  Microcontroller systems and programming languages for different applications	Unit 6: Microcontroller Systems for Engineers A1 Control hardware Unit 6: Microcontroller Systems for Engineers A1 Control hardware
2 Using input and output devices and other electronic components in microcontroller systems	2.1	Using input and output devices in microcontroller systems	Unit 6: Microcontroller Systems for Engineers A2 Input devices A3 Output devices
	2.2	Using components other than input and output devices in programmable systems	Unit 6: Microcontroller Systems for Engineers A2 Input devices A3 Output devices
3: Designing, developing, and assembling microcontroller-based programmable systems	3.1	Designing and developing microcontroller-based systems	Unit 6: Microcontroller Systems for Engineers A4 Selecting hardware devices and system design
	3.2	Assembling and testing microcontroller-based systems	Unit 6: Microcontroller Systems for Engineers A5 Assembling and operating a microcontroller system
4: Programming microcontrollers	4.1	Producing programs for microcontrollers	Unit 6: Microcontroller Systems for Engineers B Programming Techniques and Coding
	4.2	Simulating and downloading programs for microcontrollers	Unit 6: Microcontroller Systems for Engineers B Programming Techniques and Coding

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F135**

**Mechanical product design**

**OCR-set assignment**

**Centre assessed and OCR moderated**

**Optional unit**

**60 GLH**

## Pearson BTEC Level 3 in Engineering (first teaching September 2016)

### Comparable teaching content

Topic Area title	Teaching content reference	Teaching content title	Comparable teaching content
1: Product analysis	1.1	Product research	Unit 3: Engineering Product Design and Manufacture A1 Design triggers A2 Design challenges
	1.2	Disassembly	Not covered
	1.3	Identification of materials	Unit 3: Engineering Product Design and Manufacture A4 Material properties
	1.4	Identification of manufacturing processes	Unit 3: Engineering Product Design and Manufacture A6 Manufacturing processes
	1.5	Design for manufacturing and assembly (DFMA)	Unit 39: Modern Manufacturing Systems C3 Lean tools and methods
2: Product redesign	2.1	Product redesign	Unit 3: Engineering Product Design and Manufacture C Using an iterative process to design ideas and develop a modified product Proposal (partial)
	2.2	Graphical presentation and communication of design solutions	Unit 3: Engineering Product Design and Manufacture C Using an iterative process to design ideas and develop a modified product Proposal (partial)

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F136**

**Computer aided manufacture (CAM)**

**OCR set assignment**

**Centre assessed and OCR moderated**

**Optional unit**

**60 GLH**

## Pearson BTEC Level 3 in Engineering (first teaching September 2016)

Topic Area title	Teaching content reference	Teaching content title	Comparable teaching content
1: Subtractive and additive Computer Aided Manufacturing (CAM) processes	1.1	Commercial subtractive manufacturing processes	Unit 43: Manufacturing Computer Numerical Control Machining Processes A: Examine the control systems used in Computer Numerical Control machines and different computer programming methods
	1.2	Commercial additive manufacturing processes	Unit 45: Additive Manufacturing Processes A: Examine the technology and characteristics of additive manufacturing processes as used in industry
2: Three dimensional (3D) Computer Aided Design (CAD) modelling of prototype components	2.1	Producing 3D CAD models	Unit 10: Computer Aided Design in Engineering A: Develop a three-dimensional computer-aided model of an engineered product that can be used as part of other engineering processes (partial)
	2.2	The design of components for subtractive and additive manufacturing processes	Unit 45: Additive Manufacturing Processes B1 Design considerations for AM processes
3: Manufacturing prototype components using subtractive processes	3.1	Produce a CNC program	Unit 43: Manufacturing Computer Numerical Control Machining Processes B: Develop a Computer Numerical Control set-up sheet and part program to manufacture a component safely
	3.2	Using CNC machines to produce components	Unit 43: Manufacturing Computer Numerical Control Machining Processes C: Carry out Computer Numerical Control machining processes to manufacture a component safely
4: Manufacturing prototype components using additive processes	4.1	Plan, set-up and operate an additive manufacturing machine to produce a component	Unit 45: Additive Manufacturing Processes C: Develop a component using additive manufacturing processes safely

*F136 comparison continues on next page.*

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F136**

**Computer aided manufacture (CAM)**

**OCR set assignment**

**Centre assessed and OCR moderated**

**Optional unit**

**60 GLH**

**Pearson BTEC Level 3 in Engineering  
(first teaching September 2016)**

Topic Area title	Teaching content reference	Teaching content title
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**Comparable teaching content**

5: Evaluating prototype components manufactured using subtractive and additive manufacturing processes

5.1

Evaluating components

Unit 43: Manufacturing Computer Numerical Control Machining Processes

D: Review the processes used to machine a component and reflect on personal performance (partial)

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F137**

**Electrical devices and circuits**

**OCR set assignment**

**Centre assessed and OCR moderated**

**Optional unit**

**60 GLH**

**Pearson BTEC Level 3 in Engineering  
(first teaching September 2016)**

Topic Area title	Teaching content reference	Teaching content title
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**Comparable teaching content**

1: Power sources

1.1

Direct Current (DC) circuits

Unit 1: Engineering Principles

E Static and direct current electricity and circuits

Unit 19: Electronic Devices and Circuits

A1 Safe electronic working practices

1.2

Alternating Current (AC) circuits

Unit 1: Engineering Principles

G Single-phase alternating current

2: Semiconductor devices

2.1

Diodes and transistors

Unit 19: Electronic Devices and Circuits

A2 Diode devices and diode-based circuits

A3 Transistor devices and transistor-based circuits

*F137 comparison continues on next page.*

## OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Engineering

**F137**

**Electrical devices and circuits**

**OCR set assignment**

**Centre assessed and OCR moderated**

**Optional unit**

**60 GLH**

**Pearson BTEC Level 3 in Engineering  
(first teaching September 2016)**

Topic Area title	Teaching content reference	Teaching content title	Comparable teaching content
3: Analogue circuits	3.1	Transistor based circuits	Unit 19: Electronic Devices and Circuits A3 Transistor devices and transistor-based circuits A4 Operational amplifier circuits A5 Schematic capture and simulation of analogue circuits A6 Testing physical analogue circuits
4: Digital circuits	4.1	Combinational logic	Unit 19: Electronic Devices and Circuits B1 Logic gates and Boolean algebra B2 Combinational logic circuits B4 Schematic capture and simulation of digital circuits B5 Testing physical digital circuits.
	4.2	Sequential logic	Unit 19: Electronic Devices and Circuits B3 Sequential logic circuits B4 Schematic capture and simulation of digital circuits B5 Testing physical digital circuits.



# Next steps

If you are an OCR-approved centre, all you need to do is download the specification and start teaching. Your exams officer can complete an intention to teach form which enables us to provide appropriate support. When you're ready to enter your students, you just need to speak to your exams officer.

1. Get to know the specification, sample assessment materials and teaching resources on our [Alternative Academic Qualification Cambridge Advanced National in Engineering website](#).
2. Sign up to [receive subject updates by email](#).
3. Sign up to attend a [training event](#) or take part in a webinars on specific topics running throughout the year and our Q&A webinar sessions every half term.

**To find out more about all of our support services, please visit [Teach Cambridge](#).**

## Need to get in touch?

If you ever have any questions about OCR qualifications or services (including administration, logistics and teaching) please feel free to get in touch with our customer support centre.

Call us on  
**01223 553998**

Alternatively, you can email us on  
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