

## Y12 Curriculum Overview 2015-17

Subject	Exam Board																																																																										
<b>BTEC Level 3 in Engineering</b>	<b>Pearson</b>																																																																										
<p><b>Description:</b></p> <p>These qualifications are designed to be the substantive part of a study programme for learners wanting a strong core in a specialist engineering sector. Specialisations are available in Engineering, Electronic/Electrical, Mechanical, Computing, Manufacturing and Aeronautical Engineering.</p> <p>The BTEC courses actively encourage students to work independently and teachers are there to guide and facilitate learning. Some lessons are still delivered in a more traditional way due to their content, however great emphasis is out on independent guided tasks.</p> <p><b>BTEC Level 3 Diploma (120-credits)</b> is broadly equivalent to two GCE A Levels.</p> <p><b>BTEC Level 3 Extended Diploma (180-credit)</b> extends and deepens the specialist work-related focus from the Level 3 Diploma. There is potential for the qualification to prepare learners for appropriate direct employment in the vocational sector and it is suitable for those who have decided that they clearly wish to enter a particular specialist area of work. It is broadly equivalent to three GCE A Levels.</p> <p><b>Units:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #4F81BD; color: white;"> <th style="width: 10%;">Unit</th> <th style="width: 60%;">Unit Title</th> <th style="width: 15%;">120 credit</th> <th style="width: 15%;">180 credit</th> </tr> </thead> <tbody> <tr><td>1</td><td>Health and Safety in the Engineering Workplace</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>2</td><td>Communications for Engineering Technicians</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>3</td><td>Engineering Project</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>4</td><td>Mathematics for Engineering Technicians</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>5</td><td>Mechanical Principles and Applications</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>6</td><td>Electrical and Electronic Principles</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>7</td><td>Business Operations in Engineering</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>8</td><td>Engineering Design</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>9</td><td>Commercial Aspects of Engineering Organisations</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>11</td><td>Further Mechanical Principles</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>14</td><td>Applications of Thermodynamic Principles</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>15</td><td>Electro Pneumatic and hydraulic systems and devices</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>16</td><td>Engineering Drawing for Technicians</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>23</td><td>Welding Technology</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>25</td><td>Selecting and Using Programmable Controllers</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>28</td><td>Further Mathematics for Engineering Technicians</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> <tr><td>35</td><td>Principles and Applications of Electronic Devices and Circuits</td><td style="background-color: #D9E1F2;"></td><td style="background-color: #D9E1F2;"></td></tr> </tbody> </table> <p><b>Method of Assessment:</b></p> <p>All units are internally assessed in the BTEC qualifications in this specification. All assessment for the BTEC qualifications in this specification is criterion referenced, based on the achievement of specified learning outcomes. Each unit within the qualification has specified assessment and grading criteria which are to be used for</p>				Unit	Unit Title	120 credit	180 credit	1	Health and Safety in the Engineering Workplace			2	Communications for Engineering Technicians			3	Engineering Project			4	Mathematics for Engineering Technicians			5	Mechanical Principles and Applications			6	Electrical and Electronic Principles			7	Business Operations in Engineering			8	Engineering Design			9	Commercial Aspects of Engineering Organisations			11	Further Mechanical Principles			14	Applications of Thermodynamic Principles			15	Electro Pneumatic and hydraulic systems and devices			16	Engineering Drawing for Technicians			23	Welding Technology			25	Selecting and Using Programmable Controllers			28	Further Mathematics for Engineering Technicians			35	Principles and Applications of Electronic Devices and Circuits		
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## Y12 Curriculum Overview 2015-17

grading purposes.

A summative unit grade can be awarded at pass, merit or distinction:

- to achieve a 'pass' a learner must have satisfied all the pass assessment criteria
- to achieve a 'merit' a learner must additionally have satisfied all the merit grading criteria
- to achieve a 'distinction' a learner must additionally have satisfied all the distinction grading criteria.
- Learners who complete the unit but who do not meet all the pass criteria are graded 'unclassified'.

**Link to Specification:**

[http://qualifications.pearson.com/content/dam/pdf/BTEC-Nationals/Engineering/2010/Specification/9781446934647 BTEC 90c L3 Eng Iss4.pdf](http://qualifications.pearson.com/content/dam/pdf/BTEC-Nationals/Engineering/2010/Specification/9781446934647_BTEC_90c_L3_Eng_Iss4.pdf)

## Y12 Curriculum Overview 2015-17

<b>Subject</b>	<b>Exam Board</b>
<b>Mathematics</b>	<b>AQA</b>
<p><b>Description:</b> A-level Maths provides students with a thorough grounding in the mathematical tools and techniques often needed in the workplace. The logic and reasoning skills developed by studying A-level Maths make sure the qualification is widely respected even in non-mathematical arenas.</p> <p>A-level Maths is made up of six units – three at AS and three at A2. All units are available in the June series. There are four Pure Core units which make up two-thirds of the qualification and provide the techniques in Algebra, Geometry, Trigonometry and Calculus that form the fundamental building blocks of the subject. Mathematical applications make up the remaining third of the qualification and there are various options to suit the needs of individual students.</p> <p>The applications fall into three strands:</p> <ul style="list-style-type: none"><li>• <b>decision</b> – networks, algorithms, sorting</li><li>• <b>mechanics</b> – forces, energy, motion</li><li>• <b>statistics</b> – probability, data handling, testing hypotheses.</li></ul> <p>Students can focus on one strand or study a mixture of any two.</p> <p><b>Knowledge/skills gained:</b></p> <ul style="list-style-type: none"><li>• understanding of the mathematics that underpin many aspects of our lives</li><li>• the ability to apply a range of mathematical skills to different situations</li><li>• acute logical thinking and problem-solving abilities</li><li>• the ability to process, interpret and analyse information.</li></ul> <p>A-level Maths provides a foundation for further studies in a variety of subjects including Science and Engineering</p>	
<p><b>Method of Assessment:</b> All units are of equal weighting and are assessed by an exam of 1 hour 30 minutes.</p> <p><b>Core 1</b> All questions are compulsory. Calculators are not permitted.</p> <p><b>Core 2</b> All questions are compulsory. A graphics calculator may be used.</p> <p><b>Mechanics 1B</b> All questions are compulsory. A graphics calculator may be used.</p> <p><b>Core 3</b> All questions are compulsory. A graphics calculator may be used.</p> <p><b>Core 4</b> All questions are compulsory. A graphics calculator may be used.</p> <p><b>Mechanics 2B</b> All questions are compulsory. A graphics calculator may be used.</p>	

## Y12 Curriculum Overview 2015-17

**Link to Specification:**

<http://filestore.aqa.org.uk/subjects/specifications/alevel/AQA-6360-W-SP-14.PDF>

## Y12 Curriculum Overview 2015-17

Subject	Exam Board
<b>Physics</b>	<b>AQA</b>
<b>Description:</b>  This specification ensures that the subject content is relevant to real world experiences and is interesting to learn. It can be a stepping stone to future study, across a wide range of disciplines, including science and engineering.  Content areas: <ul style="list-style-type: none"><li>• Periodic motion</li><li>• Thermal Physics</li><li>• Practical skills and data analysis</li></ul>	
<b>Method of Assessment:</b> This qualification is linear, which means that students will sit all the exams at the end of their A-level course.  <b>Paper 1 Periodic motion</b> Written examination (2 hours - 85 marks)  <b>Paper 2 Thermal Physics</b> Written examination (2 hours - 85 marks)  <b>Paper 3 Practical skills and data analysis</b> Written examination (2 hours - 80 marks)	
<b>Link to Specification:</b> <a href="http://filestore.aqa.org.uk/resources/physics/specifications/AQA-7407-7408-SP-2015.PDF">http://filestore.aqa.org.uk/resources/physics/specifications/AQA-7407-7408-SP-2015.PDF</a>	

Subject	Exam Board
<b>BTEC Level 3 Certificate in Information Technology</b>	<b>Pearson</b>
<b>Description:</b> BTEC qualifications in this specification have been developed in the IT sector to: <ul style="list-style-type: none"><li>• give education and training for IT employees</li><li>• give IT employees opportunities to achieve a nationally recognised level 3 vocationally-specific qualification</li><li>• give full-time learners the opportunity to enter employment in the IT sector or to</li></ul>	

## Y12 Curriculum Overview 2015-17

progress to vocational qualifications such as the Pearson BTEC Higher Nationals in Computing and Systems Development

- give learners the opportunity to develop a range of skills and techniques, personal skills and attributes essential for successful performance in working life.

The BTEC courses actively encourage students to work independently and teachers are there to guide and facilitate learning. Some lessons are still delivered in a more traditional way due to their content, however great emphasis is out on independent guided tasks.

**BTEC Level 3 Certificate (30-credits)** in IT is broadly equivalent to one GCE AS Level.

### **Units:**

- **Unit 1** Communication and Employability Skills for IT
- **Unit 2** Computer Systems
- **Unit 16** Procedural Programming

### **Method of Assessment:**

All units are internally assessed in the BTEC qualifications in this specification. All assessment for the BTEC qualifications in this specification is criterion referenced, based on the achievement of specified learning outcomes. Each unit within the qualification has specified assessment and grading criteria which are to be used for grading purposes.

A summative unit grade can be awarded at pass, merit or distinction:

- to achieve a 'pass' a learner must have satisfied all the pass assessment criteria
- to achieve a 'merit' a learner must additionally have satisfied all the merit grading criteria
- to achieve a 'distinction' a learner must additionally have satisfied all the distinction grading criteria.
- Learners who complete the unit but who do not meet all the pass criteria are graded 'unclassified'.

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