Higher Nationals

Mechatronics for England

Specification

For use with the Higher National Certificate in Mechatronics for England

First teaching from September 2024
First Certification from September 2025



Higher National Certificate Lvl 4

Undergraduate Level Qualification

Pearson BTEC

About Pearson

We are the world's leading learning company operating in countries all around the world. We provide content, assessment and digital services to learners, educational institutions, employers, governments and other partners globally. We are committed to helping equip learners with the skills they need to enhance their employability prospects and to succeed in the changing world of work. We believe that wherever learning flourishes so do people.

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Summary of changes in Pearson BTEC Higher Nationals Mechatronics for England specification Issue 3

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Spelling correction 'Shuttershock' to 'Shutterstock'	ii
1.9 Insertion of Key Features section Added 'Key Features' section	3
2.2 Spelling correction 'to' to 'into'	5
2.4 Grammar correction 'Support' to 'supports'	6
3.1 Rewording 'work through learning' to 'work-based learning'	10
5.1 Inserting missing word 'it also' to 'it is also'	16
5.2.1 English language requirements Updated English language requirements section	18
6.2.1 Numerical format correction '1.200' to '1,200'	26
8.2 Punctuation correction Removing additional full-stop	45
8.7 Removing duplicate word 'terms and and conditions' to 'terms and conditions'	46
10.0 Punctuation correction Full-stop to comma in 'race, sexuality, religious beliefs'	49

Earlier issue(s) show(s) previous changes.

If you need further information on these changes or what they mean, contact us via our website at: qualifications.pearson.com/en/support/contact-us.html.

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1.0 Introduction

BTEC is the established brand of choice for the world's learning communities, engaging students in applied, practical, interpersonal and thinking skills for more than three decades. Pearson BTEC Higher National (HN) qualifications are widely supported by higher education and industry as the principal vocational undergraduate qualifications at Levels 4 and 5.

When developing our BTEC Higher National qualifications, we worked with a wide range of students, employers, higher education providers, colleges and subject experts to make sure the qualifications met their needs and expectations. We also worked closely with professional organisations to make sure the qualifications were in line with recognised professional standards.

The Pearson BTEC Higher National qualifications are designed to reflect the increasing need for high-quality professional and technical education at undergraduate Levels 4 and 5. They provide students with a clear line of sight to employment and to a degree at Level 6 if they choose.

1.1 Qualifications indicated 'for England'

Qualifications that are indicated as 'for England' are designed to meet the requirements of specific Occupational Standards.[1] Meeting the requirements of the Occupational Standards relates to:

- qualifications that are 'quality marked' as Higher Technical Qualifications (HTQ)
- the knowledge, skills and behaviours for identified job roles associated with the relevant Occupational Standards.

1.2 Qualifications not indicated 'for England'

Qualifications that are *not* indicated as 'for England' can be delivered at any Centre, in any country, including those in England. However, these qualifications are not 'quality marked' as Higher Technical Qualifications by the Institute for Apprenticeships and Technical Education (IfATE).

1.3 The student voice

Students are at the heart of what we do. That is why, from the outset, we consulted with students in the development of these qualifications. We involved them in writing groups, sought their feedback and added their voices and views to those of other stakeholders.

The result, we believe, is a set of qualifications that will meet the needs and expectations of students worldwide.

[1] Occupational Standards are often referred to as Apprenticeship Standards in England.

1.4 Why choose Pearson BTEC Higher Nationals?

Pearson BTEC Higher Nationals are designed to help students to secure the knowledge, skills and behaviours needed to succeed in the workplace. They represent the latest in professional standards and provide opportunities for students to develop behaviours for work, for example by undertaking a group project, or responding to a client brief. A student may even achieve exemption from professional or vendor qualifications, or student membership of selected professional bodies, to help them on their journey to professional competence.

At the same time, Pearson BTEC Higher Nationals are intended to keep doors open for future study, should a student wish to progress further in their education after their Level 5 study. The qualifications do this by allowing space for the development of higher education study skills, such as the ability to research. Clear alignment of level of demand with the Framework for Higher Education qualification descriptors at Levels 4 and 5 means that students wishing to progress to Level 6 study should feel better prepared. The Pearson BTEC Higher Nationals address these various requirements by providing:

- a range of core, optional and specialist units, each with a clear purpose, so there is something to suit each student's choice of programme and progression plans
- fully revised content that is closely aligned with the needs of employers, professional bodies, vendors and higher education, for a skilled future workforce
- the opportunity to develop transferable skills, useful for work and for higher education, including research skills, the ability to meet deadlines and communication skills
- learning outcomes mapped against professional body standards and vendor accreditation requirements, where appropriate
- assessments and projects chosen to help students progress to the next stage (this means that some are set by the Centre to meet local needs, while others are set by Pearson). Students are required to apply their knowledge to a variety of assignments and activities, with a focus on the holistic development of practical, interpersonal and higher-level thinking skills
- an approach to demand at Levels 4 and 5 aligned with the Framework for Higher Education Qualifications (FHEQ)
- support for students and tutors, including Authorised Assignment Briefs (AABs).

1.5 HN Global

Our HN Global website provides a specially designed range of digital resources to give tutors and students the best possible experience during their BTEC Higher Nationals course. More information is available at hnglobal.highernationals.com.

1.6 Qualification titles

Higher National Certificate

Pearson BTEC Level 4 Higher National Certificate in Mechatronics for England.

1.7 Qualification codes

Regulated Qualifications Framework (RQF) qualification numbers:

- Pearson BTEC Higher National Certificate in Mechatronics for England: **610/1260/9.**

1.8 Awarding organisation

Pearson Education Ltd.

1.9 Key features

The Pearson BTEC Higher National Architectural Technology qualification offers:

- an exciting and informative study programme that stimulates and challenges students
- a simple and flexible structure that enables students to take the Higher National Certificate and then build on it in the Higher National Diploma, with optional units linked to their specialist area of study
- core competencies throughout the curriculum, to support lifelong learning skills for personal and professional development
- the opportunity for centres to offer assessments that consider cognitive skills (what students know) along with effective and applied skills (how they behave and what they can do) to support a practical and dynamic approach to learning
- unit-specific assessment and Pearson-set themes designed to encourage thorough and analytical learning, challenge students and develop skills in critical thinking, personal responsibility and decision making
- a flexible approach to assessment that supports progression to higher education or work
- Quality Assurance measures that assure professional organisations, universities, businesses, colleges and students of the integrity and value of the qualifications, and
- a programme of learning designed to meet skills gaps in the current workforce and build today's talent to meet tomorrow's needs in an international environment.

1.10 Collaborative development

We are very grateful to the university and further education tutors, employers, professional bodies and others who have generously shared their time and expertise to help us develop this new Pearson BTEC Higher National Certificate in Mechatronics for England. Our thanks go to:

- Avanti Communications
- BAE Systems
- Didactic Services: Festo Partner
- Blackpool and Fylde College
- Brunel University
- City, University of London
- DN Colleges Group
- Glasgow Caledonian University
- GTA England
- Lancaster University
- Macclesfield College
- NFEC (National Forum of Engineering Centres)
- Proptech Aero Ltd
- South Yorkshire Institute of Technology
- Truro and Penwith College
- University of Surrey.

2.0 Programme purpose and objectives

2.1 Purpose

The purpose of this qualification is to develop students as professional, self-reflecting individuals able to meet the demands of employers in the engineering sector and to adapt to a constantly changing world. The qualification aims to widen access to higher education and enhance the career prospects of those who undertake them.

2.2 Objectives

The objective of this qualification is to:

- equip students with the skills, knowledge and understanding they need to achieve high performance in the engineering and manufacturing environment
- develop students with enquiring minds, who have the abilities and confidence to work across different engineering functions and to lead, manage, respond to change and tackle a range of complex engineering situations
- provide the core skills required for a range of careers in engineering, specifically those related to mechatronics
- offer a balance between employability skills and the knowledge essential for students with entrepreneurial, employment or academic ambitions
- develop students' understanding of the major impact that new digital and software technologies have on the engineering environment
- provide insight into mechatronics engineering operations and the opportunities and challenges presented by a global marketplace
- equip students with knowledge and understanding of culturally diverse organisations, cross-cultural issues, diversity and values
- to allow flexible study to meet local and specialist needs.

2.3 Aims of the Level 4 Higher National Certificate

The Level 4 units lay the foundation of learning by providing a broad introduction to mechatronics. This develops and strengthens core skills while preparing students for specialist subjects at Level 5 or to enter employment with the qualities necessary for job roles that require some personal responsibility.

Students will gain a wide range of engineering knowledge linked to practical skills obtained through research, independent study, directed study and workplace scenarios. Students are involved in vocational activities that help them to develop behaviours (the attitudes and approaches required for a competence) and transferable skills. Transferable skills are those such as communication, teamwork, research and analysis, which are highly valued in higher education and in the workplace.

By the end of Level 4 study, students will have sound knowledge of the basic concepts of mechatronics engineering. They will be competent in a range of subject-specific skills as well as in general skills and qualities relevant to these key areas of engineering.

2.4 Developing students' employability skills and academic study skills

Employability skills (sometimes referred to as transferable skills) are vital to increase students' career prospects and contribute to their personal professional development. Our BTEC Higher National Certificate in Mechatronics for England supports students in developing the key skills, qualities and strengths that employers are looking for.

We divide employability skills into five main categories.

- Problem-solving skills:
  - critical thinking
  - using expert and creative solutions to solve non-routine problems
  - using systems and digital technology, and
  - generating and communicating ideas creatively.
- Independent skills:
  - self-management
  - adaptability and resilience
  - self-monitoring and self-development
  - self-analysis, and
  - reflection, planning and prioritising.
- Interpersonal skills:
  - leadership skills
  - communicating effectively
  - working with others
  - negotiating and influencing, and

    - presentation skills.
- Commercial skills:
    - awareness of the engineering sector
    - understanding client needs
    - managing and monitoring budgets.
- Business skills:
    - awareness of types of companies and company formations
    - legal and statutory responsibilities
    - business management.

Students also benefit from opportunities for deeper learning, where they can make connections between different study units and select areas of interest for detailed study. In this way, the BTEC Higher National Certificate in Mechatronics for England provides a vocational context in which students can develop the knowledge and academic study skills they need to progress to university degree courses.

These academic study skills include:

- active research
- effective writing
- analytical skills
- critical thinking
- creative problem solving
- decision making
- preparing for exams, and
- using digital technology.

Students can also develop their academic skills through independent study modules and resources on the HN Global platform: https://hnglobal.highernationals.com/.

2.4.1 Use of mathematics and English within the curriculum

A career in engineering requires both technical skills and broader employability skills to increase employment opportunities. For example, appropriate communication with stakeholders is an essential skill, also the ability to use mathematics and English in a professional context is a key area for student development.

This type of development is embedded throughout BTEC Higher Nationals in accordance with industry requirements. Students may encounter some of the examples given below in the course of their study:

- preparing written reports
- giving formal presentations
- taking part in informal conversations
- using professional, sector-specific language.

Some aspects of engineering require mathematics skills and we strongly recommend that all students complete diagnostic mathematics assessments, preferably before beginning a Higher National course, as well as having an A* to C grade GCSE Maths or 9 to 4 in GCSE Maths prior to starting the course (see *Entry requirements* in section 5.2 of this specification).

2.5 What could these qualifications lead to?

The Level 4 Higher National Certificate provides a solid grounding in mechatronics on which students can build should they decide to continue their studies beyond the Certificate stage. On successful completion of the Level 4 Higher National Certificate, students can develop their careers in the manufacturing sector through:

- Entering employment
- Continuing existing employment
- Linking with the appropriate professional body
- Committing to Continuing Professional Development (CPD)
- Progressing to university.

Students should always check the entry requirements for Level 5 and Level 6 programmes at specific further education and higher education providers. The skills offered as part of the Pearson BTEC Higher National Certificate can provide graduates with the opportunity to work in many different areas of engineering.

2.5.1 Progression to university

The Level 4 Higher National Certificate is recognised by higher education providers as meeting admission requirements to many relevant undergraduate engineering related courses, for example:

- BEng (Hons) Engineering (Mechatronics)
- BEng (Hons) Mechatronics
- BEng (Hons) Mechatronics and Autonomous Systems
- BEng (Hons) Mechatronics and Computer Systems Engineering
- BEng (Hons) Mechatronics and Intelligent Machines
- BEng (Hons) Mechatronic Engineering
- BEng (Hons) Mechatronic Engineering with Industrial Experience
- BEng (Hons) Mechatronic Systems
- BEng (Hons) Mechatronics with Placement
- BEng (Hons) Robotics, Mechatronics and Control Engineering
- BSc (Hons) Mechatronics
- MEng (Hons) Mechatronics
- MEng (Hons) Mechatronics and Robotics Engineering
- MEng (Hons) Mechatronics and Robotics Engineering with Industrial Year
- MEng (Hons) Mechatronics and Robotics Engineering with a Year Abroad Year

- MEng (Hons) Mechatronics Engineering (with placement)
- MEng (Hons) Robotics, Mechatronics and Control Engineering.

University recognition and articulations

We work with a range of higher education institutions around the world that recognise and accept Pearson BTEC Higher Nationals as qualifications for entry to an undergraduate degree. Many universities allow advanced entry to the second year of a degree, and agreements can include credit transfer, articulation and case-by-case admission.

Students should be aware that university admission criteria are always subject to change and remain at the discretion of the institution. Students should take time to understand the course entry requirements for the subject, year and grade before applying. For more information on *entry requirements and degree progression*, please visit: https://www.highernationals.com/degree-finder.

3.0 Preparing students for employment

3.1 Designing with employers, for employers

As a large employer and qualification-awarding organisation, Pearson understands the value of developing the skills and talent of the future workforce. We believe in, and champion, higher technical education that is relevant to employers.

We work with employers, students, professional bodies, education providers and other experts to design qualifications with the future workforce in mind. Higher National qualifications blend employability skills with academic, business and technical knowledge. They support trainees and apprentices in their Higher Apprenticeships and other technical education programmes, as well as students working towards a degree. We update our programmes regularly to maintain their high quality and meet the changing needs of the workforce.

Employers contribute to our Higher Nationals in several ways:

- They are involved in every stage of designing our qualifications, from developing the structure and pathways to selecting subjects, developing content and Authorised Assignment Briefs (AABs) and approving qualifications
- They help us deliver qualifications, for example through vendor accreditation, letters of support and co-badging. Our qualifications actively encourage training providers to work with employers. Work placements and work-based learning are key features of BTEC Higher Nationals
- They help us review and update our qualifications to meet Occupational Standards and provide supporting material such as case studies to reflect the world of work.

We are committed to equipping apprentices, trainees and organisations with the tools and resources they need to support high-quality, innovative technical education and Higher Apprenticeship programmes that work.

Including a Higher National qualification as part of a Higher Apprenticeship or technical education programme gives students:

- an internationally recognised higher-level qualification in line with the Framework for Higher Education Qualifications, and
- a stepping-stone to continue their education or training and gain a recognised degree or professional qualification.

To find out more, and to access detailed mapping to Higher Apprenticeships and Occupational Standards for your qualification, please visit the *'Apprenticeship'* pages on HN Global.

3.1.1 Employability skills and competencies for student career success

Pearson is committed to delivering learning that is rooted in the real world and to developing work-ready graduates with the professional skills and behaviours that employers need. The Pearson BTEC Higher National curriculum provides a clear line of sight to employment, depending on which specialist areas students complete. The aim is to produce students who are equipped to thrive in the changing world of work, whether they leave with an HNC or an HND qualification.

The table below shows the type of position in which a student graduating at each educational level might expect to start and gives some examples of the competencies expected.

Levels of competency			
Employability level at learning level	**Level 4 Operational**	**Level 5 Managerial**	**Level 6 Professional**
General employment outcomes for graduates at each level	Graduates can: • perform key mechatronics duties • understand processes and operations, and • work effectively.	Graduates can: • increase performance through strategic planning to meet mechatronics sector aims, and • manage mechatronics functions to work effectively in lower or middle-management positions.	Graduates can: • take the lead and direct others, and • manage change effectively in middle-management positions.
Examples of roles in different areas of mechatronics	• Mechatronics Technician • Engineering Manufacturing Technician • Technician (Mechatronics) • Mechatronics Maintenance Technician • Mechatronics Maintenance Apprentice • Assistant Project Manager	• Senior Technician (Mechatronics) • Mechatronics Project Manager • Junior Engineer (Mechatronics) • Mechatronics Support Engineer • Asset Management Engineer • Planning Engineer • Design Engineer	• Mechatronics Engineer • Senior Engineer (Mechatronics) • Automation Engineer • Senior Project Manager • Engineering Team Lead

Levels of competency			
Employability level at learning level	**Level 4 Operational**	**Level 5 Managerial**	**Level 6 Professional**
	• Test Technician	• Operational Delivery Engineer	

3.1.2 Developing competencies for the workplace

Core competencies developed on the programme will support students in preparing for a range of employment opportunities in their chosen sector. These core competencies collectively summarise the key capabilities that are important across the sector, covering areas of relevant expertise and technical skills that would be required within the sector to successfully perform a job, as defined in current advertised job vacancies.

Core competencies are developed on programme within a balanced framework of cognitive (knowledge), affective (behaviours) and psychomotor (practical) learning outcomes to encourage a more vocational and practical approach to learning.

3.1.3 Professional body recognition and exemption

In developing the Pearson BTEC Higher National Certificate in Mechatronics for England, we have liaised with:

- The Institution of Engineering and Technology (IET)
- Institution of Mechanical Engineers (IMechE).

By aligning to professional body competency standards, content and assessment supports students to develop as professional practitioners for the future. This adds value for students by offering them access to continuing professional development.

Professional recognition and accreditation

This is where the professional body recognises that a specific study programme prepares students to register for a regulated professional qualification. For example, after completing the Pearson BTEC Higher National Certificate in Mechatronics for England, students will meet the entry requirements to register for progression to professional qualifications.

For more accreditation and exemption details, please see our *'Progression hub'* on HN Global.

3.1.4 Higher Apprenticeships and Occupational Standards

The Pearson BTEC Higher Nationals in Mechatronics for England maps to the following Level 4 Occupational Standard:

- Engineering Manufacturing Technician.

The programme structures set out in *section 6* provide information about the units that are required to meet the knowledge, skills and behaviours defined within these Occupational Standards.

The Level 4 units specified within the programme structures provide the underpinning knowledge, skills and behaviours that support students to engage with the role defined within the Occupational Standards.

The core and specialist units, at Levels 4 and 5, provide occupationally relevant knowledge, skills and behaviours that further prepare students for employment and progression associated with the Occupational Standards.

4.0 Centre support

Support for setting up your course and preparing to teach.

4.1 Specification

This specification gives you details of the administration of the qualifications and information on the units included in them.

4.2 HN Global

HN Global is a dedicated online learning platform for all Pearson BTEC Higher National students and delivery centres. You can find various free resources to support staff in delivering a Pearson BTEC Higher National programme and to guide students on their learning journey. The global forum connects students and tutors and provides the opportunity to discuss common themes and to share good practice. HN Global also provides access to the following.

The Learning Zone includes student study materials such as core textbooks, study skills modules, a 'Progression hub' featuring opportunities to develop employability skills, an e-library and subject materials.

The Tutor Resources section hosts a wealth of delivery materials, reading lists, blended learning resources, video guidance on assessment and professional development opportunities. Staff can also access the QA Hub for templates and more Centre support.

Short Courses provide support for curriculum planning, developing schemes of work and developing students' academic skills.

These are available from the HN Global website at hnglobal.highernationals.com.

4.3 Authorised Assignment Briefs

We provide a booklet of Authorised Assignment Briefs (AABs) for a sample of units. These Authorised Assignment Briefs have been developed to support centres with their assessment strategy for the delivery of a sample of units, as well as providing guidance and inspiration for effective planning and design of future assignment briefs.

They can be used in the following ways:

1. AABs can be used by centres if they meet your specific requirements following internal verification. They have been written to assess students' knowledge, skills and behaviours specifically relevant to the unit Learning Outcomes but they have not been contextualised to meet local need and international diversity. If using an AAB, the Assignment Brief should still be internally marked and made available for standards verification

2. AABs can be modified and customised to meet localisation.

The AABs offer a range of real and simulated assessment activities, for example group work to encourage cooperation and social skills, a solution-focused case study to develop cognitive skills. The assessment grids for each unit explain the specific requirements for assessing these skills.

All assignments must still be moderated in line with the internal verification process.

The Tutor Resources section on HN Global offers a wide range of resources and guidance documents to help you plan and design assessments effectively. Please see the *Authorised Assignment Brief booklet* for more information.

4.4 Assignment checking service

This is a free service for BTEC centres to make sure that assignments enable students to produce suitable evidence across the required Learning Outcomes.

It is especially useful for programme teams relatively new to BTEC and that want to check that their assignments are fully meeting a unit's requirements. Please see: https://qualifications.pearson.com/en/support/Services/assignment-checking-service.html.

4.5 Pearson English

Pearson provides a full range of support for English learning, including diagnostics, qualifications and learning resources. Please see: www.pearson.com/english.

The Pearson English Portal also offers a variety of digital resources. The portal encourages users to get involved, improves teaching and results.

5.0 Planning your programme

5.1 Delivering the Higher Nationals

As a large employer and qualification-awarding organisation, Pearson understands the value of developing the skills and talent of the future workforce. We believe in, and champion, higher technical education that is relevant to employers.

You play a central role in helping your students choose the right Pearson BTEC Higher National qualification.

Assess your students very carefully to make sure they take the right qualification and the right pathways and optional units. This will allow them to progress to the next stage in their learning or employment journey. You should also check the qualification structures and unit combinations carefully when giving students advice.

Make sure your students have access to a full range of information and advice to help them choose the right qualification and units. When students are recruited, you need to give them accurate information on the title and focus of the qualification they are studying for. Centres must provide a programme specification for approvals but it is also essential that centres produce:

- a staff handbook to support full- and part-time members of your team; and
- a student handbook to guide students through the course requirements so they know what is expected of them and understand their rights.

You can find more information in the *BTEC Higher Nationals Centre Guide to Quality Assurance and Assessment* available on our website: https://qualifications.pearson.com/en/qualifications/btec-higher-nationals/about/quality-assurance-process.html.

5.1.1 Centre approval

We need to approve all centres before they can offer our qualifications. This is to make sure that centres are ready to assess students and that we can provide the support you need.

For more information about becoming a Centre and gaining approval to run our qualifications, please visit *'UK Centre approvals for schools and colleges'* on our website: https://qualifications.pearson.com/en/forms/-uk-centre-approval-for-schools-and-colleges.html.

5.1.2 Tutor knowledge

We do not set any requirements for tutors, but we do recommend that centres assess the overall skills and knowledge of the teaching team to make sure they are relevant, up to date and at the correct level.

5.1.3 Resources

As part of your Centre approval, you will need to show that the right resources and workspaces are available to deliver Pearson BTEC Higher Nationals. Some units need specific resources. This is clearly explained in the unit descriptions.

5.1.4 Delivering learning

With our approval, you can deliver our Pearson BTEC Higher Nationals using a mixture of learning options that meet your students' needs. We recommend you offer full-time, part-time, blended learning and distance learning.

If you are delivering distance learning, please see the *Pearson Distance Learning Self-Assessment Policy* at https://qualifications.pearson.com/en/support/support-topics/understanding-our-qualifications/policies-for-centres-learners-and-employees.html.

5.1.5 Support from Pearson

For each programme with active registrations, we will provide an external examiner to help you plan and review assessments. You will also be able to access training events and support from a dedicated team of Pearson Higher National subject leads. Please see: https://qualifications.pearson.com/en/qualifications/btec-higher-nationals.html.

5.2 Entry requirements and admissions

Pearson does not set formal entry requirements for our qualifications. But as a Centre, you are responsible for making sure that the students you recruit have a reasonable chance of success on the programme.

Students who have recently been in education are likely to need:

- a BTEC Level 3 qualification in Engineering
- a GCE Advanced Level profile that demonstrates strong performance in a relevant subject or adequate performance in more than one GCE subject. This profile is likely to be supported by GCSE grades at A* to C (or equivalent) and/or 9 to 4 (or equivalent) in subjects such as maths and English
- other related Level 3 qualifications
- an Access to Higher Education Diploma from an approved further education institution
- relevant work experience, or
- an international equivalent to the above qualifications.

Our *Recognition of Prior Learning policy and process* means that students' previous learning and experience can be taken into account and they may be awarded certain qualifications or units of a qualification based on that learning or experience. Please see *section 9* for more information.

5.2.1 English language requirements

BTEC Higher National programmes in England must be assessed in English. Centres must, therefore, ensure that all students can demonstrate capability in English at the required standard. This is to ensure that students who are recruited have a reasonable expectation of success on the programme.

Acceptable evidence of capability in English includes **certified achievement at CEFR B2 or above**, including (but not limited to):

- **IELTS (Academic or General Training):** overall score **5.5 or above**
- **Pearson PTE Academic:** overall score **51 or above**
- **TOEFL iBT:** overall score **72 or above**
- **Cambridge English Qualifications: B2 First (FCE)** – Pass (Cambridge English Scale **160+**)

or another externally assessed recognised English language qualification explicitly benchmarked to CEFR B2.

BTEC Higher National programmes in Wales must be assessed in Welsh and/or English. Centres therefore, must ensure that all students can demonstrate capability in English and/or Welsh at the required standard. This is to ensure that students who are recruited have a reasonable expectation of success on the programme.

BTEC Higher National programmes in Northern Ireland must be assessed in English and or Irish. Centres therefore, must ensure that all students can demonstrate capability in English and/or Irish at the required standard. This is to ensure that students who are recruited have a reasonable expectation of success on the programme.

Acceptable evidence of capability in Welsh or Irish includes **certified achievement to an equivalent standard to CEFR B2 or above**, including (but not limited to):

- **WJEC** Uwch (Welsh for Adults)
- **CIOL** Language Level Assessment
- **TEG** (Maynooth)

All centres delivering the Pearson BTEC Higher National qualifications wholly or partially in a language other than English, but who are assessed in English, must ensure that all students can demonstrate capability in English at a standard equivalent to the levels set out above, on completion of the programme. This is to ensure that students who are recruited have a reasonable expectation of success on the programme.

5.3 Access to study

This section focuses on the administration you will need to carry out when delivering our Pearson BTEC Higher National qualifications. It will be most relevant to quality controllers, programme leaders and examinations officers.

Our qualifications should:

- be available to everyone able to reach the required standards
- be free from any barriers that restrict access and progress, and
- provide equal opportunities for all those who want to access the qualifications.

For more information, please see our *Equality, diversity and inclusion policy* at https://qualifications.pearson.com/en/support/support-topics/understanding-our-qualifications/policies-for-centres-learners-and-employees.html.

Please use your integrity when recruiting students to our Pearson BTEC Higher National programmes.

- Make sure that students applying have the information and advice they need about the qualification to be sure it meets their needs.
- Check each student's qualifications and experience to make sure they have the potential to achieve the qualification.
- For students with disabilities and specific needs, consider the support available to the student during teaching and assessment. For more guidance, please see *section 5.6.2* on *reasonable adjustments to assessment*.

5.4 Student registration and entry

All students should be registered on the qualification they are studying, and suitable arrangements need to be made for internal and external verification. For information on making registrations, please see the information manual available in the support section of our website at https://qualifications.pearson.com/en/support.html.

Students can be formally assessed only for a qualification on which they are registered. If a student changes the qualification they want to study for (for example if they decide to choose a different specialist pathway), you must transfer their registration to the new pathway. We cannot sample a student's work unless they are registered on the correct pathway.

5.5 Access to assessments

Assessments need to be managed carefully so that all students are treated fairly and that results and certificates are published without delay.

Our equality policy requires that:

- all students have an equal opportunity to access our qualifications and assessments, and
- our qualifications are awarded in a way that is fair to every student.

We are committed to making sure that:

- students with a protected characteristic as defined by law (for example race, sexuality or religious belief) are not disadvantaged in comparison with students who do not share that characteristic
- all students achieve the recognition they deserve for taking a qualification, and
- this achievement can be compared fairly with the achievement of their peers.

For more information on access arrangements, please visit the *Joint Council for Qualifications (JCQ)* website at http://www.jcq.org.uk/.

5.6 Administrative arrangements for internal assessment

5.6.1 Records

You are required to retain records of assessment for each student. Records should include assessments taken, decisions reached and any adjustments or appeals. Further information on *quality and assessment* can be found in our UK and international guides available in the support section on our website: http://qualifications.pearson.com/. We may ask to audit your records, so they must be retained as specified. All student work must be retained for **a minimum of 12 weeks** after certification has taken place.

5.6.2 Reasonable adjustments to assessment

A reasonable adjustment is one that is made before a student takes an assessment, to ensure that they have fair access to demonstrate the requirements of the assessments.

You are able to make adjustments to internal assessments to take account of the needs of individual students. In most cases this can be achieved through a defined time extension or by adjusting the format of evidence. We can advise you if you are uncertain as to whether an adjustment is fair and reasonable. You need to plan for time to make adjustments, if necessary.

Further details on how to make adjustments for students with protected characteristics are available on the support section of our website: http://qualifications.pearson.com/.

5.6.3 Special consideration

Special consideration is given after an assessment has taken place for students who have been affected by adverse circumstances, such as illness, and require an adjustment of grade to reflect normal level of attainment. You must operate special consideration in line with Pearson policy (see previous paragraph). You can provide special consideration related to the period of time given for evidence to be provided, or for the format of the assessment (if it is equally valid). You may not substitute alternative forms of evidence to that required in a unit, or omit the application of any assessment criteria to judge attainment. Pearson can consider applications for special consideration in line with the *JCQ Guide to Special Considerations policy*, which can be found on the JCQ website: https://www.jcq.org.uk/.

Please note that your Centre must have a policy for dealing with mitigating circumstances if students are affected by adverse circumstances, such as illness, which result in non-submission or late submission of assessment.

5.6.4 Appeals against assessment

Your Centre must have a policy for dealing with appeals from students. These appeals may relate to assessment decisions being incorrect or assessment not being conducted fairly. The first step in such a policy could be a consideration of the evidence by a Programme Leader or other member of the programme team. The assessment plan should allow time for potential appeals after assessment decisions have been given to students. If there is an appeal by a student, you must document the appeal and its resolution. Students have a final right of appeal to Pearson, but only if the procedures that you have put in place have been followed.

Further details of our policy on *enquiries and appeals* are available on the support section of our website: http://qualifications.pearson.com/.

If your Centre is located in England or Wales and the student is still dissatisfied with the final outcome of their appeal they can make a further appeal to the Office of the Independent Adjudicator (OIA) by emailing: enquiries@oiahe.org.uk. In Northern Ireland a further appeal may be lodged with the Northern Ireland Public Service Ombudsman (NIPSO) by emailing: nipso@nipso.org.uk.

5.7 Dealing with malpractice in assessment

'Malpractice' refers to acts that undermine the integrity and validity of assessment, the certification of qualifications and/or may damage the authority of those responsible for delivering the assessment and certification.

Pearson does not tolerate actual or attempted actions of malpractice by learners, Centre staff or centres in connection with Pearson qualifications. Pearson may impose penalties and/or sanctions on learners, Centre staff or centres where malpractice or attempted malpractice has been proven.

Malpractice may occur or be suspected in relation to any unit or type of assessment within a qualification. For further details on malpractice and advice on preventing malpractice by learners, please see *Pearson's Centre Guidance: Dealing with Malpractice*, available on our website: https://qualifications.pearson.com/en/support/support-topics/understanding-our-qualifications/policies-for-centres-learners-and-employees.html.

Centres are required to take steps to prevent malpractice and to investigate instances of suspected malpractice. Learners must be given information that explains what malpractice is for internal assessment and how suspected incidents will be dealt with by the Centre. The *Centre Guidance: Dealing with Malpractice* document gives full information on the actions we expect you to take.

Pearson may conduct investigations if we believe a Centre is failing to conduct internal assessment according to our policies. The above document gives further information and examples, and details the penalties and sanctions that may be imposed.

In the interests of learners and Centre staff, centres need to respond effectively and openly to all requests relating to an investigation into an incident of suspected malpractice.

5.7.1 Learner malpractice

The Head of Centre is required to report incidents of suspected learner malpractice that occur during Pearson qualifications. We ask centres to complete *JCQ Form M1* (www.jcq.org.uk/malpractice) and email it with any accompanying documents (signed statements from the learner, invigilator, copies of evidence, etc.) to the Investigations Processing team at candidatemalpractice@pearson.com. The responsibility for determining appropriate sanctions or penalties to be imposed on learners lies with Pearson.

Learners must be informed at the earliest opportunity of the specific allegation and the centre's malpractice policy, including the right of appeal. Learners found guilty of malpractice may be disqualified from the qualification for which they have been entered with Pearson.

Failure to report malpractice constitutes staff or Centre malpractice.

5.7.2 Teacher/Centre malpractice

The Head of Centre is required to inform Pearson's Investigations team of any incident of suspected malpractice (which includes maladministration) by Centre staff, before any investigation is undertaken. The Head of Centre is requested to inform the Investigations team by submitting a JCQ M2 Form (downloadable from www.jcq.org.uk/malpractice) with supporting documentation to pqsmalpractice@pearson.com. Where Pearson receives allegations of malpractice from other sources (for example Pearson staff, anonymous informants), the Investigations team will conduct the investigation directly or may ask the Head of Centre to assist.

Pearson reserves the right in cases of suspected malpractice to withhold the issuing of results/certificates while an investigation is in progress. Depending on the outcome of the investigation, results and/or certificates may not be released or they may be withheld.

You should be aware that Pearson may need to suspend certification when undertaking investigations, audits and quality assurance processes. You will be notified within a reasonable period of time if this occurs.

5.7.3 Sanctions and appeals

Where malpractice is proven, we may impose sanctions or penalties, such as:

- mark reduction for affected external assessments
- disqualification from the qualification
- debarment from registration for Pearson qualifications for a period of time.

If we are concerned about your centre's quality procedures, we may impose sanctions such as:

- working with centres to create an improvement action plan
- requiring staff members to receive further training
- placing temporary suspensions on certification of learners
- placing temporary suspensions on registration of learners
- debarring staff members or the Centre from delivering Pearson qualifications
- suspending or withdrawing Centre approval status.

The Centre will be notified if any of these apply.

Pearson has established procedures for considering appeals against penalties and sanctions arising from malpractice. Appeals against a decision made by Pearson will normally be accepted only from the Head of Centre (on behalf of learners and/or members of staff) and from individual members (in respect of a decision taken against them personally). Further information on appeals can be found in the *JCQ Appeals booklet:* https://www.jcq.org.uk/exams-office/appeals.

6.0 Programme structure

6.1 Units, credits and Total Qualification Time (TQT)

The Higher National Certificate (HNC) is a Level 4 qualification made up of 120 credits. It is usually studied full time over one year, or part time over two years.

Pearson BTEC Higher Nationals for England consist of core units and specialist units.

- Core and specialist units are mandatory.
- Specialist units provide a specific occupational focus to the qualification in line with professional body standards.
- Each unit usually carries 15 credits. Units are designed around the amount of time it will take for a student to complete them and receive a qualification. This is known as the total qualification time (TQT). TQT includes guided learning activities, directed learning activities and assessment. Each 15-credit unit has a TQT of 150 hours – 60 guided learning hours (GLH) and 90 hours of independent learning hours (ILH). (More information about guided and independent learning is provided below).
- **The total qualification time for Higher National Certificate (HNC) = 1,200 hours.**

Examples of activities that can contribute to TQT include:

- guided learning
- independent and unsupervised research and learning
- unsupervised creation of a portfolio of work experience
- unsupervised e-learning
- unsupervised e-assessments
- unsupervised coursework
- watching a recorded podcast or webinar, and
- unsupervised work-based learning.

Guided learning hours

These are the hours where a tutor is present to give specific guidance towards the learning aim being studied. Guided learning hours include lectures, tutorials and supervised study in, for example, open learning centres and learning workshops. They also include supervised assessment activities such as invigilated exams, observed assessments and observed work-based practice.

- **The total guided learning hours for Higher National Certificate (HNC) = 480 hours.**

Examples of activities that can contribute to guided learning include:

- classroom-based learning supervised by a tutor
- work-based learning supervised by a tutor
- a live webinar or telephone tutorial with a tutor
- live e-learning supervised by a tutor, and
- all forms of assessment guided or supervised at the time by a tutor or other education or training provider. This includes where the assessment is competence based and turned into a learning opportunity.

Independent learning hours

These are the hours where a student is learning without the direct guidance of a member of Centre staff. They are critical to the student's ability to develop knowledge and skills, as well as providing them with the opportunity to develop key transferable skills such as self-discipline, time management and self-motivation.

- **The total independent learning hours for Higher National Certificate (HNC) = 720 hours.**

Examples of activities that can contribute to independent learning include:

- self-directed research and investigation
- reading set texts or other sources of information
- watching subject-related videos as part of investigation and research
- reviewing recordings of scheduled sessions or notes from those sessions
- peer activities, such as group meetings and online discussions, where students explore their learning together, and
- reviewing and recording thoughts on their own learning.

6.2 Programme structures

Programme structures specify the:

- total credit value of the qualification
- minimum credit to be achieved at the level of the qualification
- core units required
- specialist units required, and
- maximum credit value in units that can be Centre-commissioned.

When combining units for our Pearson BTEC Higher National qualification, it is up to the Centre to make sure that the correct combinations are followed.

6.2.1 Pearson BTEC Level 4 Higher National Certificate in Mechatronics for England

- Requires at least 120 credits
- Total qualification time = 1,200 hours
- Total guided learning hours = 480 hours
- Mix of core and specialist units, totalling 120 credits.

Pearson BTEC Level 4 Higher National Certificate in Mechatronics for England **Level 4 Occupational Standard: Engineering Manufacturing Technician**			
Unit Type	**Unit**	**Credits**	**Level**
Core *Mandatory*	**Unit 4001: Engineering Design**	15	4
Core *Mandatory*	**Unit 4002: Engineering Maths**	15	4
Core *Mandatory*	**Unit 4004: Managing a Professional Engineering Project** **Note: This is a Pearson-set unit.**	15	4
Specialist *Mandatory*	**Unit 4014: Production Engineering for Manufacture**	15	4
Specialist *Mandatory*	**Unit 4017: Quality and Process Improvement**	15	4
Specialist *Mandatory*	**Unit 4063: Engineering Mechanics and Materials**	15	4
Specialist *Mandatory*	**Unit 4064: Analogue and Digital Electronics**	15	4
Specialist *Mandatory*	**Unit 4085: Mechatronic Systems in Manufacturing**	15	4
Unit descriptors can be found in the accompanying document *Unit Descriptors for the Pearson BTEC Higher Nationals Engineering Suite*, which can be found at qualifications.pearson.com/en/qualifications/btec-higher-nationals.html.			

6.2.2 Commissioning new units for Pearson BTEC Higher Nationals

You can ask us to develop new units to meet your needs. You will need to fill in an application form explaining the reasons for your request. You must apply a full year ahead of the year in which you want to deliver the new unit.

If we agree to your application, we will develop the new unit in consultation with you.

We would be pleased to discuss your ideas for commissioning new units. For more information, please see the section *Custom Designed Higher Nationals* on our website at https://qualifications.pearson.com.

6.3 Unit numbering and corresponding qualifications

Some units within this qualification have been selected from the Pearson BTEC Higher National Engineering specification (ISBN 978 1 446 95273 3). Unit numbers are revised in this specification to indicate the level of study (i.e., 4 series for Level 4 units and 5 series for Level 5 units, the latter not applicable to this qualification). The table below gives details of the unit numbers in this qualification. The corresponding unit number as it appears in the Pearson BTEC Higher National Engineering specification is provided. In addition, unit numbers have been revised to indicate that they are at Level 4.

Unit Number		Unit Title	Unit Code
Higher National Engineering	**This specification**		
1	4001	Engineering Design	K/615/1475
2	4002	Engineering Maths	M/615/1476
4	4004	Managing a Professional Engineering Project	A/615/1478
14	4014	Production Engineering for Manufacture	H/615/1488
17	4017	Quality and Process Improvement	H/615/1491
New	4063	Engineering Mechanics and Materials	F/650/2943
New	4064	Analogue and Digital Electronics	H/650/2944
New	4085	Mechatronic Systems in Manufacturing	K/617/3945

6.4 Pearson-set units

Pearson-set units form part of the core units. Each year, Pearson will decide on a theme.

It is a formal requirement that you must:

- apply the theme to Level 4 and Level 5 units, and
- develop an assignment, to be internally assessed, to involve students in work related to the theme.

You will find support in the Pearson-set Assignment Guidance for the unit, and the theme release documentation, which will be provided for each level.

The Pearson-set unit provides a common framework for centres to develop work that will allow us to:

- compare information across the sector, and
- identify and share best practice in higher education teaching and learning.

We will share the best practice results with all centres.

For more information about assessing Pearson-set units, please see *section 7*.

6.5 Unit descriptor example

The unit descriptor is how we define the individual units of study that make up a Higher National qualification. Students will complete the units included in the programme that you offer at your Centre.

You can use any of the unit descriptors found in the accompanying document *Unit Descriptors for the Pearson BTEC Higher Nationals Engineering* Suite, which can be found at http://qualifications.pearson.com. We have described each part of the unit as follows.

Unit title	A general statement of what the unit will cover.
Unit code	The Ofqual unit code.
Unit type	There are two unit types in this specification: • core (mandatory) • specialist (mandatory).
Unit level	All our Pearson BTEC Higher National units are at Level 4 or 5.
Credit value	The credit value relates to the total qualification time (TQT) and unit learning hours (ULH). It is easy to calculate: • 1 credit = 10 ULH, so • 15 credits = 150 ULH. To complete a Higher National Certificate or Diploma, students must achieve all of the credits required.
Introduction	Some general notes on the unit: • setting the scene • stating the purpose, and • outlining the topics and skills gained through the unit.
Learning Outcomes	These clearly explain what students will be able to do after completing the unit. There are usually four Learning Outcomes for each unit.
Essential Content	This section covers the content that students can expect to study as they work towards achieving their Learning Outcomes.
Learning Outcomes and Assessment Criteria	Tutors can refer to this table when grading assignments. The table connects the unit's Learning Outcomes with the student's work. Assignments can be graded at 'Pass' (P), 'Merit' (M) and 'Distinction' (D), depending on the quality of the student's work.
Recommended Resources	Lists the resources that students should use to support their study for the unit. It includes books, journals and online material. The programme tutor may also suggest resources, particularly for local information.

Web resources – referencing

Some units have web resources as part of their *Recommended Resources* list. Hyperlinking to these resources directly can cause problems, as their locations and addresses may change. To avoid this problem, students and tutors should reference web resources as follows.

[1] A link to the main page of the website
[2] The title of the site
[3] The section of the website where the resource can be found
[4] The type of resource it is, for example:

- research
- general reference
- tutorials
- training
- e-books
- report
- wiki
- article
- datasets
- development tool
- discussion forum.

Examples

[1] www.epsrc.co.uk [2] Engineering and Physical Sciences Research Council

[3] News, events and publications

[4] (General reference)

[1] www.ieee.org [2] Institute of Electrical and Electronics Engineers

[3] Publications

[4] (General reference)

7.0 Assessment

Pearson BTEC Higher Nationals are assessed using a combination of:

- Centre-developed internal assignments that are set and assessed by centres, and
- Pearson-set assignments, which are set by centres in line with our guidelines and graded by centres.

Pearson-set units are mandatory and target particular industry-specific skills. The number and value of these units are dependent on qualification size.

- For the HNC, centres will assess one compulsory Pearson-set unit targeted at particular skills. This is a Level 4 core unit carrying 15 credits.

All other units are assessed through internal assignments set by the Centre.

7.1 Principles of internal assessment

This section summarises the main features of internal assessment and explains how you can offer it effectively. Full details are given in the *BTEC Higher Nationals Centre Guide to Quality Assurance and Assessment*, available on the enhanced Quality Assurance section of our website: https://qualifications.pearson.com/en/qualifications/btec-higher-nationals/about/quality-assurance-process.html. All your assessment team will need to refer to this document.

For Pearson BTEC Higher Nationals, you must meet the expectations of stakeholders and the needs of students by providing a programme that is practical and applied. You can tailor programmes to meet local needs and should use links with local employers and the wider business sector.

Effective internal assessment is challenging, engaging, practical and up to date. It must also be fair to all students and meet national standards.

7.1.1 Assessment through assignments

For internally assessed units, assessment takes the form of an assignment carried out after the unit (or part of the unit if several assignments are used) has been delivered. An assignment may take a variety of forms, including practical and written. It is a distinct activity completed independently by students (alone or in a team). It is separate from teaching, practice, exploration and other activities that students complete with direction from tutors.

Students should receive each assignment as an Assignment Brief with a hand-out date, a completion date and clear requirements for the evidence they must provide. There may also be specific practical activities which the student must complete under tutor observation as part of the assignment. Assignments can be divided into separate parts and may require several forms of evidence. A valid assignment will enable a clear and formal assessment grade based on the assessment criteria.

7.1.2 Using unit-based criteria

You must base your assessment decisions for Pearson BTEC Higher Nationals on the specific criteria we have provided for each unit and grade level. We have based these criteria on a framework to make sure that standards are consistent in the qualification and across the whole range of qualifications. We have developed each unit to assess the student's understanding, practical skills and the vocational qualities necessary for the qualification.

The assessment criteria for a unit are based on a hierarchy. For example, if a merit criterion requires the student to show 'analysis' and the related pass criterion requires the student to 'explain', then to gain a merit the student will need to cover both 'explain' and 'analyse'. The unit assessment grid shows the relationships among the criteria so that assessors can apply all the criteria to the student's evidence at the same time.

Assessors must show how they have reached their decisions using the criteria in the assessment records. When a student has completed all the assessments for a unit, the assessment team can give a grade for the unit. This grade is based on the highest level the student is judged to have met for all the criteria.

- To achieve a pass, a student must have met all the pass criteria for the Learning Outcomes, demonstrating that they have covered the unit content and achieved Level 4 or 5 of the national framework.
- To achieve a merit, a student must have met all the merit criteria (and the pass criteria) through high performance in each Learning Outcome.
- To achieve a distinction, a student must have met all the distinction criteria (and the pass and merit criteria), demonstrating outstanding performance across the whole unit.

A pass cannot be awarded just because the student has completed all the assignments. Students must meet all of the pass criteria. If they do not, their grade should be reported as 'unclassified'.

7.1.3 The assessment team

You will need an effective team for internal assessment. There are three key roles involved, each with different responsibilities. These roles are listed below.

The **Programme Leader** is responsible for the programme, its assessment and internal monitoring to meet our requirements. They must register with us each year. They are also responsible for:

- record keeping
- liaising with the standards verifier
- acting as an Assessor
- supporting the rest of the assessment team
- making sure that the team has the information it needs about our assessment requirements
- organising training, and
- using our guidance and support materials.

Internal Verifiers oversee all assessment activity with the Programme Leader. They check that assignments and assessment decisions are valid and meet our requirements. All Internal Verifiers will follow the same standards and procedures as instructed by your Programme Leader. Internal Verifiers are usually also assessors, but they do not verify their own assessments.

Assessors set assignments or use assignments to assess students to national standards. Before taking any assessment decisions, they are trained by the Programme Leader to all work to the same standards and procedures. They also work with the Programme Leader and Internal Verifiers to make sure the assessment is planned and carried out in line with our requirements.

Our external examiner will sample student work across your assessors. They will also want to see evidence of how you have verified assignments and assess your decisions.

Full information is provided in the *BTEC Higher Nationals Centre Guide to Quality Assurance and Assessment* available in the enhanced Quality Assurance section of our website: https://qualifications.pearson.com/en/qualifications/btec-higher-nationals/about/quality-assurance-process.html.

7.1.4 Effective organisation

Internal assessment needs to be well organised so that you can track student progress and so that we can make sure your assessments are in line with national standards. It is particularly important that you manage the overall assignment programme and deadlines to make sure that all your students can complete their assignments on time.

When developing an overall plan for delivering and assessing your programme, you will need to consider:

- the order in which you deliver units
- whether delivery will take place over short or long periods of time, and
- when assessment can take place.

We support you in this through:

- assessment and feedback guidance documents available on HN Global, and
- training materials and sample templates for curriculum planning.

Please also see the *BTEC Higher Nationals Centre Guide to Quality Assurance and Assessment* available in the enhanced Quality Assurance section of our website: https://qualifications.pearson.com/en/qualifications/btec-higher-nationals/about/quality-assurance-process.html.

7.1.5 Preparing students

You need to make sure that your students understand their responsibilities for assessment and the centre's arrangements. From induction onwards, you will want to make sure that students are motivated to work consistently and independently to achieve their qualifications. They need to understand:

- how assignments are used
- the importance of meeting assignment submission deadlines, and
- that all the work submitted for assessment must be their own.

To support them, you should provide a guide that explains:

- how you use assignments for assessment
- how assignments relate to the teaching programme
- how to use and reference source materials, including how to avoid plagiarism, and
- your centre's approach to assessments – for example how students must submit assignments, what happens if they submit late work, and how they can request an extended deadline in special circumstances.

7.2 Formative assessment and feedback

7.2.1 Frequency and timing of formative assessment

Pearson does not define a minimum or maximum number of formative assessment points. However, students should have some formative assessment for each assignment, in order to provide them with an understanding of their progress and to identify areas for continued development.

Formative assessment that is too frequent can be detrimental to students' development. On the one hand it will create an environment where students are working to produce *for* the formative assessment, rather than using the outcomes of formative assessment to support their learning and development towards the summative assessment. In addition, too much formative assessment risks becoming 'coaching' as students will have time to respond only to what has been indicated in formative feedback.

Therefore, the frequency of formative feedback should be considered carefully, as part of an overall curriculum plan, to occur at points where there is a clear benefit for the student in gaining further insight into their development and progress.

The timing of formative assessment should also be considered. Formative assessment that is too close to a summative assessment does not provide effective learning for the student. With limited time between formative and summative assessment there is less opportunity for the student to make effective use of the feedback from formative assessment to address any issues in the work towards summative assessment. Again, there is also a risk that the feedback from formative assessment becomes simply instructions (coaching) for the student.

Care should be taken to ensure that formative assessment takes place with sufficient time for the student to reflect upon the feedback from the formative assessment and make whatever adjustments they deem necessary to improve their future work or performance towards summative assessment.

It is important to recognise that formative assessment can, in some cases, be continuous, depending on the learning and teaching strategy that has been adopted for a unit or programme. For example, where students may be undertaking a large project, which they are working on throughout the semester/term, you may have regular tutorials (either group or individual) to review work-in-progress and provide students with feedback that helps them to understand their progress and development. In this context, the tutorials are a form of continuous formative assessment. The feedback from these tutorials still needs to avoid coaching and tutors should plan for tutorials (formative assessment) to stop at a point where there is sufficient time, before the summative assessment, to make effective use of the feedback in the later tutorials.

Please also see the *BTEC Higher Nationals Centre Guide in Quality Assurance and Assessment*, which can be found on our website: https://qualifications.pearson.com/en/qualifications/btec-higher-nationals/about/quality-assurance-process.html.

7.2.2 Formative feedback

While assessment and feedback always constitute a part of the student's learning, the purpose of assessment will vary, depending on when it is undertaken and the aim of the assessment activity.

Formative assessment feedback is given to students during the learning journey. This is to say that it relates to formative assessment that may be undertaken, at any point, prior to the summative assessment. Just as formative assessment is undertaken to support students to understand their progress, the associated feedback must be aimed at helping the student to recognise their current position and how to move forwards.

Formative assessment should always result in qualitative feedback: not a grade. When giving formative assessment feedback it is important to avoid giving students advice that directly informs the work that they may do for summative assessment. This is referred to as 'coaching' and is inappropriate. Feedback should provide students with general advice on how to progress in their studies, but should not tell them what to do. For example, a tutor might say:

"…your analysis of the research is not clear, you will need to look at the research more critically…"

rather than

"…what you should be writing is…"

In the former, the tutor is supporting the student to understand their current progress and how to improve. While the latter is 'coaching' the student.

Formative assessment can be either formal or informal. We might schedule specific points where students present work for formative assessment. Such instances can be valuable opportunities for group discussion and peer assessment. In such cases, it is expected that students will receive written formative assessment feedback. In other instances, the formative assessment feedback may be during tutorials or classroom activities.

Please also see the *BTEC Higher Nationals Centre Guide in Quality Assurance and Assessment*, which can be found on our website: https://qualifications.pearson.com/en/qualifications/btec-higher-nationals/about/quality-assurance-process.html.

7.3 Making valid assessment decisions

7.3.1 Authentic student work

An assessor must assess only student work that is authentic – in other words, the student's own independent work. Students must sign a declaration for each assessment to confirm that it is their own work. This declaration must confirm that:

- any evidence submitted for the assignment is the student's own, and
- the student understands that if this is not the case, they may face penalties for malpractice.

Assessors must make sure that evidence is authentic by setting valid assignments and supervising students during the assessment period. Assessors must also take care not to provide direct input, instructions or specific feedback that may influence the student's work and final grade.

You can use Pearson templates or your own templates to document authentication.

If your assessor suspects that a student's evidence is not authentic, they must take action in line with our policies for malpractice. Please see *Section 5.7* for more information.

7.3.2 Making assessment decisions using criteria

Assessors must use our criteria to make assessment decisions. They can judge the evidence from a student using all the relevant criteria at the same time but they must be satisfied that there is enough detailed evidence for each criterion required. For example, including a concluding section may not be enough evidence to meet the criterion requiring 'evaluation'.

Assessors should use the information and support available to help them reach their decisions. This includes:

- examples of moderated assessed work, and
- their programme leader and assessment team's experience.

7.3.3 Dealing with late assignments

For assessment to be fair, it is important that students are all assessed in the same way and that some students are not given an advantage by having extra time or the opportunity to learn from others. You should develop and publish your own regulations on late assignments and circumstances where you may agree to an extension.

Students must understand your policy on completing assignments by the deadlines you give them. You may agree to extend a deadline for a genuine reason such as illness in line with your centre policies. Please see *Section 5.6* for more information.

You can apply a penalty to assignments that are submitted late. To do this, you should:

- assess the assignment normally
- apply the penalty or cap to the grade awarded
- tell the student their uncapped grade to recognise the learning they have achieved and provide genuine assessment feedback
- record both the uncapped and capped grades, and
- have both grades verified by a suitable assessment board, taking into account any genuine reasons for the assignment being late.

Please also see the *BTEC Higher Nationals Centre Guide in Quality Assurance and Assessment*, which can be found on our website: https://qualifications.pearson.com/en/qualifications/btec-higher-nationals/about/quality-assurance-process.html.

7.3.4 Providing assessment decisions and feedback

Once your assessment team has completed the assessment process for an assignment, they will provide a formal assessment decision. This should be recorded formally and reported to the student. The information given to the student:

- must show the formal decision and how it has been reached, including how assessment criteria have been met
- may show why they have not demonstrated achievement against assessment criteria
- must not provide feedback on how to improve evidence, and
- may provide feedback on how to improve in the future.

7.3.5 The opportunity to resubmit an assignment

If a student's assignment does not pass after the first assessment, they must have the opportunity to resubmit the assignment for reassessment. In this case:

- students can have the assignment reassessed once only
- if coursework and project-based or portfolio-based assignments need to be reassessed, this will usually involve carrying out the original activity again
- for examinations, reassessment will involve completing a new activity

- the grade for a reassessed assignment will be capped at a Pass, and
- assignments already graded at a Pass or higher cannot be reassessed.

7.3.6 Repeat units

If a student fails to achieve a Pass for a unit following reassessment, your assessment board may agree that they can repeat the unit. In this case:

- the student must pay the unit fee and study the unit again, with full attendance, and
- the grade for the unit (if successfully completed) will be capped at a Pass.

Students can repeat a unit once only.

7.3.7 Assessment boards

It is a formal Pearson requirement that centres hold an assessment board for all your Pearson BTEC Higher National programmes. The main purpose of an assessment board is to make recommendations on:

- the grades achieved by students on the units
- extenuating circumstances
- cases of cheating and plagiarism
- students progressing to the next stage of the programme
- the awards to be made to students, and
- students resubmitting assignments and repeating units.

Assessment boards may also monitor academic standards. The main board meetings normally take place at the end of the session, but if your centre operates on a semester system there may be meetings at the end of the first semester. There may also be separate meetings to deal with referrals.

If you do not have an assessment board, our external examiner will discuss this with your quality nominee and programme leader. Assessment board reports and minutes provide valuable evidence of your quality assurance processes.

7.4 Planning and record keeping

For internal processes to be effective, your assessment team needs to be well organised and keep effective records. We will work closely with you to make sure you are meeting national standards. This process gives stakeholders confidence in your assessment approach.

Your Programme Leader must have an assessment plan, produced as a spreadsheet. This plan should include:

- the time required to train the assessment team and make sure they are working to the same standards and procedures
- the time available for teaching and carrying out assessments, including when students may complete assessments and when Quality Assurance will take place

- the completion dates for different assignments
- who is acting as Internal Verifier for each assignment and the date by which the assignment needs to be verified
- a procedure for Internal Verifiers to sample assessors' decisions that covers all assignments, assessors and a range of students
- a process to assess and verify students' work so that they receive formal decisions quickly, and
- a system for scheduling resubmissions.

The Programme Leader must also keep records of all assessments carried out. The key records are:

- checking of assignment briefs
- student declarations
- assessor decisions on assignments, with feedback given to students, and
- confirmation of assessment decisions.

Examples of records and more information are available in the *BTEC Higher Nationals Centre Guide to Quality Assurance and Assessment*, available on the enhanced Quality Assurance process section of our website: https://qualifications.pearson.com/en/qualifications/btec-higher-nationals/about/quality-assurance-process.html.

7.5 Calculating the final qualification grade

7.5.1 Conditions for the award

Conditions for awarding our HNC

To achieve our Pearson BTEC Level 4 Higher National Certificate qualification, a student must have:

- completed units equivalent to 120 credits at Level 4, and
- achieved at least a pass in 105 credits at Level 4.

7.5.2 Compensation

Compensation for the HNC

Students who have attempted but not achieved a pass in one of their Level 4 15-credit units can still be awarded an HNC as long as they have completed and passed the remaining units.

7.5.3 Calculating the overall qualification grade

A student's overall qualification grade is based on their performance in all units. They are awarded a pass, merit or distinction using the points gained through all 120 credits, at Level 4 for the HNC.

Students must have attempted all units in a valid combination for each qualification. The conditions of award and compensation arrangements will apply as explained above. If a student has been granted compensation for a unit attempted but not achieved, that unit will appear as unclassified (a 'U' grade) on the notification of performance provided with their certificate.

Points per credit

Grade	Points
Pass	4
Merit	6
Distinction	8

Point Boundaries

Grade	Point Boundaries
Pass	420–599
Merit	600–839
Distinction	840+

7.5.4 Modelled student outcomes

Pearson BTEC Level 4 Higher National Certificate

				Student 1		Student 2		Student 3		Student 4		Student 5	
	Credits	Level	Grade point	Grade	Unit points	Grade	Unit points	Grade	Unit points	Grade	Unit points	Grade	Unit points
Core 1	15	4	4	P	60	P	60	P	60	D	120	D	120
Core 2	15	4	4	P	60	P	60	P	60	D	120	M	90
Specialist 3	15	4	4	P	60	P	60	P	60	D	120	M	90
Specialist 4	15	4	4	P	60	P	60	M	90	M	90	M	90
Specialist 5	15	4	6	M	90	P	60	M	90	M	90	M	90
Specialist 6	15	4	6	M	90	P	60	M	90	M	90	M	90
Optional 7	15	4	6	M	90	M	90	D	120	D	120	D	120
Optional 8	15	4	6	M	90	M	90	D	120	D	120	D	120
Total	120				600		540		690		870		810
Grade					M		P		M		D		M

Pearson BTEC Level 5 Higher National Diploma

				Student 1		Student 2		Student 3		Student 4		Student 5	
	Credits	Level	Grade point	Grade	Unit points	Grade	Unit points	Grade	Unit points	Grade	Unit points	Grade	Unit points
Core 1	15	4	0	P	0	P	0	P	0	D	0	P	0
Core 2	15	4	0	P	0	P	0	P	0	D	0	M	0
Specialist 3	15	4	0	P	0	P	0	P	0	D	0	M	0
Specialist 4	15	4	0	P	0	P	0	M	0	M	0	M	0
Specialist 5	15	4	0	M	0	P	0	M	0	M	0	P	0
Specialist 6	15	4	0	M	0	P	0	M	0	D	0	U	0
Optional 7	15	4	0	M	0	P	0	D	0	D	0	D	0
Optional 8	15	4	0	M	0	P	0	D	0	D	0	D	0
Core 9	30	5	6	M	180	M	180	M	180	P	120	D	240
Specialist 10	15	5	6	M	90	M	90	M	90	P	60	D	120
Specialist 11	15	5	6	M	90	M	90	D	120	P	60	D	120
Specialist 12	15	5	6	M	90	P	60	D	120	P	60	D	120
Specialist 13	15	5	6	M	90	P	60	D	120	M	90	M	90
Specialist 14	15	5	6	M	90	P	60	M	90	M	90	P	60
Optional 15	15	5	6	M	90	P	60	M	90	M	90	M	90
Total	240				720		600		810		570		840
Grade					M		M		M		P		D

The tables above are provided as general examples of using unit grades to calculate qualification grades. They do not reflect the specifics of this qualification.

8.0 Quality Assurance

The Quality Assurance system for all Pearson BTEC Higher National programmes is linked to Level 4 and Level 5 of the Quality Assurance Agency (QAA) Framework for Higher Education Qualifications (FHEQ). This means that centres have effective Quality Assurance processes to review their programme delivery. It also means that assessment grades are in line with national standards.

The Quality Assurance process for centres offering our Pearson BTEC Higher National programmes has five main features:

1. The approval process
2. Monitoring internal systems
3. Independent review of assessments
4. Annual programme monitoring report
5. Annual student survey.

8.1 The approval process

If you want to deliver our programmes at your Centre, you must apply first through the existing Centre approval process and then through the programme approval process. We can consider your application by:

- carrying out a desk-based review, or
- visiting your Centre.

You will need to provide evidence that your Centre:

- has the human and physical resources needed to deliver and assess the programme effectively
- understands the rules of independent assessment and agrees to follow them
- has a strong internal assessment system supported by 'fit for purpose' assessment documentation, and
- has a system to internally verify assessment decisions so that they are consistent across all assessors and sites.

Your application must be supported by the Heads of the Centre (your principal or chief executive). It must include a declaration that you will operate the programmes strictly and in line with our requirements.

If your Centre is already approved and you want to renew approval, you may be able to use our automatic approval process.

We may withdraw qualification or Centre approval if we believe you can no longer quality assure your programme delivery or assessment standards.

8.2 Centre and qualification approval

As part of the approval process, your Centre must meet the conditions listed below before offering the qualification.

- You must have suitable physical resources (for example equipment, IT, learning materials, teaching rooms) to support delivery and assessment of the qualifications.
- You must provide the specific resources required for individual unit.
- Staff involved in the assessment process must have relevant skills or experience.
- You must have systems to provide continuing professional development for staff delivering the qualification.
- You must have suitable Health and Safety policies for students and staff using equipment.
- You must deliver the qualification in line with current equality legislation.

In this way, we can provide qualifications that meet the needs and expectations of students worldwide.

8.3 Monitoring internal system

You will need to demonstrate that you continue to meet our Centre approval criteria over time and across all Higher National programmes. This involves providing evidence to our external examiners for review.

Our examiners will check that:

- your systems and the way you use them remain suitable for supporting the programmes
- you apply student registration and appeals policies consistently, and
- you have effective internal examination and standardisation processes.

In some cases, you may present evidence of your operation within a recognised code of practice such as that of the Quality Assurance Agency for Higher Education. However, we may still want to confirm independently that these arrangements are operating to our standards.

If our examiners identify problems with your internal systems, we will take steps to help you correct them.

8.4 Independent review of assessments

The external examiner will review your internal assessments for all Pearson BTEC Higher National programmes benchmarked to Levels 4 and 5 of the Quality Assurance Agency (QAA) Framework for Higher Education Qualifications. They will either:

- confirm that your internal assessments meet national standards and allow certification
- provide actions to improve the quality of your assessments before allowing certification.

8.5 Annual programme monitoring report (APMR)

This annual review form gives you the opportunity to analyse and reflect on the most recent teaching year. It also provides us with information to help us improve the quality assurance of the Pearson BTEC Higher National programmes. An overview report is produced to outline the findings of the APMR each year. You can access this at HigherNationals.com at http://monitoring-report.highernationals.com.

8.6 Annual student survey

Pearson will conduct an annual survey of Pearson BTEC Higher National students. This provides us with a snapshot of every Higher National student's experience as part of the quality assurance process. Each Centre with enough students taking part in the survey will get its own report about their results. You can access the report on HN Global at http://hnglobal.highernationals.com.

8.7 Continuing Quality Assurance and standards verification

Each year we update our *BTEC Higher Nationals Centre Guide to Quality Assurance and Assessment*, available in the enhanced Quality Assurance section of our website: https://qualifications.pearson.com/en/qualifications/btec-higher-nationals/about/quality-assurance-process.html. The handbook contains detailed guidance on the quality processes you should follow.

Our key principles of Quality Assurance:

- A Centre delivering Pearson BTEC Higher National programmes must be approved by us and must have our approval for the programmes or groups of programmes it is delivering
- As part of gaining our approval, the Centre agrees to always follow our terms and conditions for delivering programmes effectively and quality assurance of assessment
- We provide approved centres with a range of materials and opportunities for reviewing internal materials through our assessment-checking service. This service demonstrates the processes required for effective assessment and provides examples of effective standards. You must use these materials and services to make sure all staff delivering Pearson BTEC Higher National qualifications keep up to date with the guidance on assessment
- You must follow agreed processes for:
  - making sure assessors and verifiers all work to the same standards and procedures
  - planning, monitoring and recording assessment processes, and
  - dealing with special circumstances, appeals and malpractice
- We will work in partnership with you to help you achieve quality-assured assessment

- We will help you follow best practice and use suitable technology to support Quality Assurance processes
- We will try to make sure our Quality Assurance processes do not create unnecessary administrative work for you
- We will monitor and support you in achieving effective assessment and Quality Assurance.

We will do this by:

- making sure that you complete a suitable declaration at the time of approval
- carrying out approval visits to your Centre
- making sure you have a well-trained, effective team of assessors and verifiers
- sampling and verifying your assessments, assessed student work and other relevant documents, and
- reviewing your strategy for assessing and quality-assuring your BTEC programmes.

As an approved Centre, you must advertise your certification only with our permission and in line with our reporting requirements.

If you do not have and maintain a strong approach to Quality Assurance, you will not be able to apply for certification for any of Pearson BTEC Higher National qualifications.

If you do not follow our recommendations for improving your Quality Assurance, we may withdraw approval for you to deliver our qualifications.

8.8 Use of Higher Technical Qualifications (HTQ) quality mark

When delivering the BTEC Higher Nationals in Mechatronics for England, Centres should ensure that they use the HTQ quality mark with due care and attention on promotional material.

The quality mark must be only used by centres in relation to an approved Higher Technical Qualification to demonstrate that the qualification has been:

- approved by the Institute for Apprenticeships and Technical Education (IfATE), and to advertise a specific course leading to a Higher Technical Qualification
- for careers advisory purposes, to explain and promote the Higher Technical Qualifications programme as a whole.

It should only be used to promote approved Higher Technical Qualifications and must not be used in a way that could reasonably be misinterpreted as a wider endorsement of any other qualifications or your centre overall.

For more information about who can use the quality mark, and how it should be used, please refer to *The Higher Technical Qualification Quality Mark Guidelines* at https://www.gov.uk/guidance/higher-technical-education-reforms.

9.0 Recognition of Prior Learning and attainment

Recognition of Prior Learning (RPL) is a way of awarding credit if a student can demonstrate they meet the assessment requirements for a unit through knowledge, skills and behaviours they already have. As long as the assessment requirements are met, RPL can be used to accredit a unit, units or a whole qualification.

RPL provides a route for recognising the achievements of continuous learning from a range of activities using any valid assessment procedure. We encourage you to recognise students' previous achievements and experiences at work, at home, in leisure and in the classroom. Evidence of learning must be valid and reliable.

For full guidance on RPL, please see *Recognition of prior learning policy and process* in the support section of our website: https://qualifications.pearson.com/en/support/support-topics/understanding-our-qualifications/policies-for-centres-learners-and-employees.html.

10.0 Equality and diversity

Equality and fairness are central to our work. The design of these qualifications embeds equality and diversity as set out in the qualification regulators' general conditions of recognition.

Promoting equality and diversity involves:

- treating everyone with equal dignity and worth, and
- raising ambitions and supporting achievement for people with different needs and backgrounds.

Creating an inclusive learning environment means anticipating students' varying needs and trying to make sure all students have equal access to educational opportunities. This involves providing access for people who have differing individual needs and removing unnecessary barriers to learning. Qualification design must be inclusive so that students with and without disabilities have equal access to learning opportunities.

Our equality policy requires that:

- all students have an equal opportunity to access our qualifications and assessments, and
- our qualifications are designed and awarded in a way that is fair to every student.

We are committed to making sure that:

- students with a protected characteristic as defined by law (for example race, sexuality, religious belief) are not disadvantaged in comparison with students who do not share that characteristic
- all students achieve the recognition they deserve for taking a qualification, and
- this achievement can be compared fairly with the achievement of their peers.

Our qualifications should:

- be available to everyone capable of reaching the required standards
- be free from any barriers that restrict access and progress, and
- offer equal opportunities for all those who want to access them.

Please see our *Equality, diversity and inclusion policy* in the support section of our website: https://qualifications.pearson.com/en/support/support-topics/understanding-our-qualifications/policies-for-centres-learners-and-employees.html.

Please use your integrity when recruiting students to our Pearson BTEC Higher National programmes:

- Make sure they have the information and advice they need about the qualification to be sure it meets their needs
- Check each student's qualifications and experience to make sure they have the potential to achieve the qualification

- For students with disabilities and specific needs, consider the support available to them and any other support they may need during teaching and assessment.

Please see our policy documents on students with particular needs: https://qualifications.pearson.com/en/support/support-topics/understanding-our-qualifications/policies-for-centres-learners-and-employees.html.

Access to qualifications for students with disabilities or specific needs

Students can be assessed in a recognised regional sign language.

Further information on access arrangements can be found in the Joint Council for Qualifications (JCQ) document *Access Arrangements, Reasonable Adjustments and Special Consideration for General and Vocational Qualifications*. Details on how to make adjustments for students with protected characteristics are provided in *Supplementary Guidance for Reasonable Adjustment and Special Consideration in Vocational Internally Assessed Units*. See the support section of our website for both documents: https://qualifications.pearson.com/en/support.html.

11.0 Units included in the BTEC Higher National Certificate in Mechatronics for England

The list of units available for the Pearson BTEC Higher Nationals in Mechatronics for England can be found in the document *Unit Descriptors for the Pearson BTEC Higher Nationals Engineering Suite*, available on the Pearson website: qualifications.pearson.com/en/qualifications/btec-higher-nationals.html.

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