

Pearson BTEC Level 3 National Extended Certificates in Music Technology

Sound Engineering
Digital Music Production



Specification

First teaching from September 2018

First certification from 2019

Issue 3

Pearson BTEC Level 3 National Extended Certificates in Sound Engineering Digital Music Production Specification

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Edexcel, BTEC and LCCI qualifications

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This specification is Issue 3. We will inform centres of any changes to this issue. The latest issue can be found on our website.

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ISBN 978 1 446 94660 2

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Welcome

With a track record built over 30 years of learner success, BTEC Nationals are widely recognised by industry and higher education as the signature vocational qualification at Level 3. They provide progression to the workplace either directly or via study at a higher level. Proof comes from YouGov research, which shows that 62% of large companies have recruited employees with BTEC qualifications. What's more, well over 100,000 BTEC students apply to UK universities every year and their BTEC Nationals are accepted by over 150 UK universities and higher education institutes for relevant degree programmes either on their own or in combination with A Levels.

Why are BTECs so successful?

BTECs embody a fundamentally learner-centred approach to the curriculum, with a flexible, unit-based structure and knowledge applied in project-based assessments. They focus on the holistic development of the practical, interpersonal and thinking skills required to be able to succeed in employment and higher education.

When creating the BTEC Nationals in this suite, we worked with many employers, higher education providers, colleges and schools to ensure that their needs are met. Employers are looking for recruits with a thorough grounding in the latest industry requirements and work-ready skills such as teamwork. Higher education needs students who have experience of research, extended writing and meeting deadlines.

We have addressed these requirements with:

- a range of BTEC sizes, each with a clear purpose, so there is something to suit each learner's choice of study programme and progression plans
- refreshed content that is closely aligned with employers' and higher education needs for a skilled future workforce
- assessments and projects chosen to help learners progress to the next stage. This means some are set by you to meet local needs, while others are set and marked by Pearson so that there is a core of skills and understanding that is common to all learners. For example, a written test can be used to check that learners are confident in using technical knowledge to carry out a certain job.

We are providing a wealth of support, both resources and people, to ensure that learners and their teachers have the best possible experience during their course. See *Section 10* for details of the support we offer.

A word to learners

Today's BTEC Nationals are demanding, as you would expect of the most respected applied learning qualification in the UK. You will have to choose and complete a range of units, be organised, take some assessments that we will set and mark, and keep a portfolio of your assignments. But you can feel proud to achieve a BTEC because, whatever your plans in life – whether you decide to study further, go on to work or an apprenticeship, or set up your own business – your BTEC National will be your passport to success in the next stage of your life.

Good luck, and we hope you enjoy your course.

Collaborative development

Students completing their BTEC Nationals in music technology will be aiming to go on to employment, often via the stepping stone of higher education. It was, therefore, essential that we developed these qualifications in close collaboration with experts from professional bodies, businesses and universities, and with the providers who will be delivering the qualifications. To ensure that the content meets providers' needs and provides high-quality preparation for progression, we engaged experts. We are very grateful to all the university and further education lecturers, teachers, employers, professional body representatives and other individuals who have generously shared their time and expertise to help us develop these new qualifications.

In addition, universities, professional bodies and businesses have provided letters of support confirming that these qualifications meet their entry requirements. These letters can be viewed on our website.

Summary of Pearson BTEC Level 3 National Extended Certificates in Sound Engineering and Digital Music Production specification Issue 3 changes

Summary of changes made between the previous issue and this current issue	Page number
The last paragraph of the <i>Qualification and unit content</i> section has been amended to allow centres delivering the qualification above to alter the content to reflect the context of the country where it is being delivered.	Page 6

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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Introduction to BTEC National qualifications for the music technology sector

This specification contains the information you need to deliver the Pearson BTEC Level 3 National extended certificates in sound engineering or digital music production. The specification signposts you to additional handbooks and policies. It includes all the units for these qualifications.

These qualifications are part of the suite of music technology qualifications offered by Pearson. In the suite there are qualifications that focus on different progression routes, allowing learners to choose the one best suited to their aspirations.

All qualifications in the suite share some common units and assessments, allowing learners some flexibility in moving between qualifications where they wish to select a more specific progression route. The qualification titles are given below.

Within this suite are BTEC National qualifications for post-16 learners wishing to specialise in a specific industry, occupation or occupational group. The qualifications give learners specialist knowledge and technical skills, enabling entry to an Apprenticeship or other employment, or progression to related higher education courses. Learners taking these qualifications must have a significant level of employer involvement in their programmes.

In the music technology sector these qualifications are:

Pearson BTEC Level 3 National Extended Certificate in Sound Engineering (603/1233/6)

Pearson BTEC Level 3 National Extended Certificate in Digital Music Production (603/1232/4)

Pearson BTEC Level 3 National Foundation Diploma in Music Technology (540 GLH) (603/0211/2)

Pearson BTEC Level 3 National Diploma in Music Technology (720 GLH) (601/7350/6)

Pearson BTEC Level 3 National Extended Diploma in Music Technology (1080 GLH) (601/7351/8).

Other BTEC National qualifications in this sector provide a broad introduction that gives learners transferable knowledge and skills. These qualifications are for post-16 learners who want to continue their education through applied learning. The qualifications prepare learners for a range of higher education courses either by meeting entry requirements in their own right or by being accepted alongside other qualifications at the same level and adding value to them. Learners may progress to one of the qualifications in this specification having completed a smaller qualification that provides suitable fundamental knowledge and skills.

In the music technology sector this qualification is:

Pearson BTEC Level 3 National Certificate in Music Technology (180 GLH) (603/2688/8).

This specification signposts all the other essential documents and support that you need as a centre in order to deliver, assess and administer the qualification, including the staff development required. A summary of all essential documents is given in *Section 7*. Information on how we can support you with these qualifications is given in *Section 10*.

The information in this specification is correct at the time of publication.

Total Qualification Time

For all regulated qualifications, Pearson specifies a total number of hours that it is estimated learners will require to complete and show achievement for the qualification: this is the Total Qualification Time (TQT). Within TQT, Pearson identifies the number of Guided Learning Hours (GLH) that we estimate a centre delivering the qualification might provide. Guided learning means activities, such as lessons, tutorials, online instruction, supervised study and giving feedback on performance, that directly involve teachers and assessors in teaching, supervising and invigilating learners. Guided learning includes the time required for learners to complete external assessment under examination or supervised conditions.

In addition to guided learning, other required learning directed by teachers or assessors will include private study, preparation for assessment and undertaking assessment when not under supervision, such as preparatory reading, revision and independent research.

BTEC Nationals have been designed around the number of hours of guided learning expected. Each unit in the qualification has a GLH value of 60, 90 or 120. There is then a total GLH value for the qualification.

Each qualification has a TQT value. This may vary within sectors and across the suite depending on the nature of the units in each qualification and the expected time for other required learning. The following table show all the qualifications in this sector and their GLH and TQT values.

Qualifications, sizes and purposes at a glance

Title	Size and structure	Summary purpose
Pearson BTEC Level 3 National Certificate in Music Technology	180 GLH (250 TQT) Equivalent in size to 0.5 of an A Level. Two units, of which one is mandatory and one is external. Mandatory content (67%). External assessment (67%).	The qualification offers an introduction to the music technology sector through applied learning. The qualification supports progression to higher education when taken as part of a programme of study that includes other vocational or general qualifications. It is designed to support progression to employment following further study at university.

Title	Size and structure	Summary purpose
Pearson BTEC National Extended Certificate in Sound Engineering	360 GLH (520 TQT) Equivalent in size to one A Level. 5 units of which 2 are mandatory and 1 is external. Mandatory content (50%). External assessment (33%).	Designed to support progression to apprenticeship or employment when taken as part of a programme of study that includes other appropriate BTEC Nationals or A Levels. A basis of study for the sound engineering sector with a focus on studio recording techniques and DAW production.
Pearson BTEC National Extended Certificate in Digital Music Production	360 GLH (500 TQT) Equivalent in size to one A Level. 5 units of which 2 are mandatory and 1 is external. Mandatory content (50%). External assessment (33%).	Designed to support progression to apprenticeship or employment when taken as part of a programme of study that includes other appropriate BTEC Nationals or A Levels. A basis of study for the music production sector with a focus on music and sound for media and DAW production.
Pearson BTEC National Foundation Diploma in Music Technology	540 GLH (755 TQT) Equivalent in size to 1.5 A Levels. 7 units of which 4 are mandatory and 2 are external. Mandatory content (66%). External assessment (44%).	Designed as a one-year, full-time course covering the fundamentals in the music technology sector with optional areas of study, including remixing and working as a production team. This qualification supports entry to employment in the sector as well as progression to a further year of study at Level 3. It would also support progression to higher education if taken as part of a programme of study that included other BTEC Nationals or A Levels.

Title	Size and structure	Summary purpose
Pearson BTEC National Diploma in Music Technology	720 GLH (1035 TQT) Equivalent in size to two A Levels. 10 units of which 5 are mandatory and 2 are external. Mandatory content (58%). External assessment (33%).	<p>This qualification is designed to be the substantive part of a 16–19 study programme for learners who want a strong core of music technology study. This programme may include other BTEC Nationals or A Levels to support progression either directly to employment in the music technology sector or to higher education courses in music technology. It can also be a component of the Tech Bacc measure along with a Level 3 Mathematics qualification and the Extended Project Qualification (EPQ).</p> <p>The additional qualification(s) studied allow learners to either give breadth to their study programme by choosing a contrasting subject, or to give it more focus by choosing a complementary subject. This qualification can also be used to progress to employment in this sector.</p>
Pearson BTEC Level 3 National Extended Diploma in Music Technology	1080 GLH (1525 TQT) Equivalent in size to three A Levels. 14 units of which 7 are mandatory and 3 are external. Mandatory content (61%). External assessment (33%).	<p>This qualification is designed to be the main focus of learning in a typical two-year, 16–19 study programme. This size qualification is particularly appropriate for those with an interest in progressing directly to a career in music technology or to enter the sector following a course in higher education. Learners can choose areas such as DJ performance techniques or composing music in order to focus on specific careers in music technology.</p>

Structures of the qualifications at a glance

This table shows all the units and the qualifications to which they contribute. The full structure for this Pearson BTEC Level 3 National in Music Technology is shown in *Section 2*. **You must refer to the full structure to select units and plan your programme.**

Key

Unit assessed externally	M	Mandatory units	O	Optional units
SE	Sound Engineering		DMP	Digital Music Production

Unit (number and title)	Unit size (GLH)	Certificate (180 GLH)	Extended Certificate (360 GLH)		Foundation Diploma (540 GLH)	Diploma (720 GLH)	Extended Diploma (1080 GLH)
			SE	DMP			
1 Live Sound	60		O			M	M
2 Studio Recording Techniques	60	O	M		M	M	M
3 Music and Sound for Media	60	O		M	M	M	M
4 Music Technology Project	120						M
5 Music Technology in Context	120				M	M	M
6 DAW Production	120	M	M	M		M	M
7 Music Technology Enterprise Opportunities	120				M		M
8 Creative Synthesis and Sampling	60			O	O	O	O
9 Composing Music	60						O
10 Remixing and Reworking	60			O	O	O	O
11 DJ Performance Techniques	60						O
12 Music Technology in Performance	60					O	O
13 Mixing and Mastering Techniques	60	O	O	O	O	O	O
14 Studio Design and Acoustics	60		O				O
15 Music Investigation	60				O	O	O
16 Commercial Music Production	60			O	O		O
17 Music Technology and Musicianship	60				O	O	O
18 Working and Developing as a Production Team	60		O		O	O	O
19 Designing a Music Technology Product	60						O

Qualification and unit content

Pearson has developed the content of the new BTEC Nationals in collaboration with employers and representatives from higher education and relevant professional bodies. In this way, we have ensured that content is up to date and that it includes the knowledge, understanding, skills and attributes required in the sector.

Each qualification in the suite has its own purpose. The mandatory content provides a balance of breadth and depth ensuring that all learners have a strong basis for developing technical skills required in the sector. Learners are then offered the opportunity to develop a range of technical skills and attributes expected by employers with some opportunity to select between optional units where a degree of choice for individual learners to study content relevant to their own progression choices is appropriate. It is expected that learners will apply their learning in relevant employment and sector contexts during delivery and have opportunities to engage meaningfully with employers.

The proportion of mandatory content ensures that all learners are following a coherent programme of study and acquiring the knowledge, understanding and skills that will be recognised and valued. Learners are expected to show achievement across mandatory units as detailed in *Section 2*.

BTEC Nationals have always required applied learning that brings together knowledge and understanding (the cognitive domain) with practical and technical skills (the psychomotor domain). This is achieved through learners performing vocational tasks that encourage the development of appropriate vocational behaviours (the affective domain) and transferable skills. Transferable skills are those such as communication, teamwork, planning and completing tasks to high standards, which are valued in both the workplace and in higher education.

Our approach provides rigour and balance, and promotes the ability to apply learning immediately in new contexts. Further details can be found in *Section 2*.

Centres should ensure that delivery of content is kept up to date. Some of the units within the specification may contain references to legislation, policies, regulations and organisations, which may not be applicable in the country you deliver this qualification in (if teaching outside of England), or which may have gone out-of-date during the lifespan of the specification. In these instances, it is possible to substitute such references with ones that are current and applicable in the country you deliver subject to confirmation by your Standards Verifier.

Assessment

Assessment is specifically designed to fit the purpose and objective of the qualification. It includes a range of assessment types and styles suited to vocational qualifications in the sector. There are three main forms of assessment that you need to be aware of: external, internal and synoptic.

Externally-assessed units

Each external assessment for a BTEC National is linked to a specific unit. All of the units developed for external assessment are 120 GLH to allow learners to demonstrate breadth and depth of achievement. Each assessment is taken under specified conditions, then marked by Pearson and a grade awarded. Learners are permitted to resit external assessments during their programme. You should refer to our website for current policy information on permitted retakes.

The styles of external assessment used for qualifications in the Music Technology suite are:

- set tasks – learners take the assessment during a defined window and demonstrate understanding through completion of a vocational task.

Some external assessments include a period of preparation using set information. External assessments are available once or twice a year. For detailed information on the external assessments please see the table in *Section 2*. For further information on preparing for external assessment see *Section 5*.

Internally-assessed units

Most units in the sector are internally assessed and subject to external standards verification. This means that you set and assess the assignments that provide the final summative assessment of each unit, using the examples and support that Pearson provides. Before you assess you will need to become an approved centre, if you are not one already. You will need to prepare to assess using the guidance in *Section 6*.

In line with the requirements and guidance for internal assessment, you select the most appropriate assessment styles according to the learning set out in the unit. This ensures that learners are assessed using a variety of styles to help them develop a broad range of transferable skills. Learners could be given opportunities to:

- demonstrate practical and technical skills using appropriate equipment software/ processes etc.
- complete realistic tasks to meet specific briefs or particular purposes
- write up the findings of their own research
- use case studies to explore complex or unfamiliar situations
- carry out projects for which they have choice over the direction and outcomes.

You will make grading decisions based on the requirements and supporting guidance given in the units. Learners may not make repeated submissions of assignment evidence. For further information see *Section 6*.

Synoptic assessment

Synoptic assessment requires learners to demonstrate that they can identify and use effectively, in an integrated way, an appropriate selection of skills, techniques, concepts, theories and knowledge from across the whole sector as relevant to a key task. BTEC learning has always encouraged learners to apply their learning in realistic contexts using scenarios and realistic activities that will permit learners to draw on and apply their learning. For these qualifications we have formally identified units which contain a synoptic assessment task. Synoptic assessment must take place after the teaching and learning of other mandatory units in order for learners to be able to draw from the full range of content. The synoptic assessment gives learners an opportunity to independently select and apply learning from across their programmes in the completion of a vocational task. Synoptic tasks may be in internally or externally assessed units. The particular unit that contains the synoptic tasks for this qualification is shown in the structure in *Section 2*.

Language of assessment

Assessment of the internal and external units for these qualifications will be available in English. All learner work must be in English. A learner taking the qualifications may be assessed in British or Irish Sign Language where it is permitted for the purpose of reasonable adjustment. For information on reasonable adjustments see *Section 7*.

Grading for units and qualifications

Achievement in the qualification requires a demonstration of depth of study in each unit, assured acquisition of a range of practical skills required for employment or progression to higher education, and successful development of transferable skills. Learners achieving a qualification will have achieved across mandatory units, including external and synoptic assessment.

Units are assessed using a grading scale of Distinction (D), Merit (M), Pass (P), Near Pass (N) and Unclassified (U). The grade of Near Pass is used for externally-assessed units only. All mandatory and optional units contribute proportionately to the overall qualification grade, for example a unit of 120 GLH will contribute double that of a 60 GLH unit.

Qualifications in the suite are graded using a scale of P to D*, **or** PP to D*D*, **or** PPP to D*D*D*. Please see *Section 9* for more details. The relationship between qualification grading scales and unit grades will be subject to regular review as part of Pearson's standards monitoring processes on the basis of learner performance and in consultation with key users of the qualification.

UCAS Tariff points

The BTEC Nationals attract UCAS points. Please go to the UCAS website for full details of the points allocated.

1 Qualification purpose

In this section you will find information on the purpose of these qualifications:

Pearson BTEC Level 3 National Extended Certificate in Sound Engineering

Pearson BTEC Level 3 National Extended Certificate in Digital Music Production

On our website we publish a full 'Statement of Purpose' for each qualification. These statements are designed to guide you and potential learners to make the most appropriate choice about the size of qualification that is suitable at recruitment.

Pearson BTEC Level 3 National Extended Certificate in Sound Engineering

Who is this qualification for?

The Pearson BTEC Level 3 National Extended Certificate in Sound Engineering is intended as a Tech Level qualification, equivalent in size to one A Level. It is designed to meet the Tech Bacc measure if studied alongside Level 3 mathematics and the Extended Project Qualification (EPQ). This size of qualification allows learners to study related and complementary qualifications without duplication of content. It provides good preparation for learners considering an apprenticeship in sound engineering. It supports access to a range of higher education courses in sound engineering and the wider music industry when taken alongside further Level 3 qualifications.

As well as direct entry to employment, this qualification will prepare learners for higher study of a specialist degree or BTEC Higher National Diploma. This route gives learners the opportunity to enter the sector at a higher level, or in a more specialist role.

No prior study of the sector is needed but learners should normally have a range of achievement at Level 2, in GCSEs or equivalent qualifications, including English, mathematics and science.

What does this qualification cover?

The content of this qualification has been developed in consultation with employers and professional bodies to ensure that it is appropriate for those interested in working in the sector. In addition, higher education representatives have been involved to ensure that it fully supports entry to the relevant range of specialist degrees.

There are two mandatory units, which cover the following aspects of sound engineering:

- studio recording techniques
- digital audio workstation (DAW) production.

Learners will be able to add three optional units, from a choice of four, to the mandatory content. These have been designed to support their progression to a range of employment opportunities in sound engineering, and to a range of higher education courses. Optional units will introduce learners to sector specialist areas of their choice, including working in particular environments, and link with relevant technical roles. The optional units cover areas such as:

- live sound
- mixing and mastering techniques
- studio design and acoustics
- working and developing as a production team.

While taking this qualification, learners will be required to engage with sector employers as part of their course, where they will be given opportunities to develop practical skills in preparation for employment.

What could this qualification lead to?

This qualification will prepare learners for direct employment in the sound engineering sector and is suitable for those wanting to work in entry-level roles such as:

- live music assistant
- assistant sound engineer
- audiovisual technician/broadcast assistant.

If learners have taken additional Level 3 qualifications, they could increase their professional industry skills and competencies, and have increased responsibilities in the above job roles. Additional qualifications could include:

- AS/A Level Mathematics
- AS/A Level Physics
- Pearson BTEC Level 3 National Extended Certificate in Creative Digital Media Production.

There are many roles in this sector where recruitment is at graduate level. The qualification carries UCAS points and is recognised by higher education providers as contributing to meeting admission requirements for many relevant courses. For example, if taken alongside A Levels in mathematics and physics, or a BTEC Level 3 National Diploma in a relevant field of study, such as music technology or sound production, it could lead to a:

- BSc (Hons) in Sound Engineering and Production
- BSc (Hons) in Live Sound Technology
- BEng (Hons) in Audio Acoustics.

Learners may also progress to a higher or degree apprenticeship.

Learners should always check the entry requirements for degree programmes with specific higher education providers.

How does the qualification provide employability and technical skills?

In the BTEC National units there are opportunities during the teaching and learning phase to give learners practice in developing employability skills. Where employability skills are referred to in this specification, we are generally referring to skills in the following three main categories:

- **cognitive and problem-solving skills:** use critical thinking, approach non-routine problems applying expert and creative solutions, use systems and technology
- **intrapersonal skills:** communicating, working collaboratively, negotiating and influencing, self-presentation
- **interpersonal skills:** self-management, adaptability and resilience, self-monitoring and development.

There are also specific requirements in some units for assessment of these skills where relevant. For example, where learners are required to undertake real or simulated activities.

Many of the mandatory and specified optional units encourage learners to develop the specific practical skills that employers are looking for.

How does the qualification provide transferable knowledge and skills for higher education?

All BTEC Nationals provide transferable knowledge and skills that prepare learners for progression to university or other higher study either immediately or for career progression. The transferable skills that universities value include:

- the ability to learn independently
- the ability to research actively and methodically
- being able to give presentations and being active group members.

BTEC learners can also benefit from opportunities for deep learning where they are able to make connections among units and select areas of interest for detailed study. BTEC Nationals provide a vocational context in which learners can become prepared for life-long learning through:

- understanding technical terms
- using technical equipment
- analytical skills
- creative development.

Pearson BTEC Level 3 National Extended Certificate in Digital Music Production

Who is this qualification for?

The Pearson BTEC Level 3 National Extended Certificate in Digital Music Production is intended as a Tech Level qualification, equivalent in size to one A Level. It is designed to meet the Tech Bacc measure if studied alongside Level 3 mathematics and the Extended Project Qualification (EPQ). This size of qualification allows learners to study related and complementary qualifications without duplication of content. It provides good preparation for learners considering an apprenticeship in digital music production. When taken alongside further Level 3 qualifications, it supports access to a range of higher education courses in music production and the wider music industry.

As well as direct entry to employment, this qualification will prepare learners for higher study of a specialist degree or BTEC Higher National Diploma. This route gives learners the opportunity to enter the sector at a higher level, or in a more specialist role.

No prior study of the sector is needed but learners should normally have a range of achievement at Level 2, in GCSEs or equivalent qualifications, including English, mathematics and science.

What does this qualification cover?

The content of this qualification has been developed in consultation with employers and professional bodies to ensure that it is appropriate for those interested in working in the sector. In addition, higher education representatives have been involved to ensure that the qualification fully supports entry to the relevant range of specialist degrees.

There are two mandatory units, which cover the following aspects of digital music production:

- music and sound for media
- digital audio workstation (DAW) production.

Learners will be able to add three optional units, from a choice of four, to the mandatory content. These have been designed to support their progression to a range of employment opportunities in digital music production, and to a range of higher education courses. Optional units will introduce learners to sector specialist areas of their choice, including working in particular environments, and link with relevant technical roles. The optional units cover areas such as:

- creative synthesis and sampling
- remixing and reworking
- mixing and mastering techniques
- commercial music production.

While taking this qualification, learners will be required to engage with sector employers as part of their course, where they will be given opportunities to develop practical skills in preparation for employment.

What could this qualification lead to?

This qualification will prepare learners for direct employment in the digital music production sector and is suitable for those wanting to work in entry-level roles, such as:

- junior music producer
- remixer
- junior sound designer
- music studio assistant
- assistant audio restorer/digitiser/archiver.

If learners have taken additional Level 3 qualifications, they could increase their professional industry skills and competencies, and have increased responsibilities in the above job roles.

Additional qualifications could include:

- Pearson BTEC Level 3 National Extended Certificate in Music
- Pearson BTEC Level 3 National Extended Certificate in Creative Digital Media Production
- AS/A Level Business Studies.

There are many roles in this sector where recruitment is at graduate level. The qualification carries UCAS points and is recognised by higher education providers as contributing to meeting admission requirements for many relevant courses. For example, if taken alongside A Levels in music and business studies, or a BTEC Level 3 National Diploma in a relevant field of study, such as music or digital games design and development, it could lead to a:

- BA (Hons) in Music Technology and Production
- BA (Hons) in Sound Arts and Design
- BA (Hons) in Digital Music and Sound Arts
- BSc (Hons) in Music and Sound Production Technology.

Learners may also progress to a higher or degree apprenticeship.

Learners should always check the entry requirements for degree programmes with specific higher education providers.

How does the qualification provide employability and technical skills?

In the BTEC National units there are opportunities during the teaching and learning phase to give learners practice in developing employability skills. Where employability skills are referred to in this specification, we are generally referring to skills in the following three main categories:

- **cognitive and problem-solving skills:** use critical thinking, approach non-routine problems applying expert and creative solutions, use systems and technology
- **intrapersonal skills:** communicating, working collaboratively, negotiating and influencing, self-presentation
- **interpersonal skills:** self-management, adaptability and resilience, self-monitoring and development.

There are also specific requirements in some units for assessment of these skills where relevant. For example, where learners are required to undertake real or simulated activities.

Many of the mandatory and specified optional units encourage learners to develop the specific practical skills that employers are looking for.

How does the qualification provide transferable knowledge and skills for higher education?

All BTEC Nationals provide transferable knowledge and skills that prepare learners for progression to university or other higher study either immediately or for career progression. The transferable skills that universities value include:

- the ability to learn independently
- the ability to research actively and methodically
- being able to give presentations and being active group members.

BTEC learners can also benefit from opportunities for deep learning where they are able to make connections among units and select areas of interest for detailed study. BTEC Nationals provide a vocational context in which learners can become prepared for life-long learning through:

- understanding technical terms
- using technical equipment
- analytical skills
- creative development.

2 Structure

Qualification structure

The structure for the qualifications in this specification are:

Pearson BTEC Level 3 National Extended Certificate in Sound Engineering *page 13*

Pearson BTEC Level 3 National Extended Certificate in Digital Music Production *page 14*

Pearson BTEC Level 3 National Extended Certificate in Sound Engineering

Mandatory units

There are two mandatory units, one internal and one external. Learners must complete and achieve at Near Pass grade or above in all mandatory external units and achieve a Pass or above in all mandatory internal units.

Optional units

Learners must complete at least three optional units.

Pearson BTEC Level 3 National Extended Certificate in Sound Engineering				
Unit number	Unit title	GLH	Type	How assessed
Mandatory units group A – learners complete and achieve all units				
2	Studio Recording Techniques	60	Mandatory	Internal
6	DAW Production	120	Mandatory and Synoptic	External
Optional units group B – learners complete 3 units				
1	Live Sound	60	Optional	Internal
13	Mixing and Mastering Techniques	60	Optional	Internal
14	Studio Design and Acoustics	60	Optional	Internal
18	Working and Developing as a Production Team	60	Optional	Internal

Pearson BTEC Level 3 National Extended Certificate in Digital Music Production

Mandatory units

There are two mandatory units, one internal and one external. Learners must complete and achieve at Near Pass grade or above in all mandatory external units and achieve a Pass or above in all mandatory internal units.

Optional units

Learners must complete at least three optional units.

Pearson BTEC Level 3 National Extended Certificate in Digital Music Production				
Unit number	Unit title	GLH	Type	How assessed
Mandatory units group A – learners complete and achieve all units				
3	Music and Sound for Media	60	Mandatory	Internal
6	DAW Production	120	Mandatory and Synoptic	External
Optional units group B – learners complete 3 units				
8	Creative Synthesis and Sampling	60	Optional	Internal
10	Remixing and Reworking	60	Optional	Internal
13	Mixing and Mastering Techniques	60	Optional	Internal
16	Commercial Music Production	60	Optional	Internal

External assessment

This is a summary of the type and availability of external assessment, which is of units making up 33% of the total qualification GLH. See *Section 5* and the units and sample assessment materials for more information.

Unit	Type	Availability
Unit 6: DAW Production	<ul style="list-style-type: none">• Task set by Pearson.• Supervised assessment period of 15 hours over a two-week period timetabled by Pearson.• Completed on a computer, with submission of digital folder to Pearson.• 60 marks.	May/June From 2017 onwards

Synoptic assessment

The mandatory synoptic assessment requires learners to apply learning from across the qualification to the completion of a defined vocational task. Within the assessment for *Unit 6: DAW Production* learners will develop an understanding of how a digital audio workstation (DAW) can be used creatively to produce music, manipulate audio and mix music. Learners complete a composition and music production using knowledge and understanding from their studies of the sector and apply both transferable and specialist knowledge and skills. Learners complete the tasks using knowledge and understanding from their studies of the sector and apply both transferable and specialist knowledge and skills.

In delivering these units you need to encourage learners to draw on their broader learning so they will be prepared for the assessment.

Employer involvement in assessment and delivery

You need to ensure that learners on this qualification have a significant level of employer involvement in programme delivery or assessment. See *Section 4* for more information.

3 Units

Understanding your units

The units in this specification set out our expectations of assessment in a way that helps you to prepare your learners for assessment. The units help you to undertake assessment and quality assurance effectively.

Each unit in the specification is set out in a similar way. There are two types of unit format:

- internal units
- external units.

This section explains how the units work. It is important that all teachers, assessors, internal verifiers and other staff responsible for the programme review this section.

Internal units

Section	Explanation
Unit number	The number is in a sequence in the sector. Numbers may not be sequential for an individual qualification.
Unit title	This is the formal title that we always use and it appears on certificates.
Level	All units are at Level 3 on the national framework.
Unit type	This shows if the unit is internal or external only. See structure information in <i>Section 2</i> for full details.
GLH	Units may have a GLH value of 120, 90 or 60 GLH. This indicates the numbers of hours of teaching, directed activity and assessment expected. It also shows the weighting of the unit in the final qualification grade.
Unit in brief	A brief formal statement on the content of the unit that is helpful in understanding its role in the qualification. You can use this in summary documents, brochures etc.
Unit introduction	This is designed with learners in mind. It indicates why the unit is important, how learning is structured, and how learning might be applied when progressing to employment or higher education.
Learning aims	These help to define the scope, style and depth of learning of the unit. You can see where learners should be learning standard requirements ('understand') or where they should be actively researching ('investigate'). You can find out more about the verbs we use in learning aims in <i>Appendix 2</i> .
Summary of unit	This new section helps teachers to see at a glance the main content areas against the learning aims and the structure of the assessment. The content areas and structure of assessment are required. The forms of evidence given are suitable to fulfil the requirements.
Content	This section sets out the required teaching content of the unit. Content is compulsory except when shown as 'e.g.'. Learners should be asked to complete summative assessment only after the teaching content for the unit or learning aim(s) has been covered.

Section	Explanation
Assessment criteria	<p>Each learning aim has Pass and Merit criteria. Each assignment has at least one Distinction criterion.</p> <p>A full glossary of terms used is given in <i>Appendix 2</i>. All assessors need to understand our expectations of the terms used.</p> <p>Distinction criteria represent outstanding performance in the unit. Some criteria require learners to draw together learning from across the learning aims.</p>
Essential information for assignments	<p>This shows the maximum number of assignments that may be used for the unit to allow for effective summative assessment, and how the assessment criteria should be used to assess performance.</p>
Further information for teachers and assessors	<p>The section gives you information to support the implementation of assessment. It is important that this is used carefully alongside the assessment criteria.</p>
Resource requirements	<p>Any specific resources that you need to be able to teach and assess are listed in this section. For information on support resources see <i>Section 10</i>.</p>
Essential information for assessment decisions	<p>This information gives guidance for each learning aim or assignment of the expectations for Pass, Merit and Distinction standard. This section contains examples and essential clarification.</p>
Links to other units	<p>This section shows you the main relationship among units. This section can help you to structure your programme and make best use of materials and resources.</p>
Employer involvement	<p>This section gives you information on the units that can be used to give learners involvement with employers. It will help you to identify the kind of involvement that is likely to be successful.</p>

External units

Section	Explanation
Unit number	The number is in a sequence in the sector. Numbers may not be sequential for an individual qualification.
Unit title	This is the formal title that we always use and it appears on certificates.
Level	All units are at Level 3 on the national framework.
Unit type	This shows if the unit is internal or external only. See structure information in <i>Section 2</i> for full details.
GLH	Units may have a GLH value of 120, 90 or 60 GLH. This indicates the numbers of hours of teaching, directed activity and assessment expected. It also shows the weighting of the unit in the final qualification grade.
Unit in brief	A brief formal statement on the content of the unit.
Unit introduction	This is designed with learners in mind. It indicates why the unit is important, how learning is structured, and how learning might be applied when progressing to employment or higher education.
Summary of assessment	This sets out the type of external assessment used and the way in which it is used to assess achievement.
Assessment outcomes	These show the hierarchy of knowledge, understanding, skills and behaviours that are assessed. Includes information on how this hierarchy relates to command terms in sample assessment materials (SAMs).
Essential content	For external units all the content is obligatory, the depth of content is indicated in the assessment outcomes and sample assessment materials (SAMs). The content will be sampled through the external assessment over time, using the variety of questions or tasks shown.
Grade descriptors	We use grading descriptors when making judgements on grade boundaries. You can use them to understand what we expect to see from learners at particular grades.
Key terms typically used in assessment	These definitions will help you analyse requirements and prepare learners for assessment.
Resources	Any specific resources that you need to be able to teach and assess are listed in this section. For information on support resources see <i>Section 10</i> .
Links to other units	This section shows the main relationship among units. This section can help you to structure your programme and make best use of materials and resources.
Employer involvement	This section gives you information on the units that can be used to give learners involvement with employers. It will help you to identify the kind of involvement that is likely to be successful.

Index of units

This section contains all the units developed for this qualification. Please refer to *page 5* to check which units are available in all qualifications in the music technology sector.

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Unit 1: Live Sound

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners will study the technology and practice of live sound engineering and explore the types of work carried out by live sound engineers.

Unit introduction

The role of a live sound engineer can include working with artists across all genres of music in venues ranging from outdoor festivals to stadiums or pubs. A good live sound engineer is often the person responsible for providing a successful and enjoyable performance for musicians and audience alike. A live sound engineer must have a detailed knowledge of equipment and health and safety issues. However, they can often be the one to enhance an artist's performance, as well as communicating successfully with a range of people, often in high pressure situations.

In this unit, you will learn about the component parts of public address (PA) systems and gain practical experience of using them to mix live sound. You will gain knowledge of the working methods and procedures employed by a live sound engineer, including choosing appropriate equipment, the practical set-up of live sound systems and the other roles involved in live music production.

The skills you develop in this unit will allow you to undertake work as a live sound engineer, which may be a front of house (FOH) engineer or a monitor engineer. The skills developed in mixing live sound can also give you greater insight in terms of undertaking other live sound roles, such as road manager, roadie and backline technician, as well as studio-based production work. This will allow you to progress to freelance work in the industry or to undertake higher education courses related to live sound engineering.

Learning aims

In this unit you will:

- A** Examine live sound technology, equipment and roles
- B** Carry out the set-up and soundcheck of a live sound system to meet the needs of performers and audience
- C** Develop live recording and mixing techniques.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Examine live sound technology, equipment and roles	A1 FOH, monitor and input equipment used in live sound A2 Processing equipment used in live sound A3 Roles related to live sound engineering	A report considering the various roles associated with live sound engineering and the function and specification of equipment used.
B Carry out the set-up and soundcheck of a live sound system to meet the needs of performers and audience	B1 Connecting, positioning and checking of FOH and monitor system equipment B2 Health and safety requirements B3 Technical requirements of artists	Video evidence and observation documents of learners connecting, testing and operating live sound equipment in a soundcheck. A risk assessment for the set-up and soundcheck in response to the technical requirements of an artist.
C Develop live recording and mixing techniques	C1 Mixing live sound C2 Recording a live FOH mix produced in performance conditions	Video evidence and observation documents of learners mixing live sound. Audio recording produced by learners of live performance mixes.

Content

Learning aim A: Examine live sound technology, equipment and roles

A1 FOH, monitor and input equipment used in live sound

- Speakers – different front of house speaker configurations and how to choose an appropriate system. Associated speaker technical terminology:
 - function of multi-speaker arrays, e.g. 2 way, 3 way
 - array design, e.g. ground stacks, flown line array
 - dynamic drivers
 - horn loading
 - impedance
 - output wattage (root mean square (RMS)/peak)
 - active and passive.
- Power amplifiers – how to choose appropriate power amplifiers for a live sound system:
 - output wattage (RMS/peak)
 - impedance
 - digital and solid state designs.
- Crossovers – function of crossovers in a live sound system:
 - active crossovers
 - passive crossovers
 - loudspeaker protection/active processing.
- Mixing desk – how to choose different mixing desks for different live sound applications:
 - analogue desks
 - digital desks
 - functions – gain, equalisation (EQ) (high-pass filter (HPF), semi-parametric), balance, pan, pre- and post-fade aux sends, pre-fade listen (PFL)
 - subgroups.
- Stagebox – function of stageboxes in a live sound system:
 - inputs and outputs
 - digital or analogue
 - connections, e.g., multipin, Ethernet.
- Monitoring equipment – different onstage monitoring configurations and how they are used.
 - Speakers:
 - active and passive
 - bi-amp
 - types – wedges, side fill, drum fill
 - output wattage (RMS/peak)
 - impedance.
 - In-ear monitors:
 - type.
 - Mixing desk:
 - monitor desk configurations.

- Input equipment –different microphone and direct inject (DI) types and functions and how to choose an appropriate item of equipment for an input source.
 - Microphones:
 - types – dynamic, condenser
 - polar patterns – cardioid, hyper cardioid
 - phantom power requirements.
 - DI:
 - active/passive
 - phantom power requirements
 - thru functions
 - attenuation functions.

A2 Processing equipment used in live sound

- EQ:
 - graphic EQ.
- Dynamics:
 - compressor/limiter
 - noise gate.
- Effects:
 - reverb
 - delay
 - multi-effects.

A3 Roles related to live sound engineering

- FOH engineer.
- Monitor engineer.
- Backline technician.
- Road manager.
- Roadie.
- Stage manager.

Learning aim B: Carry out the set-up and soundcheck of a live sound system to meet the needs of performers and audience

B1 Connecting, positioning and checking of FOH and monitor system equipment

- Positioning of components in relation to venue.
- Cabling runs using appropriate cabling and connectors.
- Audio connectors.
- Power connectors.
- Audio cables.
- Power cables.
- Problem-solving measures.
- EQ equipment appropriately.

B2 Health and safety requirements

- Identify potential hazards associated with live sound engineering and work within health and safety legislation. Consider measures to protect yourself, others, equipment and property.
- Identify the hazards and risks to personnel, the public and equipment.
- Measures to minimise risk.
- Manual handling – manual handling regulations in relation to live sound engineering.
- Use of personal protection equipment (PPE).

- Electrical hazards.
- Portable appliance testing (PAT) equipment and procedures.
- Electrical safety devices.
- Safety when using electricity outdoors.
- Dealing with electric shock.
- Monitor and control sound pressure levels, e.g. sound pressure level meter.
- Implement measures to protect yourself and others from hearing damage.

B3 Technical requirements of artists

- Setting up microphones, DIs, monitors, onstage power and associated cabling based on a given written technical specification/stage plan.
- Line checking microphones in preparation for soundcheck.
- Working with artist's backline/onstage equipment to ensure an appropriate stage layout.
- Noting and save mixing desk and processor settings, e.g. track sheet, mixing desk recall.
- FOH and monitor mix for the artist in line with requirements and with due regard for health and safety.
- Understanding and responding to verbal and non-verbal communication during soundcheck.

Learning aim C: Develop live recording and mixing techniques

C1 Mixing live sound

- Recalling mixing desk and processor settings from soundcheck and making alterations where appropriate.
- Maintaining appropriate sound pressure level with regard to venue, audience and health and safety requirements.
- Balancing levels between onstage sources and FOH/monitors.
- Use of sub-groups to control mix elements.
- Application of stereo field.
- Application of effects processing.
- Application of dynamics processing.
- Application of EQ.

C2 Recording a live FOH mix produced in performance conditions

- Recording from suitable source, e.g. channel direct outs, splitter.
- Record to a suitable format.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Examine live sound technology, equipment and roles		A.D1 Evaluate the use of FOH, monitoring, input and processing equipment for given circumstances making recommendations in relation to the most suitable equipment and job role requirements.
<p>A.P1 Explain how FOH, monitoring, input and processing equipment is used in live sound.</p> <p>A.P2 Explain different roles involved in live sound engineering.</p>	<p>A.M1 Analyse how FOH, monitoring, input and processing equipment is used in live sound.</p> <p>A.M2 Analyse different roles involved in live sound engineering.</p>	
Learning aim B: Carry out the set-up and soundcheck of a live sound system to meet the needs of performers and audience		B.D2 Select, set up and operate the most appropriate equipment with proficiency, communicating professionally with others and justifying chosen approaches to produce high quality outcomes in a soundcheck. C.D3 Mix and record live sound demonstrating creativity and initiative in the use of advanced techniques, processes and skills to produce high quality outcomes.
<p>B.P3 Select, set up and operate appropriate equipment correctly and safely to achieve planned outcomes in a soundcheck.</p> <p>B.P4 Communicate effectively with others during set-up and soundcheck to meet planned outcomes.</p>	<p>B.M3 Select, set up and operate appropriate equipment with confidence and fluency modifying techniques to suit the context and to deal with contingencies in a soundcheck.</p> <p>B.M4 Communicate responsively with others during set-up and soundcheck to achieve planned outcomes and negotiate actions.</p>	
Learning aim C: Develop live recording and mixing techniques		
<p>C.P5 Mix and record live sound correctly and safely to achieve planned outcomes.</p>	<p>C.M5 Mix and record live sound with confidence and fluency using advanced techniques, processes and skills to achieve planned outcomes.</p>	

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of two summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.P2, A.M1, A.M2, A.D1)

Learning aims: B and C (B.P3, B.P4, C.P5, B.M3, B.M4, C.M5, B.D2, C.D3)

Further information for teachers and assessors

Resource requirements

This unit should make use of industry standard resources. For this unit, learners must have access to:

- instrument and vocal microphones, DI box(es), microphone stands, cables, mixing console (minimum two aux sends pre- and post-fader), compressor(s), gate(s), effects processor(s), graphic EQ, full range PA loudspeakers (powered or with power amplifier), monitor speaker(s) (powered or with power amplifier), short cables for outboard, insert cables 'Y-leads' music playback device, for example CD, computer
- a range of dedicated microphones and DI boxes, along with drums and other instruments to develop microphone technique
- a recording device, for example DAW/audio interface, hard disc recorder, CD recorder/DAT, either stereo or multitrack capable for recording live mixes
- a sound system suitable for music performance. The mixer should have facilities for subgrouping, and equalisation of at least three bands, ideally with swept-mid capability. Both pre- and post-fade auxiliaries will be needed to cater for monitors (pre-fade) and effects (post-fade). Effects can be inboard or outboard with access to both reverb and delay effects needed. Control of dynamics – limiting, compression and gates – can similarly be inboard or outboard.

Additional equipment preferred: multiple gates/compressors(s), multicore cable, separate bass bins, active crossover/speaker management system, multiple monitor loudspeakers, separate power amplifiers, cases for equipment, loudspeaker stands.

An SPL meter would be useful in allowing learners to understand sound pressure regulations.

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will comprehensively consider the live sound requirements of given events. Learners will make recommendations and justifications for the equipment and job roles that are essential to achieving the intended outcomes of the events successfully. They will articulate their views concisely and ensure that their recommendations are fully justified and based on industry practice.

For merit standard, learners will analyse the positives and negatives of using particular equipment for given circumstances and will draw conclusions about why specific equipment is the most suitable in each context. Learners will consider the various job roles required for each live sound application and will detail what these roles involve in relation to the events.

For pass standard, learners will consider the live sound requirements for given events and explain why particular equipment would be appropriate for the demands of the events. Learners will indicate the types of job role needed to deliver the sound requirements for each event and identify the key responsibilities associated with these jobs. Learners' responses may be vague in parts and general in nature.

Learning aims B and C

For distinction standard, learners will select and set up the required equipment independently and knowledgeably. They will command the soundcheck to ensure it is completed efficiently and effectively. Any communications with crew members or artists will be constructive and professional. Learners will demonstrate complete proficiency and expertise when applying a range of advanced skills and techniques to the mixing and recording of live sound.

For merit standard, learners will select and set up the appropriate equipment confidently but may require some limited guidance in doing so. They will be effective during the soundcheck and will deal with unforeseen circumstances positively and find solutions. Any communications with crew members or artists will be positive. Learners will carry out the live mix and recording of the performance with self-assurance and use relevant skills and techniques with confidence.

For pass standard, learners will select and set up appropriate equipment safely but will require support in doing this. They will contribute to the soundcheck but may lack efficiency and impact when doing so. Any communications with crew members or artists will be appropriate but may lack genuine clarity and confidence. Learners will carry out the live mix and recording of the performance with competence, but there could be some elements of insecurity in the application of skills and techniques.

Links to other units

This unit links to:

- Unit 2: Studio Recording Techniques
- Unit 13: Mixing and Mastering Techniques
- Unit 14: Studio Design and Acoustics.

Employer involvement

This unit would benefit from employer involvement in the form of:

- guest speakers from events/festival/theatre technicians, including road manager, backline technician, studio producer
- workshops by industry professionals and performers
- webinars/remote support by industry professionals.

Unit 2: Studio Recording Techniques

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners will cover the processes, equipment and practical skills required to produce multitrack recordings in a music studio environment.

Unit introduction

The process of recording music for industry release has developed extensively since the early days of studio recording. However, while recording techniques have spread from the confines of specialist facilities to anyone with a mobile device, the core knowledge of studio recording techniques underpins the essence of creating a good multitrack recording.

In this unit, you will look at the equipment and processes used to record music in a studio and experiment with microphone choice and placement. You will plan and make multitrack recordings of different instruments using studio equipment.

The work for this unit establishes a solid foundation of specific and transferable skills, which you will be able to relate to a wide range of potential employment opportunities in the music industry. While this unit is generally aimed at potential studio engineers and producers, a clear knowledge of the studio recording process is beneficial to personnel across the industry, from studio trainees and home recordists to artist managers and label administrators.

Learning aims

In this unit you will:

- A** Explore the equipment and processes used for a multitrack studio recording
- B** Carry out music recording session planning to prepare for a multitrack recording
- C** Carry out music recording using techniques and processes for a multitrack recording
- D** Review the processes used in the recording of the multitrack recordings.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Explore the equipment and processes used for a multitrack studio recording	A1 Concepts of multitrack recording A2 Monitoring for artist and engineer A3 Microphone and studio equipment A4 Cabling, connections and recording format/quality	Audio files showing learners' experimentation with microphones and studio equipment.
B Carry out music recording session planning to prepare for a multitrack recording	B1 Session planning B2 Studio set-up B3 Planning recording sessions	A detailed recording plan, including microphone choice and placement, room layout and cabling, which feeds into the set-up and implementation of an audio multitrack recording.
C Carry out music recording using techniques and processes for a multitrack recording	C1 Recording techniques C2 Equalisation and compression C3 Monitor mixes C4 Professional practice in a recording studio	
D Review the processes used in the recording of the multitrack recordings	D1 Session planning D2 Recording process	A report that evaluates the effectiveness of the process used in the multitrack recording.

Content

Learning aim A: Explore the equipment and processes used for a multitrack studio recording

An overview of the technical music recording process that highlights the key aspects of the main processes.

A1 Concepts of multitrack recording

- Instrument layering – full ensemble recording versus one instrument at a time.
- Overdubbing:
 - what instruments/parts are usually overdubbed
 - the impact on the performance
 - the concept of 'dropping/punching in'.
- Double-tracking.
- Fold-back:
 - importance of what the performer hears
 - the pros of one-sided headphones, e.g. tuning
 - headphone reverb.
- Isolation/spill – how both affect the sound and the potential for mixing decisions.

A2 Monitoring for artist and engineer

- Studio fold-back systems.
- Control room acoustics:
 - bass traps
 - room treatment
 - sweet spot.
- Control room monitoring:
 - near-field versus full-range monitor speakers
 - low-frequency effects (LFE)/ subwoofer
 - small speakers
 - headphones.

A3 Microphone and studio equipment

- General sound studio parameters:
 - frequencies (Hz)
 - dynamics (dB SPL)
 - signal to noise ratio
 - metering – VU (root mean square (RMS)) versus PPM (FS)
 - phase alignment.
- Recording equipment:
 - mixing consoles – practical audio pathway/ergonomics/IO
 - microphone types – polar patterns, phantom power, attenuation, bass roll-off, frequency range
 - audio recorders – sampling frequencies (frequency response)
 - bit depth – dynamic range
 - input level (+4 vs –12)
 - speakers – watts, ohms, 2-way, 3-way, active, passive.

A4 Cabling, connections and recording format/quality

- Desk inputs/outputs (mic level/line level).
- Auxes – sends/returns.
- Buses – effects routing, bussing for triggers.
- Groups – premixing sends.
- Direct outs.
- Inserts:
 - single/double socket
 - control processors
 - dry/wet balance.
- Audio recording formats – analogue and digital.
- Connectors:
 - XLR
 - TRS/TS Jack
 - Phono
 - Toslink
 - patchbays.

Learning aim B: Carry out music recording session planning to prepare for a multitrack recording

Researching and applying modern studio session planning processes.

B1 Session planning

- Facilities – relevant rooms, acoustics.
- Equipment choice.

B2 Studio set-up

- Studio layout:
 - ensemble layouts – bands, chamber groups, orchestral
 - separation/spill
 - performer communication
 - acoustic partitioning – home-made instrument screens, amp screening, mic screens.
- Microphone placement:
 - close versus ambient
 - 3:1 rule
 - isolation booths
 - stereo techniques – X:Y, spaced pair, close, ambient
 - proximity effect.
- Direct injection (DI):
 - active
 - passive
 - balanced lines
 - earth lifts
 - dB pads
 - link outputs.
- Compression and equalisation (EQ) settings – pros and cons of both.

B3 Planning recording sessions

- Planning bed tracks and overdubs.
- Timing schedule for artists.
- Order of recordings.

Learning aim C: Carry out music recording using techniques and processes for a multitrack recording

C1 Recording techniques

- Studio/control room set-up.
- Ensemble or individual recording.
- Overdubbing.

C2 Equalisation and compression

- Filters:
 - high-pass
 - low-pass
 - shelf
 - band-pass
 - graphic.
- Uses in recording process.
- Pros and cons of recording with EQ.
- Effect on recording levels.
- Benefits of recording with compression.
- Application in the recording process.

C3 Monitor mixes

- Getting a rough balance.
- Monitor panning.
- Monitor reverb.

C4 Professional practice in a recording studio

- Working with producers/artists.
- Session etiquette and procedures:
 - talkback
 - roles
 - double-tracking
 - click tracks.
- Time keeping and cost efficiency.

Learning aim D: Review the processes used in the recording of the multitrack recordings

D1 Session planning

How is the nature of the session planning reflected in the technical and creative quality of the finished session file:

- session planning
- time allowed
- ensemble versus part-by-part recording
- click track
- band interaction.

D2 Recording process

- Spill, isolation.
- Audio quality, head room, distortion.
- The effect of room acoustics on recording.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Explore the equipment and processes used for a multitrack studio recording		A.D1 Demonstrate technical proficiency and creativity in the application of microphones and studio recording equipment.
<p>A.P1 Demonstrate the practical application of microphone techniques in the recording studio.</p> <p>A.P2 Demonstrate the practical application of recording equipment in the recording studio.</p>	<p>A.M1 Demonstrate the effective practical application of microphone techniques in the recording studio showing technical proficiency.</p> <p>A.M2 Demonstrate the effective practical application of recording equipment in the recording studio showing technical proficiency.</p>	
Learning aim B: Carry out music recording session planning to prepare for a multitrack recording		BC.D2 Produce a multitrack recording that shows comprehensive understanding of the planning and processes involved to capture a near professional recording.
B.P3 Produce a recording session plan with some justification showing a basic understanding of the processes involved.	B.M3 Produce a detailed recording session plan with detailed justification showing a clear and comprehensive understanding of the processes involved.	
Learning aim C: Carry out music recording using techniques and processes for a multitrack recording		
C.P4 Set up equipment and record a multitrack recording showing a basic understanding of the processes involved.	C.M4 Set up equipment and record a multitrack recording showing a clear understanding of the processes involved with a monitoring mix that meets the needs of the performers.	
Learning aim D: Review the processes used in the recording of the multitrack recordings		D.D3 Evaluate how the planning and recording processes have affected the final multitrack recording, giving detailed solutions to problems.
D.P5 Explain how the planning and recording process has affected the final multitrack recording.	D.M5 Analyse how the planning and recording process has affected the final multitrack recording, giving detailed solutions to problems.	

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of three summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.P2, A.M1, A.M2, A.D1)

Learning aims: B and C (B.P3, C.P4, B.M3, C.M4, BC.D2)

Learning aim: D (D.P5, D.M5, D.D3)

Further information for teachers and assessors

Resource requirements

This unit should make use of industry standard resources.

This unit relies heavily on music recording facilities and equipment being available for learners (although not all at the same time). This should ideally include a basic multitrack recording system (either computer-based or a dedicated DAW), a range of microphones (including dynamic and condenser types), Dis, suitable hardware/virtual FX units processing and a suitable control room monitoring system (as an alternative to headphones).

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will explore the sonic possibilities of the available resources, producing creative examples of recordings made. They will show the results of detailed experimentation with microphone placement and settings on recording equipment. All work will be recorded to a high quality, showing an almost professional attention to detail and recording quality.

For merit standard, learners will explore the sonic possibilities of the available resources, producing examples of recordings made. They will show the results of experimentation with microphone placement and settings on recording equipment. All work will be recorded showing attention to detail and recording quality.

For pass standard, learners will produce examples of recordings made, showing the results of trying out some microphone placements and settings on recording equipment. There will be limited experimentation but recordings will be clean and technically adequate.

Learning aims B and C

For distinction standard, learners will submit a session file (the outcome of their recording session), informed by detailed planning, that shows a near-professional standard of recording skills and has the potential for a high-quality mix. Learners will use creative techniques to get the best sound for each track and to solve any problems they encounter. Monitor mixes will support the musician to enhance their performance whilst in the studio.

For merit standard, learners will submit a clear session file (the outcome of their recording session), informed by detailed planning, that shows a high standard of sound quality in the recording skills. Learners will use some creative techniques to get the best sound for each track and a good working monitor mix will be provided for the recording artists.

For pass standard, learners will submit a basic session file (the outcome of their recording session) informed by their planning. The tracks will be recorded to a satisfactory quality but learners may not have tried out different microphone placement or used more than the default settings on studio equipment. The monitor mix for the musicians may have been set up quickly and may not always be appropriate to the needs of the artist.

Learning aim D

For distinction standard, learners will submit a comprehensive, professional report that evaluates all aspects of the planning and implementation of the recording session. Learners will identify relevant sonic faults and give detailed current and potential future solutions.

For merit standard, learners will submit a report that analyses all aspects of the planning and implementation of the recording session. Learners will identify some sonic faults and give current and future solutions.

For pass standard, learners will submit a report that explains most aspects of the planning and implementation of the recording session. Learners will identify some sonic faults and give current solutions.

Links to other units

- This unit links to:
- Unit 1: Live Sound
- Unit 3: Music and Sound for Media
- Unit 6: DAW Production
- Unit 13: Mixing and Mastering Techniques
- Unit 14: Studio Design and Acoustics
- Unit 16: Commercial Music Production
- Unit 18: Working and Developing as a Production Team.

Employer involvement

This unit would benefit from employer involvement in the form of:

- guest experts including studio engineers, producers
- workshops by artists/performers/bands on recording techniques
- webinars by industry professionals.

Unit 3: Music and Sound for Media

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners will explore the production of the music, sound and effects that are used for media products such as games, films and apps.

Unit introduction

Music and sound surround our lives. This constant musical soundtrack is supported by sounds on our phones, crashes and explosions in games and to tell us of the arrival of a message or a newsflash. Sounds punctuate our activities and helps us to realise actions need to be taken, for example to warn us when it is safe to cross the road or that someone wishes to talk to us when the phone rings. This unit focuses on producing sounds and providing music for a range of media products, such as games, films and apps.

In this unit, you will explore a range of music and sound creation scenarios that might exist in a typical portfolio for someone working in the music industry. You will create and produce music for games, films and apps, as well as create original sounds, noises and effects to support interactivity and action.

As the online media industry emerges, sound skills are becoming increasingly important and in demand, for example audio engineers, foley artists and music editors. The skills you develop in this unit will help you to progress to employment in the music industry and to higher education.

Learning aims

In this unit you will:

- A** Understand the use of music and sound in media products
- B** Develop sound for use in media products
- C** Develop music for media products.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Understand the use of music and sound in media products	A1 Sound used to support media products A2 Music used to support media products	A blog exploring the use of music and sound in media products providing examples that illustrate points made.
B Develop sound for use in media products	B1 Recording and production techniques for effects and foley B2 Creativity and problem solving for sound effects creation B3 Working with different media file formats B4 Production of sound for media products	Portfolio of sound and music files and finished media product/s in an appropriate format created in response to media stimulus.
C Develop music for media products	C1 Production of music for media projects C2 Creativity and problem solving for sound effects creation C3 Working with different media file formats	

Content

Learning aim A: Understand the use of music and sound in media products

The difference between music and sound in media products.

A1 Sound used to support media products

Sounds:

- effects, actions, button clicks, rollover sounds
- voiceover, dialogue, commentary
- diegetic and non-diegetic sound
- foley
- use of libraries and pre-supplied sounds
- ambient and wild sound
- electronic versus natural.

A2 Music used to support media products

- Media products:
 - film, games, animation, adverts, apps and websites
 - interactivity of technology in different media products.
- Music:
 - music beds, intros, outros, transitions, cues, stingers, themes, backgrounds, scenes, rewards, endings and beginnings
 - melody and tonality
 - building tension
 - mood
 - themes, melodies, characters, variations
 - sense of place
 - use of commercial recordings in media products.

Learning aim B: Develop sound for use in media products

B1 Recording and production techniques for effects and foley

- Studio and production requirements:
 - microphones, sampling, capturing audio
 - portable recording devices, mobile technology
 - editing audio, use of waveform and sampler editors
 - microphone techniques, placement.
- Editing and treatments:
 - use of editing
 - techniques such as reversal, inversion, normalisation, parameter editing
 - use of effects
 - quality considerations such as level, noise, hum, hiss, clips, pops, and dynamic range.

B2 Creativity and problem solving for sound effects creation

- Creation:
 - storyboard, working on the internal structure, setting pace
 - creative use of editing, order of events and progress
 - suitability of sound for screen images and footage
 - creative problem solving (creating sounds that don't exist in the real world)
 - meeting the needs of the specified product.
- Copyright issues with the use of sound:
 - rights management, such as sample clearance, MCPS/PRS
 - acceptable idiomatic use, and understanding ownership.

B3 Working with different media file formats

File formats:

- working with file formats commonly used in film, TV and media production (consumer and professional formats), compatibility of file types and how to work across platforms
- exporting and importing files and media and the solutions to distributing and sharing large files among groups of users, locally, nationally and globally
- storing, archiving and sharing material, back-up systems and procedures, local and cloud storage solutions, shared access and file ownership, version control.

B4 Production of sound for media products

- Digital audio workstation (DAW) techniques:
 - placing material on timelines, use of time, clicks and beats
 - editing existing material
 - creative use of equalisation (EQ) and control over balance
 - creative use of on-board effects
 - mixing and balance.
- Creative use of synthesis and sampling:
 - using sound to convey atmospheres
 - use of parameters to change sound and sonic components
 - plug-ins and external sources.
- Mixing down and mastering to client expectations:
 - quality criteria for production
 - quality of finished project, noise and portability of material across devices and formats.

Learning aim C: Develop music for media products

C1 Production of music for media projects

- Sequencing techniques:
 - tracks, layers
 - musical instrument digital interface (MIDI) parts
 - use of effects such as reverb, delay
 - loops
 - storyboard/music cues
 - audio recording of acoustic/live instruments/voice.
- Copyright issues with the use of music:
 - rights management such as sample clearance, MCPS/PRS
 - acceptable idiomatic use and understanding ownership.

C2 Creativity and problem solving for sound effects creation

- Building tension.
- Mood.
- Themes, melodies, characters, variations.
- Sense of place.
- Function such as games loops, ringtones, idents.

C3 Working with different media file formats

File formats:

- working with file formats commonly used in film, TV and media production (consumer and professional formats), compatibility of file types and how to work across platforms
- exporting and importing files and media and the solutions to distributing and sharing large files among groups of users, locally, nationally and globally
- storing, archiving and sharing material, back-up systems and procedures, local and cloud storage solutions, shared access and file ownership, version control.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Understand the use of music and sound in media products		A.D1 Evaluate how music and sound techniques can support media products.
A.P1 Explain the use of sound to support media products. A.P2 Explain the use of music to support media products.	A.M1 Analyse the use of music and sound techniques to support media products.	
Learning aim B: Develop sound for use in media products		B.D2 Demonstrate high-quality, imaginative use of production, recording and file management techniques to develop sound that precisely fits the material.
B.P3 Demonstrate use of recording, production and file management techniques to capture sound relevant to media products. B.P4 Demonstrate creative solutions to solving problems during sound development.	B.M2 Demonstrate effective use of production, recording and file management techniques to develop sound.	
Learning aim C: Develop music for media products		C.D3 Demonstrate high-quality, imaginative use of production, recording and file management techniques to develop music that precisely fits the material.
C.P5 Demonstrate use of production techniques to create music relevant to media products. C.P6 Demonstrate creative solutions to solving problems during music development.	C.M3 Demonstrate effective use of recording, production and file management techniques to develop music.	

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of three summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.P2, A.M1, A.D1)

Learning aim: B (B.P3, B.P4, B.M2, B.D2)

Learning aim: C (C.P5, C.P6, C.M3, C.D3)

Further information for teachers and assessors

Resource requirements

This unit should make use of industry standard resources. For this unit, learners must have access to:

- appropriate software and hardware to develop their evidence, including software for sequencing music, editing video, recording sound effects and foley
- the sound generation equipment required to compose music.

Essential information for assessment decisions

Learners could meet the requirements for learning aims B and C by producing multiple shorter products or one more substantial media product.

Learning aim A

For distinction standard, learners will show carefully chosen and illustrative clips of media products, evaluating how music and sound convey different moods, atmospheres and textures. The examples will show the varied approaches that can be taken when creating sound and music. Learners will compare and contrast examples from different types of media product to evaluate the effective use of sound and music for each one.

For merit standard, learners will choose a variety of examples of media products to explain how music and sound convey different moods, atmospheres and textures, but there will be little analysis of this. Examples of different media products will be provided with an analysis of the contrast in use of sound and music.

For pass standard, learners will choose limited examples of media products to explain how sound and music are used to convey moods, atmospheres and textures. Limited examples of media products will be provided where learners focus mainly on one type of product to highlight the use of sound and music.

Learning aim B

For distinction standard, learners will record and create high-quality sound for specified media products that show imagination and fit exactly with the requirements of the product. Learners will handle both the creative challenge and the technical requirements with confidence and full attention to detail. Files will be submitted in formats that are appropriate to the specified media product.

For merit standard, learners will record and create sound for specified media products that show creative ideas and fit well with the requirements of the product. Learners will handle the creative and technical requirements with attention to detail. Files will be submitted in formats that are appropriate to the specified media product.

For pass standard, learners will record and create sound for specified media products that show some creative ideas and mostly fit the requirements of the product. There may be some recording/production issues but these do not detract from the overall effectiveness of the product. Files will be submitted in formats that are appropriate to the specified media product.

Learning aim C

For distinction standard, learners will record and create high-quality music for specified media products that show imagination and fit exactly with the requirements of the product. Learners will handle both the creative challenge and the technical requirements with confidence and full attention to detail. Files will be submitted in formats that are appropriate to the specified media product.

For merit standard, learners will record and create music for specified media products that show creative ideas and fit well with the requirements of the product. Learners will handle the creative and technical requirements with attention to detail. Files will be submitted in formats that are appropriate to the specified media product.

For pass standard, learners will record and create music for specified media products that show some creative ideas and mostly fit the requirements of the product. There may be some recording/production issues but these do not detract from the overall effectiveness of the product. Files will be submitted in formats that are appropriate to the specified media product.

Links to other units

This unit links to:

- Unit 2: Studio Recording Techniques
- Unit 6: DAW Production
- Unit 8: Creative Synthesis and Sampling
- Unit 9: Composing Music.

Employer involvement

This unit would benefit from employer involvement in the form of:

- guest speakers from the computer gaming industry
- guest speakers from TV/film/radio industry
- freelance composers from gaming/TV/film/radio.

Unit 6: DAW Production

Level: **3**

Unit type: **External**

Guided learning hours: **120**

Unit in brief

Learners will develop an understanding of how a digital audio workstation (DAW) can be used creatively to produce music, manipulate audio and mix music.

Unit introduction

The digital audio workstation (DAW) has become the primary tool of much of contemporary modern music. With the right skills and knowledge, its power and accessibility allows you to create recordings of a similar standard to those heard in commercial studios, the quality and originality of which is only limited by your imagination. As well as its creative musical possibilities, a DAW can also be used for audio restoration and repair as well as for a wide range of multimedia sound work.

In this unit, you will explore how the features of a DAW can be used to create and develop your own music. You will understand some of the background principals of how a DAW works, along with the associated specialist and technical terms. To complete the assessment task within this unit, you will need to draw on your learning from across your programme.

While this unit covers the fundamental elements of working with a DAW musically, there is much more you can go on to do. The ability to use a DAW competently is central in progression to higher education music technology courses, as well as professional work in recording studios, production, composing, film music and games.

Summary of assessment

This unit is externally assessed by a set task provided by Pearson and completed under supervised conditions. The supervised assessment period is approximately 15 hours and can be arranged over a number of sessions.

The final submission will include:

- a fully produced, arranged and mixed piece of music with a 1 minute and 30-second edit
- written production notes highlighting the key creative techniques used.

The number of marks is 60.

The assessment availability is once a year in May and June. The first assessment availability is May/June 2017.

Sample assessment materials will be available to help centres prepare learners for assessment.

Assessment outcomes

AO1 Demonstrate knowledge and understanding of MIDI skills and techniques

AO2 Demonstrate knowledge and understanding of digital audio skills and techniques

AO3 Application of digital mixing and plug-ins

AO4 Be able to develop a digital audio response to a client brief with appropriate justification

Essential content

The essential content is set out under content areas. Learners must cover all specified content before the assessment.

A Digital audio

A1 The principles of digital audio

This is to gain an understanding of the terms and principles relating to digital audio and how they affect the working of a DAW.

- Binary theory, bits and bytes.
- Sampling rates, Nyquist theorem, aliasing, dither, oversampling.
- Bit depth/resolution.
- Differences between MIDI and audio files.
- Codecs and compression.
- Operating systems.
- Processor speeds.
- Random-access memory (RAM).
- Disk speed and storage.

B Explore a range of MIDI sequencing skills and techniques

B1 Inputting and editing of MIDI information

- Input from MIDI keyboard.
- Input channels.
- Step input.
- Writing in events.
- Editing of events and parts.
- Editing pages.
- Editing length, pitch, timing and velocity of notes.
- Expression, flex or stretch.
- Tools and functions.
- Sizing of MIDI objects/parts.
- Copy/paste of MIDI objects.
- Selecting and editing sounds.
- Automation.
- Software instrument editing.

B2 Setting up MIDI projects

- Use of preference menus, setting up templates and keyboard shortcuts.
- Settings on transport bar.
- Setting tempo and time signature.
- Setting locators and markers.
- Use of quantise for programming and correction.
- Use of quantising with different values.

B3 Building up MIDI projects

- Importing MIDI parts.
- Fitting imported parts to grid.
- Separating elements in parts into new MIDI parts, to include copying left hand and right hand elements of a MIDI keyboard part to separate MIDI parts, copying bass drum, snare and hi-hat elements to separate midi parts.
- Copy/paste of parts/regions.
- Playing multiple sounds from a MIDI part.
- Bouncing midi parts to create audio parts.
- Building an arrangement through copy/paste of parts.
- Use of transposition in software and from MIDI keyboard.
- Latching of MIDI controller to software – volume, pan, pitchbend, modulation.
- Continuous controllers and editing of controller input.
- Automation programming and through MIDI keyboard controller.

C Explore a range of techniques used in manipulating digital audio

C1 Importing and ripping audio

- Auditioning and importing audio files.
- Analysis of audio file in terms of tempo, pitch, noise, nul points, sampling rate and resolution.
- Ripping audio from different sources.
- Saving and organising audio files.
- Defining start and end points.
- Slicing audio files to select required object.
- Sizing objects to fit grid.
- Slicing audio to fit grid.
- Time stretching of audio parts to fit tempo.
- Combining sliced objects.
- Bouncing objects to create a new audio file.

C2 Manipulating audio

- Copy/paste of audio parts.
- Slicing out faults and patching in a repair.
- Applying pitch change to audio objects.
- Comping audio parts from different takes/slices.
- Applying audio functions – normalise, invert, reverse, pitch/time, DC offset.

D Explore techniques for processing and mixing on a DAW

D1 Digital equalisation and effects

- Using plug-ins and effect on RAM.
- Types of pass filters and equalisation (EQ).
- Editing of EQ for selection of frequencies to boost and cut and use of Q.
- Use and editing of dynamics plug-ins.
- Use and editing of reverb, delay and modulation plug-ins.
- Use and editing of specialist effects (vocoder, distortion, exciters, amp modelling).

D2 Mixing techniques

- Use of group tracks for a sub mix.
- Use of auxiliary sends for global routing to effects tracks.
- Separation of sounds using EQ.
- Use of volume and pan in stereo sound field.
- Automation of volume, pan and effects.
- Inserting effects on tracks, groups and stereo output.
- Bouncing to stereo audio file.

E Undertake creative projects on a DAW

- Applying the knowledge, skills and techniques covered to create a number of original musical pieces demonstrating their use.
- Developing finished pieces from midi and audio materials provided identifying problems and opportunities in the source material.
- Analysing the major elements required in a brief and proposing methods to respond to the brief.
- Responding to the requirements of different briefs when carrying out creative projects.
- Expressing intended outcomes linked to planning of techniques to be used.
- Making effective use of the equipment and its features to achieve stated outcomes.
- Developing musical feel through manipulation of accent, timing and feel.
- Developing musicality through selection and development of appropriate sounds, combined with mixing that provides breadth and depth to the piece with tonal separation and control of dynamics.
- Following good studio practice by saving and backing up successive iterations of the project as it progresses.

Grade descriptors

To achieve a grade a learner is expected to demonstrate these attributes across the essential content of the unit. The principle of best fit will apply in awarding grades.

Level 3 Pass

Learners are able to identify essential elements of the brief and the use of the source material. Their practical work and production notes will include valid methodology in response to the brief and the manipulation of the source material, but there will be repetition of similar techniques in the execution of the work which will be inconsistent with the requirements of the brief. Default settings for quantisation, sounds and plug-ins will be used and the mix will lack balance as well as tonal and spatial separation.

Level 3 Distinction

Learners are able to demonstrate a critical evaluation of the requirements of the brief and the use of the source material through practical work and production notes. Learners will be able to apply a range of appropriate and effective MIDI and digital audio techniques in creatively developing their work to meet the requirements of the brief. They will make optimum use of the features of the DAW, including the set-up of the project, the editing of material, the application of quantisation and the selection and manipulation of sounds. Learners will be able to select and modify equalisation, dynamics and FX in producing a well-balanced mix showing effective control of levels and both breadth and depth in the sound.

Key terms typically used in assessment

The following table shows the key terms that will be used consistently by Pearson in our assessments to ensure students are rewarded for demonstrating the necessary skills.

Please note: the list below will not necessarily be used in every assessment and is provided for guidance only.

Command or term	Definition
Analysis	Identification and explanation of musical and technical elements relevant to a brief or source material.
Brief	A requirement for a piece of music to meet a specific need.
Musical feel	The use of rhythmic devices, or manipulation of rhythmic elements in a piece, to give the music a less mechanical or metronomic sound.
Musicality	The combination of selected sounds, their arrangement and their use in a piece of music. The position of sounds in the stereo field, their prominence in the mix, and how levels and tone are controlled.
Stated intentions	A clear statement of the musical outcome in mind.

Links to other units

The assessment for this unit should draw on knowledge, understanding and skills developed:

- Unit 1: Live Sound
- Unit 2: Studio Recording Techniques
- Unit 3: Music and Sound for Media
- Unit 4: Music Technology Project
- Unit 5: Music Technology in Context
- Unit 7: Music Technology Enterprise Opportunities.

Employer involvement

This unit should make use of industry standard resources. The assessment is designed to simulate a work environment.

This unit would benefit from employer involvement in the form of:

- guest speakers, including studio technicians, composers, performers
- workshops/demonstrations by industry professionals
- webinars/remote demonstrations by studio artists/technicians
- briefs or commissions shared and explained by industry professionals.

Unit 8: Creative Synthesis and Sampling

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners will explore the creative functions of synthesisers and samplers in making music and sound design.

Unit introduction

From behind banks of keyboards and tangles of cables, musicians have often explored the fundamentals of sound through electronic means. Stepping up from using pre-set sounds and tweaking and improving what you hear is a sure-fire way to help make your music stand out. Understanding the parameters that can be controlled and changed with the buttons and faders that feature on synthesisers and samplers opens up exciting possibilities of sound creation and manipulation.

In this unit, you will learn how to use synthesisers and samplers along with the language used to describe sound. From physical experiments on strings and pipes, through to analogue and digital electronics, you will look at how sound can be created, changed, bent and manufactured into anything a creative musician could hope for.

This unit establishes clear principles for further development to higher education and employment in the field of sound design, engineering, composing and producing.

Learning aims

In this unit you will:

- A** Understand the functions of synthesisers and samplers
- B** Explore the use of synthesisers and samplers to create, capture and manipulate sounds
- C** Carry out the production of music using synthesisers and samplers.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Understand the functions of synthesisers and samplers	A1 Fundamentals of synthesisers and samplers	A guide to the user interface of synthesisers and samplers.
B Explore the use of synthesisers and samplers to create, capture and manipulate sounds	B1 Editing functions B2 Saving and cataloguing sounds B3 Waveform editing B4 Creating instruments	Learners produce sample packs – hits, loops, sounds and instruments – created using synthesisers and samplers.
C Carry out the production of music using synthesisers and samplers	C1 Creation of new sounds and familiarity C2 Musical ideas	Completed musical piece based on original sounds and samples.

Content

Learning aim A: Understand the functions of synthesisers and samplers

A1 Fundamentals of synthesisers and samplers

- User interfaces (UI), how synthesisers and samplers present their functionality to the user.
- Components of common synthesisers:
 - oscillators offering frequency, waveform and colourisation/timbre controls, phase and phase cancellation
 - filters including high, low, band and notch pass filtering, filter envelopes and resonance
 - amplifiers at various stages in the synthesis engine, using analogue (attack, decay, sustain, release) and digital envelopes.
- Principles of subtractive synthesis and other types of synthesis:
 - common synthesis flow chart from oscillator, through filter to amplifier and how low-frequency oscillator (LFO), filter envelope and amplifier envelope shape the sound, how filter resonance can be used
 - types of synthesis: additive, subtractive, granular, frequency modulation (FM), wavetable, physical modelling
- Sampler considerations:
 - sample/bit rates, the effect of digital fidelity on audio quality, storage and usability, Nyquist theory, aliasing
- Common sampler functions:
 - trim, reverse, crossfade loop, normalise, slice, zero-crossing, key mapping, layering, time stretching.

Learning aim B: Explore the use of synthesisers and samplers to create, capture and manipulate sounds

B1 Editing functions

- Parameters and change:
 - approaches to changing parameters, mapping effects to controls, combining two, three or more parameter changes using knobs, faders, pots, touchpads and ribbon controllers, recognising changes to sounds aurally, using language to describe changes to timbre.
- Editing functions, including oscillator, amplifier, filter, envelope generator, LFO, modulation.
- Onscreen approaches to patching, patch-bay, patching on screen, monophonic, polyphonic.
- Editing onscreen:
 - graphical and numerical representations of parameters, using onscreen tools.

B2 Saving and cataloguing sounds

- Approaches to storage and recalling sounds:
 - working with older equipment, saving and recalling sounds in synthesisers' onboard memory, use of memory cards, cartridges, disks, hard disk storage, benefits of using virtual synthesisers for storage and recall of sounds.
- Storage and recall:
 - naming and cataloguing systems, such as different kinds of piano and different levels of distortion for guitars
 - building libraries of sounds and samples for original projects
 - accessing sounds from inside a digital audio workstation (DAW).

B3 Waveform editing

Manipulation of waveforms;

- exploring computer waveform displays, sample start and endpoints loops and looping, selections, regions, level, normalisation, parameters for editing and functions for treating waveforms during editing, chopping/slicing hit points, transients, zero-crossing
- samples and keyboards, sample playback, time-stretching and concepts of timing and tuning.

B4 Creating instruments

Building instruments:

- collecting and saving sounds, labelling and titling, targeted and focused collection of sounds for a specific purpose
- concepts of key zones, groups, file organisation, multi-sampling, velocity layers, one-shot, reverse
- balancing sounds into instruments through the editing of volume, pan, filter, LFO, modulation, hold and voices

Learning aim C: Carry out the production of music using synthesisers and samplers

C1 Creation of new sounds and familiarity

Creating original sounds appropriate to the style of the musical project:

- instrumental sounds, abstract sounds, realistic sounds, synthesised sounds
- sampled sounds, instruments that sound realistic, instruments using samples to create a different sound, drum and percussion instruments from real instruments or recorded sounds
- recognisable sounds and ubiquity, sample clearance.

C2 Musical ideas

Arranging skills:

- awareness of structure, idiom, texture, combining synthesis and sampling techniques in the same musical project
- sound palette, tonal intention, audio spectrum
- balance of synthesiser and sampler instruments in final production.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Understand the functions of synthesisers and samplers		A.D1 Evaluate the components and considerations of synthesisers and samplers.
A.P1 Explain the sound creation components of synthesisers.	A.M1 Analyse the components and considerations of synthesisers and samplers when capturing and creating sound.	
Learning aim B: Explore the use of synthesisers and samplers to create, capture and manipulate sounds		B.D2 Demonstrate the accomplished use of synthesisers and samplers to create, capture and manipulate sounds.
B.P2 Demonstrate competent use of editing functions of synthesisers and samplers.	B.M2 Demonstrate the effective use of synthesisers and samplers to create, capture and manipulate sounds.	
Learning aim C: Carry out the production of music using synthesisers and samplers		C.D3 Create original, imaginative sounds for music production, using synthesisers and samplers confidently.
C.P3 Create appropriate sounds for music production, using synthesisers and samplers.	C.M3 Create original sounds for music production, using synthesisers and samplers effectively.	

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and further information can be found on our website.

There is a maximum number of two summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.M1, A.D1)

Learning aims: B and C (B.P2, C.P3, B.M2, C.M3, B.D2, C.D3)

Further information for teachers and assessors

Resource requirements

This unit should make use of industry standard resources.

For this unit, learners must have access to synthesisers and samplers, in either stand-alone or software versions, to allow them to complete the essential practical activities required by the unit.

Ideally, learners should experience stand-alone synthesisers that demonstrate the fundamentals discussed in the unit through physical interaction, and soft synths that may offer a more accessible and manageable approach to the subject. Although the unit focuses on subtractive synthesis and the features of most samplers, centres may benefit from offering a range of equipment that allows learners to experience a range of approaches and methodologies.

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will evaluate the ways in which the components of synthesisers and user interfaces allow sounds to be created and edited, giving detailed and relevant examples from various synthesiser types. Learners will show an in-depth understanding of synthesis theory and its relationship to most synthesis types, comparing the differences in the ways that common components are used in the different methods of synthesis.

Learners will evaluate the ways in which a sampler can be used to create sounds, with detailed reference to the considerations of how high-quality sounds are captured. Learners will provide fully relevant examples of common sampler functions.

For merit standard, learners will analyse the ways in which the components of synthesisers and user interfaces allow sounds to be created, giving relevant examples from various synthesiser types. Learners will show a clear understanding of synthesis theory and its relationship to some synthesis types, analysing the ways that common components are used in the different methods of synthesis.

Learners will analyse the ways in which a sampler can be used to create sounds, including the considerations of how high-quality sounds are captured. Learners will provide some relevant examples of common sampler functions.

For pass standard, learners will explain the ways in which the components of synthesisers and user interfaces allow sounds to be created, giving some examples from two synthesiser types. Learners will show an understanding of synthesis theory and its relationship to two synthesis types, identifying the ways that common components are used.

Learners will explain the ways in which a sampler can be used to create sounds and show some knowledge of how high-quality sounds are captured, outlining common sampler functions but with few examples.

Learning aims B and C

For distinction standard, learners will demonstrate the creation of a library of sounds from various types of synthesiser and a sampler, showing highly organised standards in the storage, cataloguing and naming conventions. Learners will show that they clearly understand the use of synthesiser parameter editing, and will demonstrate detailed practical understanding of the main editing functions used to create sounds, across a wide variety of synthesis types.

Learners will create fully functioning sampler instruments and samples, showing accomplished skills and knowledge in the manipulation of sound files and waveforms. Highly effective editing will ensure these can be played back or triggered across note ranges as required, with controls such as volume, pan, filter and modulation used to balance the sounds.

Learners will showcase a fully creative use of their created sounds and sample instruments in a piece of music. There will be an imaginative blend of original and realistic sounds demonstrated, that show balance in the sound palette, tonal intention and audio spectrum. All sampled sounds used will either be original or knowledge of sample clearance will be demonstrated effectively.

For merit standard, learners will demonstrate the creation of a library of sounds from various types of synthesiser and a sampler, showing effective organisation in the storage, cataloguing and naming conventions. Learners will show some understanding in the use of synthesiser parameter editing and will demonstrate practical understanding of the main editing functions used, to create sounds across a variety of synthesis types.

Learners will create one or two sampler instruments and some samples, showing effective skills and knowledge in the manipulation of sound files and waveforms. Effective editing will ensure these can be played back or triggered across note ranges as required, with some controls such as volume, pan, filter and modulation used to balance the sounds.

Learners will showcase mostly creative use of their created sounds and sample instruments in a piece of music. There will be a good blend of original and realistic sounds demonstrated, that show balance in the sound palette, tonal intention and audio spectrum. Most sampled sounds used will either be original or knowledge of sample clearance will be demonstrated to some extent.

For pass standard, learners will demonstrate the creation of a limited library of sounds from two types of synthesiser and a sampler, showing appropriate organisation in the storage, cataloguing and naming conventions. Learners will show some understanding in the use of synthesiser parameter editing, but there may be places where they have just adjusted controls without knowing how this affects the sound. They will demonstrate limited practical understanding of the main editing functions used to create sounds across a variety of synthesis types, but may be able to create a few useful sounds.

Learners will create a sampler instrument and some samples, showing basic manipulation of sound files and waveforms. Basic editing will ensure these can be played back or triggered across some note ranges, with limited controls such as volume, pan, filter and modulation used to balance the sounds.

Learners will use their created sounds and sample instrument in a piece of music that allows them to be heard clearly. There will be some blending of sounds and a basic balance in the sound palette, tonal intention and audio spectrum. The sampled sounds may be original or there will be identification of sample clearance needed.

Links to other units

This unit links to:

- Unit 3: Music and Sound for Media
- Unit 6: DAW Production
- Unit 10: Remixing and Reworking
- Unit 16: Commercial Music Production
- Unit 18: Working and Developing as a Production Team.

Employer involvement

This unit would benefit from employer involvement in the form of:

- guest speakers including technicians, digital software developers
- workshops and demonstrations by producers and performers
- webinar/demonstrations by producers and performers.

Unit 10: Remixing and Reworking

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners explore and carry out the skills required to create effective remixes and reworks of existing musical material.

Unit introduction

The art of the remix is now firmly established in the musical mainstream, as well as continuing to be the favoured form of musical expression for the underground music scene. An effective remix can launch the career of a singer or band by capturing new audiences, broaden the career options for a talented DJ and provide the soundtrack to countless club nights around the world.

In this unit, you will experiment with unique, creative digital audio workstation (DAW)-based techniques associated with remixing. The skills learned will enable you to manipulate music in highly technical and innovative ways, and you will create a portfolio of contrasting remixes and reworks using a wide range of creative audio and musical instrument digital interface (MIDI) sequencing techniques.

These skills will not only contribute towards the careers of the aspiring producer and DJ, but also roles such as sound engineering, composing for media, audio post-production and song writing.

Learning aims

In this unit you will:

- A** Understand a variety of remixing techniques
- B** Explore, by developing and reviewing, remixing styles and production techniques
- C** Carry out a remix using audio and MIDI sequencing techniques.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Understand a variety of remixing techniques	A1 Audio sequencing techniques for remixing A2 MIDI sequencing techniques for remixing A3 Characteristics of a successful remix	Reviews of remixes deconstructing the techniques, which could take the form of: <ul style="list-style-type: none"> • a magazine article in a music technology publication • a presentation • a video or radio review show.
B Explore, by developing and reviewing, remixing styles and production techniques	B1 Exploring and creating different types of remixes B2 Exploring and experimenting with different types of production techniques associated with remixing B3 Reflecting on production techniques associated with remixing	A folder of remix sketches which could be submitted as: <ul style="list-style-type: none"> • MP3s • audio on a social music sharing site • CD • DAW project folders. • a reflective blog evaluating remixing production processes.
C Carry out a remix using audio and MIDI sequencing techniques	C1 Planning and preparing for a remix C2 Producing finished remixes	Finished remixes, which could be submitted as: <ul style="list-style-type: none"> • MP3s • audio on a social music sharing site • CD • DAW project folders.

Content

Learning aim A: Understand a variety of remixing techniques

A1 Audio sequencing techniques for remixing

- Choosing parts for a remix
 - slicing stems and parts: rearranging audio to create new material, choosing and editing parts
 - looping audio: crossfading, zero crossings, beats per minute (BPM) matching
 - archiving and saving samples and loops.
- Using effects and dynamic range processors to process stems, parts and loops
 - isolating musical material with equalization (EQ)
 - 'chopping and screwing' audio with creative effects chains
 - noise-reduction techniques
 - advanced creative automation of effects and dynamic range processors
 - creating and saving effects chains.

A2 MIDI sequencing techniques for remixing

- Manipulating MIDI for a remix
 - MIDI effects, e.g. arpeggiators, note repeat, chord triggers, velocity, randomisers
 - sampling: creating playable MIDI instruments from audio.
- Musical components of a remix
 - identifying the key, time signature and tempo of parts, stems, acapellas
 - writing new parts to fit with existing musical material, e.g. chord progressions, riffs, drum parts
 - selecting appropriate MIDI software instruments, samples and patches for a remix
 - recording new parts for a remix, e.g. vocals, guitars, bass, synths, drums.

A3 Characteristics of a successful remix

- Appropriate techniques relevant to genre
 - sampling and synthesis for dance, hip hop, electronic dance music (EDM)
 - audio time stretching, flexing and warping for all types of remixes
 - vocal and instrument edits for reworking and remixing song-based music
 - increasing tempo for all types of dance remixes and reworks
 - glitching and stutter effects and edits for all types of EDM remixes, e.g. glitch hop, dub step, house, techno
 - rewriting parts for dance remixes, e.g. bass, chords.
- Appropriate structure relevant to genre
 - Appropriate length of intro for 'DJ friendly' remixes.
 - Song-based structure for 'radio friendly' remixes.
 - Minimal/circular/repetitive structure for house, techno and trance.
 - Builds, drops and breakdowns for all types of EDM remixes.
- Appropriate 'production values' relevant to genre
 - bright instrumentation and mix for mainstream remixes
 - experimental instrumentation for alternative/'leftfield' remixes
 - 'gritty', bass-driven instrumentation and sonic palette for underground remixes.

Learning aim B: Explore, by developing and reviewing, remixing styles and production techniques

B1 Exploring and creating different types of remixes

- Types of remix
 - vocal based, loop based, reworks, re-edits, mash-ups, covers, dub mixes, 'unofficial' remixes using the full mix
 - target market, e.g. mainstream radio, club remix, underground, indie scene
 - purpose of a remix, e.g. 'guerrilla'/unofficial remix, commissioned, competitions, new market.
- Structures
 - song based, minimalist dance, experimental.
- Remix ideas:
 - Range of remix sketches
 - eight-bar loop with drums, additional percussive element, melody, chord sequence, bass, sound effects
 - 16 bars with vocal sample/vocal edit and chord sequence
 - chorus and verse section of original track with reworked chord sequence and drums
 - a folder of complex audio edits of different sections of the original track that have been beat matched and bounced in preparation for a remix project.

B2 Exploring and experimenting with different types of production techniques associated with remixing

- Production techniques
 - effects and dynamics processors, e.g. reverb, delay, modulation effects, compression, transient shaping
 - audio editing, e.g. micro edits, glitching, stutter effects
 - MIDI editing, e.g. drum rolls, stutter effects, re-pitching, MIDI effects processing.
- Software
 - pros and cons of different software packages, creative effects processing; glitching effects, modulation effects, drum machines, soft-synths.
- Hardware
 - synths, drum machines, mobile devices, tablets, phones and mobile recorders, handheld digital audio recorders
 - external control, e.g. MIDI keyboards and controllers, mapping, triggering clips and parts.

B3 Reflecting on production techniques associated with remixing

- Identifying successful techniques for different genres.
- Cataloguing production techniques for a range of remixes.
- Critical listening and annotation/recording/note taking to help evaluation process.

Learning aim C: Carry out a remix using audio and MIDI sequencing techniques

C1 Planning and preparing for a remix

- Planning a remix
 - project management, e.g. time constraints, budgets, client satisfaction
 - DAW management, e.g. templates, preparing stems and parts
 - creative management and musical direction, e.g. sonic palette, genres, styles, 'music scenes', reference tracks.
- Creating a remix
 - structure and arrangement, e.g. drops, builds, song structure (radio), extended version (club/underground)
 - creative discipline: utilising 'chance' and 'happy accidents', self-imposed limitations, receiving and managing feedback.

C2 Producing finished remixes

- Finishing a remix
- length, e.g. club mix, radio mix
- mixing and mastering, e.g. aux/buses/sends, limiting and maximising
- file types, e.g. bouncing down, MP3s, dithering
- 'sharing', e.g. cloud-based storage, social networking sites, physical media.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Understand a variety of remixing techniques		A.D1 Evaluate how the audio and MIDI sequencing techniques chosen for remixes contribute to the overall effectiveness of the material for the chosen audience, using advanced terminology and structure correctly.
A.P1 Explain how the audio and MIDI sequencing techniques chosen for remixes contribute to the overall effectiveness of the material for the chosen audience, using basic terminology.	A.M1 Analyse how the audio and MIDI sequencing techniques chosen for remixes contribute to the overall effectiveness of the material for the chosen audience, using the correct terminology and structure.	
Learning aim B: Explore, by developing and reviewing, remixing styles and production techniques		B.D2 Select appropriate styles and production techniques and produce innovative, original remix ideas to near professional standards that are justifiable.
B.P2 Select appropriate styles and production techniques and produce original remix ideas that are justifiable.	B.M2 Select appropriate styles and production techniques and produce original remix ideas to a high standard that are justifiable.	
Learning aim C: Carry out a remix using audio and MIDI sequencing techniques		C.D3 Produce finished remixes that demonstrate the creative use of audio and MIDI production techniques to a near-professional standard of accuracy.
C.P3 Produce finished remixes demonstrating appropriate styles and accurate audio and MIDI production techniques to an acceptable standard of accuracy.	C.M3 Produce finished remixes that demonstrate effective and creative use of appropriate styles and audio and MIDI production techniques to a high standard of accuracy.	

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of three summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.M1, A.D1)

Learning aim: B (B.P2, B.M2, B.D2)

Learning aim: C (C.P3, C.M3, C.D3)

Further information for teachers and assessors

Resource requirements

This unit should make use of industry-standard resources.

- For this unit, learners must have access to:
 - computers with appropriate software installed, such as an iMac with Logic Pro X, a PC with Cubase, laptops with Ableton
 - MIDI keyboards and headphones
 - music technology magazines, books and online resources.
- Additional desirable resources are:
 - access to the internet to obtain audio samples
 - additional audio material such as vocal sample sound packs and acapellas
 - specialised MIDI controller hardware such as drum 'MPC style' pads.

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will produce relevant evidence of in-depth research into how and why specific techniques are used in the remixing process, and how they contribute towards the overall effectiveness of the remix. Learners will be able to successfully identify complex technical production processes in a remix, and compare and contrast these with other techniques. The evaluation will be professional, logically structured, use the correct terminology and will contain high-quality language. It will be suitable for the given audience.

For merit standard, learners will show that they have researched remixing production techniques thoroughly, and can identify the techniques used in remixes to achieve specific results. Learners will use appropriate terminology and the work will contain quality language. It will be suitable for the given audience.

For pass standard, learners will show that they have researched the remixing production techniques that are commonly used in commercial remixes. Learners will use some correct terminology, and the work will contain clear language and will be suitable for the given audience.

Learning aim B

For distinction standard, learners will develop a range of high-quality remix sketches by selecting the appropriate production techniques to achieve the desired end result, and by exploring alternate ways of achieving similar results. The sketches will demonstrate that learners have experimented fully with remix production techniques, and the ideas on show will contain stylistic and technical similarities to commercially successful remixes. Learners will review their sketches, highlighting the strengths and weaknesses of the different techniques that have been explored throughout the process. The evidence for the reviews will be professional, logically structured, use the correct terminology and contain high-quality language, and will be suitable for the given audience.

For merit standard, learners will develop quality remix sketches by selecting the appropriate production techniques to achieve the desired end result. The sketches will demonstrate that learners have experimented with remix production techniques and the ideas on show will share similarities with commercially successful remixes. The review will reflect on the techniques used and will be professional, logically structured, use mostly correct terminology and contain quality language, and will be suitable for the given audience.

For pass standard, learners will carry out some remix sketches by selecting a range of appropriate remix production techniques, and the review will be structured and use some correct language, and will be suitable for the given audience.

Learning aim C

For distinction standard, learners will plan, perform and complete high-quality effective remixes by selecting the correct remix production techniques to achieve specific results in the production process. The remixes will demonstrate that learners have been able to produce more than one type, or style, of remix, and the end result will contain stylistic and sonic similarities to commercially successful remixes. The length, format and overall presentation of the remixes will be appropriate for the target market and the learners will have conducted themselves professionally throughout the process.

For merit standard, learners will plan, perform and complete quality, effective remixes by selecting appropriate remix production techniques to achieve specific results in the production process. The remixes will have an appropriate structure, and there will be evidence of detailed audio editing and innovative manipulation of MIDI. The length, format and overall presentation of the remixes will be appropriate for the target market.

For pass standard, learners will plan, perform and complete remixes by selecting remix production techniques. The finished pieces should have an appropriate structure and contain original musical elements, such as parts made with software instruments, as well as audio loops. The remixes will be presented in an appropriate format.

Links to other units

This unit links to:

- Unit 6: DAW production
- Unit 9: Composing Music
- Unit 13: Mixing and Mastering Techniques
- Unit 16: Commercial Music Production.

Employer involvement

This unit would benefit from employer involvement in the form of:

- guest speakers including DJs and producers
- guest speakers from dance record labels
- workshops/demonstrations by remixers.

Unit 13: Mixing and Mastering Techniques

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

This unit aims to give learners the skills to mix and master a digital audio workstation (DAW) project to a professional standard.

Unit introduction

The audio mixing and mastering process is the crucial gateway between music creation and the end listener. It is the process by which raw recordings and song arrangements acquire their power and sheen to deliver the greatest impact to the consumer. The mixdown and mastering element of the music production process is where the sonic direction of a recorded performance is realised.

In this unit, you will gain experience in mixing down and mastering multitrack digital audio workstation (DAW) projects. You will also realise a sonic vision for a DAW project to achieve a desired sound.

These skills are an essential element of all aspects of the music and sound industry. They can open the door to many career paths, including mix engineer for music, mastering engineer, audio post-production for film and television, and elements of radio broadcast.

Learning aims

In this unit you will:

- A** Understand mixing and mastering software techniques
- B** Develop a mixdown of a multitrack project
- C** Carry out the production of a mastered stereo audio file.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Understand mixing and mastering software techniques	A1 Mixdown effects, dynamics and processing techniques in the DAW A2 Mastering effects, dynamics and techniques in the DAW	A written article or blog post explaining the mix and mastering software in their chosen DAW.
B Develop a mixdown of a multitrack project	B1 Deciding the sonic direction of a DAW project mixdown B2 Realising the sonic direction of a DAW project mixdown	A complete DAW mixdown demonstrating the use of appropriate equalisation (EQ), effects and dynamics processing. A reflection of the process and results, comparing the sonic aims to the final product. This should include a comparison to commercial reference tracks.
C Carry out the production of a mastered stereo audio file	C1 Applying mastering techniques C2 Creating a finalised mastered audio file	A stereo master .wav or .aiff file bounced to 0.5-0 dB at 44.1 kHz. Diary of events and decisions made with a conclusion of the end product. This should include a comparison to commercial reference tracks.

Content

Learning aim A: Understand mixing and mastering software techniques

A1 Mixdown effects, dynamics and processing techniques in the DAW

An introduction to the mixing techniques and software available in the DAW environment, including:

- mixing with parametric channel EQ
 - parametric channel EQ
 - bell and shelf EQ curves
 - adding 'air'
 - cleaning up problem frequencies with subtractive EQ
 - high-pass and low-pass filtering
- compressors and advanced compression techniques
 - field-effect transistor (FET), optical and tube sounds
 - channel, bus and mix compression
 - parallel compression
 - sidechain hi pass filter compression
 - creative sidechain compression
- using a noise gate
 - basic noise gate settings and techniques to clean up tracks.
 - advanced creative noise gate techniques to create rhythmic patterns
- effects processing in the mix
 - creating depth and space with reverb
 - parallel processing with distortion to add warmth and harmonics to vocals and instruments
 - using delay to create width for mono tracks.
- monitoring audio quality in the mix
 - using metering software
 - checking phase correlation for instruments and multi mic recordings.

A2 Mastering effects, dynamics and techniques in the DAW

An introduction to the mastering techniques and software available in the DAW environment, including:

- mastering EQ techniques
 - the difference between linear phase and regular EQ
 - mid-side EQ fundamental principles
 - Pultec style smile EQ curves and attenuation
- using a brick wall limiter
 - setting levels to 0 dB
 - perceived loudness versus dynamic range
- master bus compression
 - hi-pass filtering
 - gelling the mix together
 - mid-side compression techniques
- multiband compression
 - taming frequencies using the multiband compressor
 - enhancing frequencies using the multiband compressor
 - levelling the energy of the track in the master using the frequency band compressors
- enhancing the stereo width
 - using stereo width plugins
 - processing left and right channels separately
 - mid side level adjustments and processing.

Learning aim B: Develop a mixdown of a multitrack project

B1 Deciding the sonic direction of a DAW project mixdown

This is designed to give learners focus in their approach to mixing a multitrack project by deciding the overall aims of the mix.

- Live recorded multitracked music:
 - rock metal and indie guitar music
 - jazz and funk
 - orchestral music, such as classical and film scores
 - pop rock containing mixed elements.
- Electronic sounding music:
 - electronic pop
 - hip hop/urban
 - dance
 - electronic dance music (EDM).
- What are the main sonic qualities achieved in the genre?
 - Up-front 'in your face' mix.
 - Wet washed-out mix.
 - Bass heavy.
 - Loud and processed.
 - Atmospheric.
 - Natural, live-sounding performance.

B2 Realising the sonic direction of a mixdown project

Using mixing software and techniques to achieve the desired sound and clarity considering:

- compression techniques:
 - heavily compressed
 - tamed dynamics in the channel for a natural sound
 - subtle to zero compression to preserve dynamic elements of the music
 - parallel compression to bring definition to elements in the mix
- isolated or open instrumentation:
 - gated live separated sounds for greater control
 - naturally open sounds with little separation
- sonic signature of the music:
 - clean and clear with little to no colouration and detailed transients
 - warm with subtle added harmonics
 - lo-fi elements using EQ and distortion effects
- referencing the mix to relevant material:
 - does the mix fit into a genre?
 - does the overall sound and feel compare to professional recordings?
- checking sonic impact and clarity on various available sound systems including:
 - headphones
 - studio monitors
 - personal address (PA) systems
 - mono systems checking phase issues.

Learning aim C: Carry out the production of a mastered stereo audio file**C1 Applying mastering techniques**

Achieve the perceived sound level and quality expected in the modern age of digital music using:

- mastering dynamics software and techniques:
 - bus compression in practice
 - limiting in practice
 - multiband compression in practice
- mastering EQ techniques:
 - checking for and fixing problem frequencies
 - enhancing the mix with linear phase EQ
- adding width to the overall sound using:
 - stock DAW stereo width software
 - mid side processing techniques
 - processing left and right channels separately with EQ and dynamics.

C2 Creating a final mastered audio file

Bouncing the processed audio file to create a final master, including:

- specified sample rate (44.1 kHz, 48 kHz, 96 kHz)
- specified bitrate (16, 24)
- dithering where necessary, including the use of different algorithms
- file type (.aif, .wav, .mp3, flac)
- bouncing to 0 dB peak threshold (−0.2 dB acceptable).

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Understand mixing and mastering software techniques		A.D1 Evaluate how mixing and mastering techniques are used in a DAW to produce a mastered, stereo audio file.
A.P1 Describe how mixing techniques are used in a DAW. A.P2 Discuss the need for mastering audio files.	A.M1 Analyse how mixing and mastering techniques are used in a DAW to produce a mastered, stereo audio file.	
Learning aim B: Develop a mixdown of a multitrack project		B.D2 Demonstrate how to mix multitrack audio creatively and confidently, showing a thorough understanding of the process involved.
B.P3 Demonstrate how to mix multitrack audio showing a basic understanding of the process involved.	B.M2 Demonstrate how to mix multitrack audio confidently showing a clear understanding of the process involved.	
Learning aim C: Carry out the production of a mastered stereo audio file		C.D3 Produce a bounced, mastered stereo audio file showing a thorough understanding of the process involved with a detailed understanding of the source material.
C.P4 Produce a mastered stereo audio file showing a basic understanding of the process involved with consideration of the source material. C.P5 Select appropriate software settings to create a bounced, mastered, stereo file based on specified criteria.	C.M3 Produce a bounced, mastered stereo audio file showing a clear understanding of the process involved with appreciation of the source material.	

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of three summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.P2, A.M1, A.D1)

Learning aim: B (B.P3, B.M2, B.D2)

Learning aim: C (C.P4, C.P5, C.M3, C.D3)

Further information for teachers and assessors

Resource requirements

This unit should make use of industry-standard resources.

For this unit, learners must have access to:

- PC or Apple® Mac systems running DAW software capable of multitrack mixing and mastering
- multitrack DAW unprocessed song files to manipulate
- reference music, ideally to coincide with the DAW projects provided for the learners to mix and master
- monitoring headphones to use on personal computer systems
- ideally, a recording studio facility with an acoustically treated control room, studio monitor speakers and a mixing console.

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will produce an evaluation of the mixing and mastering software available in the DAW. They should include dynamics, EQ and effects and make references to any research. They will use examples of situations in which each tool will be used and an assessment of the effectiveness of each tool using techniques in practice should be a prominent feature of the article.

For merit standard, learners will have analysed how advanced mixing and mastering techniques and software can be used to produce a mastered, stereo audio file. Learners will provide, where appropriate, a comparison of different software. An example of this would be limiting versus compression when used to level the dynamics of a track.

For pass standard, learners will produce a clear and concise description of the advanced software available for mixing and mastering techniques in the DAW. Learners will communicate the ideas in such a way as to show a basic understanding of the main mixing and mastering software available in the DAW, clearly demonstrating knowledge of when and how they are used. The need for mastering audio files will also be discussed.

Learning aim B

For distinction standard, learners will produce a professional mixdown that clearly meets the planned sonic direction decided by learners. All technical decisions will be clearly evidenced and learners will demonstrate a thorough understanding of the software and techniques used in their application. The work will show a high level of creativity as well as excellent overall quality.

For merit standard, learners will produce a high-quality mixdown that meets the overall planned sonic direction intended. Learners will apply appropriate software and techniques to achieve desired outcomes throughout the project and show a clear understanding of the techniques involved. The completed mixdown will be to a very high overall sonic quality with good balance and levels, and will show a degree of creativity.

For pass standard, learners will produce a basic mixdown that largely satisfies the planned sonic direction of the mix and demonstrates a basic understanding of the process involved. The final mixdown will demonstrate the right approach to the use of applied mixdown software and techniques and show an understanding of the use of dynamic processors, EQ, stereo width and effects to achieve a completed stereo audio file. All technical decisions will be clearly evidenced in the form of a diary or conclusion.

Learning aim C

For distinction standard, learners will produce a mastered audio file with noticeable sonic enhancements when compared to the original raw mix file. They will have implemented mastering software and techniques to great effect, and the finished audio file will show the near-professional sonic qualities of reference material in the same genre as the raw mix. Mastering software and techniques will have been done with a good level of creativity to make the finished piece compare well to commercial reference tracks in the genre. All technical decisions will be clearly evidenced and learners will demonstrate a thorough understanding of the software and techniques used in their application.

For merit standard, learners will produce a mastered audio file showing a high grasp of the core concepts behind mastering EQ, dynamics and effects, demonstrating their use to good effect. The mastered file will show sonic enhancements when compared to the original mix file and have no signs of 'squashing' or distortion (unless planned for effect). The finished audio file will compare well to reference tracks within the genre and learners will evidence any technical decisions and difficulties encountered in the process.

For pass standard, learners will produce an assignment demonstrating the use of key mastering techniques in order to produce a mastered audio file. The finished mastered audio file will be sonically good, bounced and dithered to 16 bit 44.1 kHz red book standard (or centre defined standard) at -0.2 to 0 dB as a benchmark. There may be some signs of audible distortion or otherwise undesirable artefacts, but the work will show an overall understanding of the techniques used in the mastering process.

Links to other units

This unit links to:

- Unit 2: Studio Recording Techniques
- Unit 3: Music and Sound for Media
- Unit 6: DAW Production
- Unit 10: Remixing and Reworking
- Unit 16: Commercial Music Production
- Unit 18: Working and Developing as a Production Team.

Employer involvement

This unit would benefit from employer involvement in the form of:

- guest speakers from music engineers/film/TV and radio
- workshops/demonstrations by studio engineers/technicians
- webinars by professional mix engineers.

Unit 14: Studio Design and Acoustics

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners explore recording studio design through understanding sound wave behaviour, the human hearing response to music and methods of acoustic control.

Unit introduction

Wherever we make music it exists in an acoustic space, a place, a venue or the space in our heads through our headphones. All the sound we hear reflects the space we hear it in. Recording studios can now take many forms, from bedrooms and rehearsal spaces, to churches and stately homes. As technology advances, we can control and manipulate the acoustic space to enhance what we hear. Understanding the fundamentals of acoustics and studio design is valuable for any musician, producer or engineer at a time when the need to record in a variety of environments, and with a variety of budgets, while retaining high quality sound, is vital.

In this unit, you will gain knowledge of the principles of sound and an awareness of the impact acoustics have on the creation of music. You will understand how the human ear interprets sound, and how sound behaves in recording spaces, such as a studio control room. You will be able to suggest improvements to the acoustics of that space through experiment, measurement and calculation.

In order to progress to employment as a recording engineer, producer or musician you will need to gain knowledge in a variety of key areas in the field of acoustics and studio design so that you can work effectively in contemporary music production. This unit will prepare you for possible music or media production work placements, degree courses or music industry opportunities on a freelance basis.

Learning aims

In this unit you will:

- A** Understand the principles of sound for music production
- B** Examine how we hear music and sound
- C** Examine design and construction of spaces for music production.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Understand the principles of sound for music production	A1 Understanding complex musical sound movement through air	Videod practical activities and use of music production software captured by screenshots/casts.
B Examine how we hear music and sound	B1 Hearing structure and function B2 Limits of perception and psychoacoustics	A seminar for music producers on the relationship between our hearing mechanism and music. The seminar should include a presentation, practical activity, audio examples, images and handouts.
C Examine design and construction of spaces for music production	C1 Room colouration C2 Design methods	A technical report that proposes a design of acoustic treatment for a music studio created in a space of your choice.

Content

Learning aim A: Understand the principles of sound for music production

A1 Understanding complex musical sound movement through air

- Sound production by musical instruments:
 - harmonic series:
 - building the harmonic series from fundamental (1st harmonic)
 - working out the frequencies of harmonics
 - comparing the harmonic series (just intonation) with other tuning systems (equal temperament)
 - attributes of timbre:
 - sine wave theory, how adding sine waves of different frequencies change timbre
 - construction of wave shapes using sine waves and using software to draw wave shapes from formulae
 - octaves
 - Fourier/harmonic analysis
 - phase relationships.
- The physical make-up of air and the characteristics that have an impact on recording:
 - air particles
 - wavelength and frequency
 - defining sound
 - amplitude
 - noise and music
 - vibration.
- Common issues around studio spaces and their explanations:
 - standing waves
 - reflections
 - compression
 - rarefaction
 - considerations around the choice of materials for studio construction:
 - absorption coefficients
 - bass traps
 - parallel walls.

Learning aim B: Examine how we hear music and sound

B1 Hearing structure and function

- The physical components of the ear:
 - outer ear, middle ear and inner ear
 - how the bones in the middle ear move and convert sound from the eardrum to the inner ear
 - testing the sensitivity and hearing range of the human ear using hearing tests and oscillators.
- Hearing damage and protection:
 - issues of health and safety, noise control and hearing protection
 - noise-induced hearing loss, tinnitus, hearing protection types (musicians' earplugs)
 - current health and safety legislation, responsibility for hearing protection, employer responsibility and responsibility when self-employed.

B2 Limits of perception and psychoacoustics

- Decibels, how loudness is measured and what common terminology means:
 - twice as loud
 - powerful
 - loudness
 - loudness buttons
 - Fletcher-Munson equal-loudness contour
 - comparing headphones and audio systems.
- Frequency spectrum depending on age (20 Hz to 20 kHz).
- Response to frequency output of musical instruments:
 - musical instrument loudspeakers compared and explored.
- Sound localisation:
 - the Haas/precedence effect
 - the Doppler effect.

Learning aim C: Examine design and construction of spaces for music production

C1 Room colouration

- Absorption, reflection, diffusion.
- Standing waves and modal resonances.
- Reverberation time.
- Phase relationships and comb filtering.
- Sound levels and the decibel.

C2 Design Methods

- Comparing studio designs:
 - hi-tech versus low-tech.
- Typical recording spaces:
 - school halls, sports halls, centres for worship and the problems and advantages of each.
- Live end – dead end (LEDE), Reflection-Free Zone (RFZ), non-environment, speaker placement and stereo image, listening position.
- Practical considerations, space, external noise, access.
- Customer expectations.
- Control considerations:
 - RT60 and room mode calculations, Bolt's ratios
 - placement of absorbers, diffusors and traps, soundproofing and choice of building materials
 - low-tech and DIY solutions, use of duvets, absorbent materials, furniture, people.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Understand the principles of sound for music production		A.D1 Evaluate the harmonic content of sound waves that are typically created and transmitted by a musical instrument.
A.P1 Explain, using selected examples, the creation and transmission of musical sound through air.	A.M1 Assess how sound waves are typically created and transmitted by a musical instrument.	
Learning aim B: Examine how we hear music and sound		B.D2 Evaluate how the human hearing mechanism influences our response to music heard at different frequencies and sound levels.
B.P2 Describe the structure and function of the human hearing mechanism. B.P3 Describe the frequency response of the human hearing mechanism.	B.M2 Assess how the human hearing mechanism limits our response to music heard at different frequencies and sound levels.	
Learning aim C: Examine design and construction of spaces for music production		C.D3 Justify common design methods used to control sound wave behaviour in a recording studio.
C.P4 Explain typical sound wave behaviour in an untreated recording studio. C.P5 Describe, using selected examples, commonly used recording studio design methods.	C.M3 Analyse how commonly used design methods are used to control sound wave behaviour in recording studios.	

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of three summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.M1, A.D1)

Learning aim: B (B.P2, B.P3, B.M2, B.D2)

Learning aim: C (C.P4, C.P5, C.M3, C.D3)

Further information for teachers and assessors

Resource requirements

For this unit, learners must have access to:

- suitable computers (PC or Apple Mac) with up-to-date music production software installed and a spectrum analysis software plugin
- equipment for experiments, including slinky coil, tape measure, access to adequate speaker monitoring for demonstration and headphones for private study
- word processing software for the creation of reports utilising screenshots, or equivalent.

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will evaluate the harmonic series of sound waves that are produced by a musical instrument. This will include a thorough and complete exploration of the area including comparisons, exploration of a number of hypotheses, drawing conclusions and justifying their work. Evidence will include exploration of the harmonic spectrum through analysis and with mathematical support and illustration. Learners will demonstrate that they have a clear grasp of how a wave is formed and the sequence of harmonics and octaves in relation to specific fundamental frequencies. The evaluation will be structured logically and use correct technical language and musical references.

For merit standard, learners will assess, with good use of technical language, how sound waves are produced and transmitted by a musical instrument of their choice. Audio examples could also be explored in music software in terms of waveforms that are displayed on screen. The assessment will be technically accurate and easy to understand. Some reference will be made to the wider context of recording and mixing.

For pass standard, learners will explain how sound propagates through air and the relationships among wavelength, frequency and phase. Evidence will primarily be through a report, but learners could also be encouraged to demonstrate their knowledge through a video of practical activities. Learners will demonstrate a good use of terminology, and gives accurate explanations, but the language used may not always be in-depth or look at the wider context of recording and mixing.

Learning aim B

For distinction standard, learners will evaluate how our perceptions of music can be influenced by our hearing mechanism. This will include the production of audio examples, graphs and diagrams to justify conclusions around audio phenomena. In addition, learners will assess the localisation of sound sources by exploring how the hearing mechanism detects sound from different directions. This will include an accurate summary of the changes in amplitude and timing information that is received by each ear when listening in true stereo. The evidence will be logically structured and use correct technical language and musical references. Learners will demonstrate that they have a clear grasp of this topic in the wider context of music production.

For merit standard, learners will assess the limits of perception of the human hearing mechanism, including reference to decibels, frequencies, and existing research into the human relationship with sound loudness, such as the Fletcher-Munson equal-loudness contour. Learners will evaluate why listening to music at different levels results in a variety of tonal balances. Overall, evidence will have good structure, be technically accurate and easy to understand. Reference will be made to the wider context of music production.

For pass standard, learners will create their own annotated diagrams to describe the structure and function of the human hearing mechanism. Accurate anatomical references will be made along with a description of how the outer, middle and inner ear play their part in processing sound and music. In addition, learners will explain the symptoms and causes of noise-induced hearing loss, including benchmarks for time of exposure in relation to loudness. Reference will be made to the effects of hearing loss and tinnitus on people working in the music industry. Learners will also describe the various methods that could be employed to protect hearing. Overall, learners will demonstrate accurate use of terminology, but the language used may not always be in-depth or look at the wider context of music production.

Learning aim C

For distinction standard, learners will demonstrate a justification of the control methods used to create a neutral acoustic in a music studio. Evidence will include technical plans that show the placement of absorbers, diffusors and traps that are used to control sound wave behaviour, resulting in an acoustically neutral space. Learners will also evaluate considerations involving speaker placement, stereo image and the ideal listening position for the engineer. Learners will design an acoustically treated studio control room to their own specification, to include detailed diagrams. The report will be logically structured and use correct technical language and references. Detailed reference will be made to the wider context of music production.

For merit standard, learners will analyse how the common design methods are used to control sound wave behaviour in recording studios. This must include calculation of standing waves, modal resonances and RT60 reverberation times. Analysis will focus on how an untreated studio control room might lead to mixing engineers compensating for the room colouration by making negative adjustments to the mix. Learners will design an acoustically treated studio room to their own specification, to include clear diagrams. The report will have good structure, and will be technically accurate with good use of mathematics to demonstrate understanding and application of acoustic science in a practical way. Reference will be made to the wider context of music production.

For pass standard, learners will explain the types of sound wave behaviour in a music studio that may cause room colouration. Learners will describe common design methods used to create recording studio control rooms that are planned to overcome these sound colouration issues. Learners will explore LEDE, RFZ and non-environment types of design. Learners will design an acoustically treated studio room to their own specification, to include annotated diagrams. The report will demonstrate accurate use of terminology, but the language used may not always be in-depth or look at the wider context of music production. Aspects of the design might lack accuracy and/or structure.

Links to other units

- This unit links to:
- Unit 1: Live Sound
- Unit 2: Studio Recording Techniques
- Unit 12: Music Technology in Performance
- Unit 13: Mixing and Mastering Techniques.

Employer involvement

This unit would benefit from employer involvement in the form of guest speakers from:

- studio design companies
- hearing, ear, nose and throat professionals
- studios/recording spaces.

Unit 16: Commercial Music Production

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners will explore the audio production techniques and ear-catching songwriting styles associated with commercial music.

Unit introduction

The creatively disciplined, business orientated, and highly competitive area of commercial music remains the key interest of the major financial forces behind the music industry. Commercial music is a constant in the ever-shifting musical landscape, making it highly desirable for the student of music technology to have an understanding of this key area.

In this unit, you will develop the technical skills required to produce modern, commercially driven songs, and also explore the creative techniques which help to define the sound of commercial music.

Commercial music reflects the tastes and values of the population, and continues to contribute significantly to the UK economy. This unit aims to equip learners with the techniques that will help them to compete in the world of popular music writing and production.

Learning aims

In this unit you will:

- A** Explore the creation of commercially successful music
- B** Create a finished commercial music product
- C** Review the production processes used in the creation of commercially successful music.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Explore the creation of commercially successful music	A1 Meeting professional standards in commercial music production A2 Exploring musically and technically creative processes used in commercial music production	Musical ideas which could be submitted as: <ul style="list-style-type: none"> • MP3, WAV, AIFF • digital audio workstation (DAW) projects. An evaluation which could be submitted as: <ul style="list-style-type: none"> • video tutorial • radio review show • written assignment, magazine article, reports.
B Create a finished commercial music product	B1 Responding to commercial music trends in own music B2 Creating finished commercial music	Finished piece of music and evidence of development process in the form of a DAW project folder.
C Review the production processes used in the creation of commercially successful music	C1 Evaluation of finished commercial music and the production processes used	An evaluation which could be submitted as: <ul style="list-style-type: none"> • video tutorial • radio review show • written assignment, magazine article, report.

Content

Learning aim A: Explore the creation of commercially successful music

A1 Meeting professional standards in commercial music production

- Consideration of what makes a song commercially successful:
 - structure, arrangement
 - instrumentation and lyrical content, e.g. mood, tone, dynamics, tempo, narrative/subject
 - responding to market trends and other external influences, e.g. labels, Artists and Repertoire (A&R), fan base
 - production values, e.g. polished, loud master, sound effects (SFX)/‘ear candy’
 - creative compromises versus artistic vision.
- Commercially successful music for different markets, e.g. R&B, jazz, African.
- Feedback and reflection throughout the production process:
 - meeting requirements of target market, online feedback
 - responding to creative demands – internal (writer’s block, artistic vision), external (commercial pressures, band disputes, time, costs, taste)
 - industry demands – A&R, labels, artists, publishers, fashion, celebrity, media pressure
 - reviewing own progress.

A2 Exploring musically and technically creative processes used in commercial music production

- Musically creative production processes:
 - musical starting points:
 - choosing instruments for different genres and styles – ‘real’, e.g. piano, guitar recordings in DAW and ‘virtual’ synthesisers, samplers, drum machines
 - using musical instrument digital interface (MIDI) tools for composing, e.g. arpeggiator, chord generators, note repeat
 - creating and recording parts
 - arranging for commercial markets
 - vocal elements:
 - writing lyrics – narrative-based, concept-based
 - creating melodies – top lines, hooks, chants, verse and chorus, refrains
 - vocal styles and approaches, e.g. soft verse, forceful chorus
 - sampling from other music, e.g. Gregorian chants
 - working with singers and backing singers – vocal ranges and keys, collaboration, coaching, correcting performances, co-writing
 - structural elements:
 - complex song structures – rock, folk, R&B (intro, verse, pre-chorus, chorus) and simple song structures – hip hop (verse, chorus, verse), dance (chorus and variations).
- Technically creative production processes:
 - making instrumental backing tracks:
 - experimenting with genres – dance, pop, indie, hip hop, Bollywood
 - creating and developing starting points – beats, rhythms, melodies, chords
 - recording techniques:
 - vocal production techniques – vocal coaching, vocal comping, tuning, tracking
 - instrumental production techniques – punch ins, loop points.
- Production and arrangement of vocal music:
 - making your song stand out – layered chorus, bright sonic palette, passing notes, builds, drops, SFX, vocal edits.

Learning aim B: Create a finished commercial music product

B1 Responding to commercial music trends in creation of own music

- Drawing influences from commercial trends:
 - listening to material to provide a reference point for current successful commercial music.
- Referencing commercially successful music during the production process.
- Responding to feedback.

B2 Creating finished commercial music

- Collaboration:
 - working with singers – vocal ranges and keys collaboration, coaching, correcting performances, co-writing
 - working with instrumentalists – producing in sessions
 - communicating musical/production ideas
 - effective planning – realistic and achievable goals, teamwork and collaboration (studio, rehearsal, online).
- Refining musical ideas:
 - finishing instrumental and vocal parts
 - overdubbing parts
 - embellishing production
 - stripping back production
 - finishing/rewriting lyrics.
- Finishing musical material:
 - effective planning, working to deadlines and managing time constraints, e.g. task lists, making notes
 - managing feedback – additional mix and production, making changes to material
 - rough mix/demo mix
 - final mix/radio edit.
- Perform/demonstrate finished commercial music and obtain feedback.

Learning aim C: Review the production processes used in the creation of commercially successful music

C1 Evaluation of finished commercial music and the production processes used

- Review of finished commercial music:
 - the success of the final work in meeting the requirements of commercially successful music
 - own work processes, including time planning, reaction to feedback, standard of finished piece
 - analysis of own commercial music production achievements in comparison with others, and relating these to future intentions
 - justification of decisions made and quality of own selective practice
 - lessons learned for future work.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Explore the creation of commercially successful music		A.D1 Evaluate the production techniques and processes used to create different types of commercially successful music.
<p>A.P1 Explain how production techniques and processes contribute towards the creation of different types of commercially successful music.</p> <p>A.P2 Explain the key principles underpinning the creation of commercially successful music.</p>	<p>A.M1 Analyse how production techniques and processes contribute towards the creation of different types of commercially successful music.</p> <p>A.M2 Analyse the key principles underpinning the creation of commercially successful music.</p>	
Learning aim B: Create a finished commercial music product		B.D2 Produce creative, finished, near professional quality, music for a commercial market, using a range of production techniques and processes.
B.P3 Produce finished music for a commercial market using a range of production techniques and processes.	B.M3 Produce creative, finished music for a commercial market using a range of production techniques and processes.	
Learning aim C: Review the production processes used in the creation of commercially successful music		C.D3 Evaluate how far the finished music meets the requirements of commercially successful music, making specific technical suggestions for own future skills development.
<p>C.P4 Explain how the finished music meets the requirements of commercially successful music, making suggestions for improvements.</p> <p>C.P5 Explain how own commercial music production practice can be further developed.</p>	C.M4 Analyse how the finished music meets the requirements of commercially successful music, making specific technical suggestions for how own practice can be improved.	

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of three summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.P2, A.M1, A.M2, A.D1)

Learning aim: B (B.P3, B.M3, B.D2)

Learning aim: C (C.P4, C.P5, C.M4, C.D3)

Further information for teachers and assessors

Resource requirements

This unit should make use of industry standard resources.

For this unit, learners must have access to:

- computers with appropriate software installed, such as Apple® iMac with Logic Pro XSM, Windows desktop PC with Cubase®, laptops with Ableton Live
- MIDI keyboards and headphones
- audio interfaces and microphones
- studios or pods
- music technology magazines, books or online resources.

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will produce relevant evidence of in-depth experimentation with musically and technically creative production processes. The musical sketches will be of a high quality and demonstrate that planning has taken place, be professionally presented and contain well-chosen musical elements, as well as the appropriate structure and overall production aesthetics appropriate for the styles chosen.

In addition to the practical work submitted, learners will submit suitable evidence of investigative research into commercial production techniques and processes. They will provide examples of how and why music becomes commercially successful, including reference to both the music production process, and external influences. The evidence will be professional, logically structured, use the correct terminology. It will be suitable for the given audience.

For merit standard, learners will demonstrate detailed experimentation with musically and technically creative production processes. Some of the ideas will be successful and will contain well-chosen production techniques and musical elements. The evidence of investigative research will be clearly presented and learners will show the links between the creative production process and the wider industry, in the creation of commercially successful music. This evidence will be structured, use the correct terminology. It will be suitable for the given audience.

For pass standard, learners will demonstrate experimentation with musically and technically creative production processes, by explaining how and why certain techniques are effective. Learners will also explain how these processes contribute towards the creation of commercially successful music, including the influence of external pressures on the artist's creative process. It will be suitable for the given audience.

Learning aim B

For distinction standard, learners will undertake the creation of finished commercial music by successfully using a range of musically and technically creative production techniques. The finished piece will be near professional in quality and the musical palette will reflect current trends in commercial music, as will the choice of technical production elements, such as creative effects processing.

For merit standard, learners will undertake the creation of finished commercial music using a range of musically and technically creative production techniques. The finished piece will reflect current trends in commercial music, and creativity will be evident in the overall quality of music.

For pass standard, learners will undertake the creation of finished commercial music, using a range of musical and technical production techniques. The finished piece should show evidence that learners have considered current commercial trends while creating the music. The overall presentation will be suitable.

Learning aim C

For distinction standard, learners will evaluate how creative and technical decisions were made. They will discuss the strengths and weaknesses of their work, and how any difficulties were overcome and alternative solutions applied during the production process. Learners will clearly explain how the work produced will be used to support future initiatives and personal development goals.

For merit standard, learners will review how their music met the requirements of a final commercial music submission, methodically explaining how their choice of techniques and processes obtained the desired result, but also giving reasons for how it could be improved. Learners' plans for future skills development will refer to specific techniques and processes that need development.

For pass standard, learners will review the creative and technical production processes used, and how and why they helped to obtain the desired characteristics. Plans for skills development will be broad without specific action points.

Links to other units

This unit links to:

- Unit 6: DAW Production
- Unit 10: Remixing and Reworking
- Unit 17: Music Technology and Musicianship.

Employer involvement

This unit would benefit from employer involvement in the form of:

- guest composers and lyricists
- guest speakers from DJs, music critics
- workshops from vocalists, backing singers and bands
- workshops from record producers.

Unit 18: Working and Developing as a Production Team

Level: **3**

Unit type: **Internal**

Guided learning hours: **60**

Unit in brief

Learners will develop an understanding of the collaborative process by which a music recording project is carried out.

Unit introduction

A significant feature of the contemporary music industry is the prominence of projects featuring collaborations between artists, producers, MCs and musicians. In this unit, you will contribute to a music project that creates and develops an original piece of music.

You will explore the roles and work involved in carrying out a successful music project, and how the organisation of the production process provides a framework for effective, creative development and control. As well as making a significant contribution to a piece of music, you will also review the work involved to reflect on your contribution to the successful outcome.

You will develop your understanding of the music production process and personal skills such as self-organisation, communication and meeting deadlines. This unit will help you progress to higher education and to employment in recording and songwriting.

Learning aims

In this unit you will:

- A** Understand the different roles and responsibilities involved in the music production process
- B** Undertake a music production project
- C** Review the music production project.

Summary of unit

Learning aim	Key content areas	Recommended assessment approach
A Understand the different roles and responsibilities involved in the music production process	A1 The music production process	Presentation (video required) of the production process to the group, the roles involved and an assessment of how the roles and the work interacts in the process.
B Undertake a music production project	B1 Undertake a music production process	Meeting notes with action planning and tasks to be carried out, including documents or physical evidence from these tasks. Individual logs documenting the production process. Video of meetings and production sessions. Teacher observations.
C Review the music production project	C1 Review of the music production process and contribution of the different roles in meeting the requirements of the brief	Recorded interview that evaluates the success of the project and how learners contributed to this in their role.

Content

Learning aim A: Understand the different roles and responsibilities involved in the music production process

A1 The music production process

- Roles in the music production process include:
 - creative – songwriter, lyricist, composer, arranger, vocalist
 - organisational – producer, studio manager, artist manager
 - support or technical – engineer, programmer, session musician, sound and/or equipment technician.
- Possible overlap between the roles especially in smaller organisations.
- Elements of the production process:
 - the use of production meetings
 - creative ideas and project intentions in response to brief
 - action planning, involving setting targets
 - identifying constraints and resource requirements in fulfilling the brief
 - costings for the production, artwork and marketing for the finished product
 - deadlines and constraints of working to a budget and meeting a release date
 - consideration of the use of technical and musical resources, including bringing in 'session' musicians for specific elements
 - drawing up a production schedule
 - booking and organising sessions
 - reviewing of progress and mixes, and progress against targets
 - organising mastering sessions.

Learning aim B: Undertake a music production project

B1 Undertake a music production project

- Preparatory work as a production team:
 - establish timeframe and budget
 - creative focus for the project, using a relevant brief, or generating own brief
 - negotiated roles and responsibilities
 - identification of resources and additional personnel
 - budgeting studio time and costs
 - outline schedule for project
 - costs of a CD run or website.
- Individual work as part of a production team. Records of examples of the following:
 - contribute to a series of production meetings
 - carry out agreed role and tasks to achieve agreed targets
 - constraints, including budget, time and available resources should be addressed
 - records of agreed actions and schedules
 - individual logs of work carried out, communication with others and ideas for the production work
 - professional behaviour and working relationships
 - professionalism shown in interaction between roles, effective communication
 - time management, taking a proactive approach
 - initiatives arising from creative opportunities.

Learning aim C: Review the music production project

C1 Review of the music production process and contribution of the different roles in meeting the requirements of the brief

- Evaluation of the project in the context of the finished project against the stated intentions for the project and given constraints.
- Personal evaluation – a reflection on individual effectiveness in the role and contribution of work to the project.
- The review will include:
 - how successful the project is in meeting the stated requirements
 - examples of feedback from peers and/or professionals
 - how realistic or feasible the stated intentions for the project are
 - how successful you are in working within identified constraints
 - the decisions taken that influence the production process and whether they are justified given the circumstances
 - the strengths and weaknesses of the production process
 - the creative or procedural opportunities that arise during the production process, and how they affect the quality of your work
 - how effective you are in your role, in terms of meeting deadlines, communicating with others, planning your work, contributing ideas or showing initiative
 - how you review your progress during the project and whether this is effective
 - what you would do differently for your next project and why.

Assessment criteria

Pass	Merit	Distinction
Learning aim A: Understand the different roles and responsibilities involved in the music production process		A.D1 Evaluate how all the roles involved in the music production process interact and how they contribute to the success of the music production process.
A.P1 Describe a range of roles carried out by a music production team and their contribution to the music production process. A.P2 Describe the production planning involved in a music project.	A.M1 Explain the purpose of a range of roles by a team, and the relevance of their contribution to the music production process. A.M2 Explain how production planning contributes to the success of a music project.	
Learning aim B: Undertake a music production project		B.D2 Undertake a role in collaboration with others in the music production team and perform tasks to a professional standard showing initiative and commitment.
B.P3 Undertake a role in collaboration with others in the music production team and perform tasks in a timely and adequate manner.	B.M3 Undertake a role in collaboration with others in the music production team and perform tasks diligently.	
Learning aim C: Review the music production project		C.D3 Evaluate how own work contributed to the project, making comprehensive and detailed suggestions for how own practice can be improved.
C.P4 Explain how own work contributed to the project. C.P5 Explain how own practice in role can be further developed.	C.M4 Analyse how own work contributed to the project, making detailed suggestions for how own practice can be improved.	

Essential information for assignments

The recommended structure of assessment is shown in the unit summary along with suitable forms of evidence. *Section 6* gives information on setting assignments and there is further information on our website.

There is a maximum number of three summative assignments for this unit. The relationship of the learning aims and criteria is:

Learning aim: A (A.P1, A.P2, A.M1, A.M2, A.D1)

Learning aim: B (B.P3, B.M3, B.D2)

Learning aim: C (C.P4, C.P5, C.M4, C.D3)

Further information for teachers and assessors

Resource requirements

For this unit, learners must have access to:

- a range of recording equipment and workstations
- collaboration with learners on media and graphic design courses (could be appropriate).

Essential information for assessment decisions

Learning aim A

For distinction standard, learners will give a detailed evaluation of how essential roles, planning and work interact in a successful music production. The focus will be on the benefits of creative cooperation, the effectiveness of planning in anticipating correctly identified constraints and problems, and possible opportunities to progress the production.

For merit standard, learners will give a detailed explanation of the relevance and importance of essential roles and associated work in the music production process. Learners will explain how the planning of the music production process contributes to the success of the project, with some mention of constraints or possible problems.

For pass standard, learners will give a detailed description of the essential roles and relevant work. Learners will give a detailed description of the planning of the music production process.

Relevant evidence will include learners' research and prepared documentation, video of presentations and associated Q&A sessions accompanied by assessor's observations.

Learning aim B

For distinction standard, learners will demonstrate initiative in developing the tasks of both themselves and others, to capitalise on opportunities or improve the music production. Learners will demonstrate professional behaviour through their understanding of the role and personal commitment in their conduct with others, timekeeping and preparation.

For merit standard, learners will carry out their role and tasks as part of a team, showing an understanding of how their work links with others by performing tasks to enhance the work of others. Learners will show commitment through good timekeeping and preparation.

For pass standard, learners will carry out an allocated role and tasks given to them competently and in agreed timeframes.

Relevant evidence will include videos of meetings and music production activities accompanied by the assessor's observations of individual learner's contributions at specific times in the process, as well as examples of learners' own input and activity in the project.

Learning aim C

For distinction standard, learners will provide a detailed evaluation of their work, and that of the team in carrying out the music production process. They will give clear justifications of their opinions regarding the success of the project against stated intentions, using available feedback, and they will suggest where improvements could be made. Learners will evaluate their own input into the production process, detailing the use and development of their own personal skills, giving specific and detailed suggestions for improvement.

For merit standard, learners will analyse how they contributed to the project with reference to the effectiveness of the music production process given the stated intentions. Learners will consider their own skills and also provide clear and relevant targets for improvement.

For pass standard, learners will explain their contribution to the music production process and give brief explanations regarding the relevance of their work and the success of the project. Learners will give a brief explanation of how they might develop their skills when contributing to future projects. Relevant evidence should be written documents and/or a video blog referencing learners' own activity, the work of the team and the final music product against the original intentions and feedback received.

Links to other units

This unit links to:

- Unit 2: Studio Recording Techniques
- Unit 4: Music Technology Project
- Unit 6: DAW Production.

Employer involvement

This unit would benefit from employer involvement in the form of guest speakers from:

- music production companies
- artists involved in collaboration.

4 Planning your programme

How do I choose the right BTEC National qualification for my learners?

BTEC Nationals come in a range of sizes, each with a specific purpose. You will need to assess learners very carefully to ensure that they start on the right size of qualification to fit into their 16–19 study programme, and that they take the right pathways or optional units that allow them to progress to the next stage.

If a learner is clear that they want to progress to the workplace, they should be directed towards an occupationally-specific qualification, such as a BTEC National Diploma, from the outset.

Some learners may want to take a number of complementary qualifications or keep their progression options open. These learners may be suited to taking a BTEC National Certificate or Extended Certificate. Learners who then decide to continue with a fuller vocational programme can transfer to a BTEC National Diploma or Extended Diploma, for example for their second year.

Some learners are sure of the sector they want to work in and are aiming for progression into that sector via higher education. These learners should be directed to the two-year BTEC National Extended Diploma as the most suitable qualification.

As a centre, you may want to teach learners who are taking different qualifications together. You may also wish to transfer learners between programmes to meet changes in their progression needs. You should check the qualification structures and unit combinations carefully as there is no exact match among the different sizes. You may find that learners need to complete more than the minimum number of units when transferring.

When learners are recruited, you need to give them accurate information on the title and focus of the qualification for which they are studying.

Is there a learner entry requirement?

As a centre it is your responsibility to ensure that learners who are recruited have a reasonable expectation of success on the programme. There are no formal entry requirements but we expect learners to have qualifications at or equivalent to Level 2.

Learners are most likely to succeed if they have:

- five GCSEs at good grades and/or
- BTEC qualification(s) at Level 2
- achievement in English and mathematics through GCSE or Functional Skills.

Learners may demonstrate ability to succeed in various ways. For example, learners may have relevant work experience or specific aptitude shown through diagnostic tests or non-educational experience.

What is involved in becoming an approved centre?

All centres must be approved before they can offer these qualifications – so that they are ready to assess learners and so that we can provide the support that is needed. Further information is given in *Section 8*.

What level of sector knowledge is needed to teach these qualifications?

We do not set any requirements for teachers but expect that centres will assess the overall skills and knowledge of the teaching team to ensure that they are relevant and up to date. This will give learners a rich programme to prepare them for employment in the sector. As part of the requirements of the programme are to involve employers in delivery this should support centres in ensuring that they are following up to date practices when delivering the programme.

What resources are required to deliver these qualifications?

As part of your centre approval you will need to show that the necessary material resources and work spaces are available to deliver BTEC Nationals. For some units, specific resources are required. This is indicated in the units.

How can myBTEC help with planning for these qualifications?

myBTEC is an online toolkit that supports the delivery, assessment and quality assurance of BTECs in centres. It supports teachers with activities, such as choosing a valid combination of units, creating assignment briefs and creating assessment plans. For further information see *Section 10*.

Which modes of delivery can be used for these qualifications?

You are free to deliver BTEC Nationals using any form of delivery that meets the needs of your learners. We recommend making use of a wide variety of modes, including direct instruction in classrooms or work environments, investigative and practical work, group and peer work, private study and e-learning.

What are the requirements for meaningful employer involvement?

Requirements

This BTEC National Extended Certificates in Sound Engineering and Digital Music Production have been designed as Tech Level qualifications. As an approved centre, you are required to ensure that during their study, every learner has access to meaningful activity involving employers. Involvement should be with employers from the music technology sector and should form a significant part of the delivery or assessment of the qualification. Each centre's approach to employer involvement will be monitored in two ways. It will be monitored at centre level in the first term each year as part of the annual quality management review process that addresses centre strategy for delivery, assessment and quality assurance, when we will ask you to show evidence of how employer involvement is provided for all learners. You will need to show evidence in order to gain reporting clearance for certification. It will be monitored also at programme level as part of the standards verification process to confirm that plans for employer involvement meet the requirements of the specification. These approaches are designed to ensure additional activities can be scheduled where necessary so learners are not disadvantaged (see *Section 8: Quality assurance*).

We know that the vast majority of programmes already have established links with employers. In order to give you maximum flexibility in creating and strengthening employer involvement, we have not specified a particular level of input from employers. However, meaningful employer involvement, as defined below, should contribute significantly to at least **one** mandatory unit.

There are suggestions in many of the units about how employers could become involved in delivery and/or assessment. These suggestions are not exhaustive and there will be other possibilities at local level.

Employer involvement in these units is subject to verification as part of the standards verification process (see *Section 8*).

Definition

Activities that are eligible to be counted as meaningful engagement are:

- structured work experience or work placements that develop skills and knowledge relevant to the qualification
- projects or assessments set with input from industry practitioners
- master classes or guest lectures from industry practitioners
- 'expert witness' reports from practitioners that contribute to the assessment of a learner's work.

There may be other ways in which learners can benefit from contact with employers or prepare for employment, such as listening to careers talks or working in simulated environments. While they provide benefits to learners they do not count as meaningful engagement.

Support

It is important that you give learners opportunities that are high quality and directly relevant to their study. We will support you in this through guidance materials and by giving you examples of best practice.

What support is available?

We provide a wealth of support materials, including curriculum plans, delivery guides, authorised assignment briefs, additional papers for external assessments and examples of marked learner work.

You will be allocated a Standards Verifier early on in the planning stage to support you with planning your assessments. There will be extensive training programmes as well as support from our Subject Advisor team.

For further details see *Section 10*.

How will my learners become more employable through these qualifications?

All BTEC Nationals are mapped to relevant occupational standards (see *Appendix 1*).

In the mandatory content and the selected optional units that focus on technical preparation learners will be acquiring the key knowledge and skills that employers need. Also, employability skills, such as teamwork and entrepreneurialism, and completing realistic tasks have been built into the design of the learning aims and content. This gives you the opportunity to use relevant contexts, scenarios and materials to enable learners to develop a portfolio of evidence that demonstrates the breadth of their skills and knowledge in a way that equips them for employment.

5 Assessment structure and external assessment

Introduction

BTEC Nationals are assessed using a combination of *internal assessments*, which are set and marked by teachers, and *external assessments* which are set and marked by Pearson:

- mandatory units have a combination of internal and external assessments
- all optional units are internally assessed.

We have taken great care to ensure that the assessment method chosen is appropriate to the content of the unit and in line with requirements from employers and higher education.

In developing an overall plan for delivery and assessment for the programme, you will need to consider the order in which you deliver units, whether delivery is over short or long periods and when assessment can take place. Some units are defined as synoptic units (see *Section 2*). Normally, a synoptic assessment is one that a learner would take later in a programme and in which they will be expected to apply learning from a range of units. Synoptic units may be internally or externally assessed. Where a unit is externally assessed, you should refer to the sample assessment materials (SAMs) to identify where there is an expectation that learners draw on their wider learning. For internally-assessed units, you must plan the assignments so that learners can demonstrate learning from across their programme. A unit may be synoptic in one qualification and not another because of the relationship it has to the rest of the qualification.

We have addressed the need to ensure that the time allocated to final assessment of internal and external units is reasonable so that there is sufficient time for teaching and learning, formative assessment and development of transferable skills.

In administering internal and external assessment, the centre needs to be aware of the specific procedures and policies that apply, for example to registration, entries and results. An overview with signposting to relevant documents is given in *Section 7*.

Internal assessment

Our approach to internal assessment for these qualifications will be broadly familiar to experienced centres. It offers flexibility in how and when you assess learners, provided that you meet assessment and quality assurance requirements. You will need to take account of the requirements of the unit format, which we explain in *Section 3*, and the requirements for delivering assessment given in *Section 6*.

External assessment

A summary of the external assessment for this qualification is given in *Section 2*. You should check this information carefully, together with the unit specification and the sample assessment materials, so that you can timetable learning and assessment periods appropriately.

Learners must be prepared for external assessment by the time they undertake it. In preparing learners for assessment, you will want to take account of required learning time, the relationship with other external assessments and opportunities for retaking. You should ensure that learners are not entered for unreasonable amounts of external assessment in one session. Learners may resit an external assessment to obtain a higher grade of near pass or above. If a learner has more than one attempt, then the best result will be used for qualification grading, up to the permitted maximum. It is unlikely that learners will need to or benefit from taking all assessments twice so you are advised to plan appropriately. Some assessments are synoptic and learners are likely to perform best if these assessments are taken towards the end of the programme.

Key features of external assessment in music technology

In music technology, after consultation with stakeholders, we have developed the following.

- Unit 6: DAW Production – learners produce a composition using technology in response to an industry-specific brief. This is based on realistic working commissions and is a task-based assessment.

Units

The externally-assessed units have a specific format which we explain in *Section 3*. The content of the units will be sampled across external assessments over time through appropriate papers and tasks. The ways in which learners are assessed are shown through the assessment outcomes and grading descriptors. External assessments are marked and awarded using the grade descriptors. The grades available are Distinction (D), Merit (M), Pass (P) and Near Pass (N). The Near Pass (N) grade gives learners credit below a Pass, where they have demonstrated evidence of positive performance which is worth more than an unclassified result but not yet at the Pass standard.

Sample assessment materials

Each externally-assessed unit has a set of sample assessment materials (SAMs) that accompanies this specification. The SAMs are there to give you an example of what the external assessment will look like in terms of the feel and level of demand of the assessment. In the case of units containing synoptic assessment, the SAMs will also show where learners are expected to select and apply from across the programme.

The SAMs show the range of possible question types that may appear in the actual assessments and give you a good indication of how the assessments will be structured. While SAMs can be used for practice with learners, as with any assessment the content covered and specific details of the questions asked will change in each assessment.

A copy of each of these assessments can be downloaded from our website. An additional sample of each of the Pearson-set units will be available before the first sitting of the assessment to allow your learners further opportunities for practice.

6 Internal assessment

This section gives an overview of the key features of internal assessment and how you, as an approved centre, can offer it effectively. The full requirements and operational information are given in the *BTEC Quality Assurance Handbook* available on our website. All members of the assessment team need to refer to this document.

For this qualification, it is important that you can meet the expectations of stakeholders and the needs of learners by providing a programme that is practical and applied. You can tailor programmes to meet local needs and use links with local employers and the wider vocational sector.

When internal assessment is operated effectively, it is challenging, engaging, practical and up to date. It must also be fair to all learners and meet national standards.

Principles of internal assessment

Our approach to internal assessment for this qualification is to offer flexibility in how and when you assess learners, provided that you meet assessment and quality assurance requirements. You will need to take account of the requirements of the unit format, which we explain in *Section 3 Units*, and the requirements for delivering assessment, given in *Section 7 Administrative arrangements*.

Operating internal assessment

The assessment team

It is important that there is an effective team for internal assessment so that all assessment is planned and verified. Full information is given in the *BTEC Quality Assurance Handbook*.

The key roles are:

- the Lead Internal Verifier (Lead IV) for the qualification has overall responsibility for the planning, record keeping and standard setting for the qualification. The Lead IV registers with Pearson annually and organises training using our support materials
- Internal Verifiers (IVs) check that assignments and assessment decisions are valid and that they meet our requirements. In a small team all people will normally be assessors and IVs. No one can verify their own actions as an assessor
- assessors set or use assignments to assess learners to national standards.

Planning and record keeping

The Lead IV makes sure that there is a plan for assessment of the internally-assessed units and maintains records of assessment undertaken.

The key records are:

- verification of assignment briefs
- learner authentication declarations
- assessor decisions on assignments, with feedback given to learners
- verification of assessment decisions.

Examples of records and further information are given in the *BTEC Quality Assurance Handbook*.

Effective organisation

Internal assessment needs to be well organised so that learners' progress can be tracked and so that we can monitor that assessment is being carried out in line with national standards. We support you through, for example, providing training materials and sample documentation. Our online myBTEC service can help support you in planning and record keeping. Further information on using myBTEC can be found in *Section 10 Resources and support* and on our website.

To make sure that learners are able to complete assignments on time, it is particularly important that you manage the overall assessment programme and deadlines.

Learner preparation

To ensure that you provide effective assessment tasks for your learners, you need to make sure that they understand their responsibilities for assessment and the centre's arrangements.

From induction onwards, you will want to ensure that learners are motivated to work consistently and independently to achieve the requirements of the qualification. Learners need to understand how assessments are used, the importance of meeting assessment deadlines and that all the work submitted for assessment must be their own.

You will need to explain to learners the requirements of assessment and the expected standard that they need to achieve to attain a grade, how assessments relate to the teaching programme and how they should use and reference source materials, including what would constitute plagiarism. You should also set out your approach to operating assessment, such as how learners must submit work and request extensions.

You are encouraged to employ a range of formative assessment approaches as part of teaching and learning before assessing the units summatively. Formative assessment supports teaching and learning, and should be ongoing throughout the learning process. It enables tutors to enhance learning by giving learners constructive feedback so that they can identify their strengths and weaknesses, and to put measures in place to target areas that need work. To ensure that learners progress, formative assessment approaches that incorporate reflective learning and regular skills assessment are important in encouraging self-development and reflective practice. You can give feedback on the following:

- technique and skills development
- identifying stretch and challenge.

Setting assessments through assignments

For internally-assessed units, an assessment task is defined as the independent production of evidence, by the learner, during a set period. The format of assessment tasks can include practical, written and observed activities.

An assignment provides the context for assessment tasks and should be issued to learners as a vocational scenario with a defined start date, a completion date and clear requirements for the production of evidence. A valid assessment task will enable a clear, summative assessment of outcomes based on the assessment criteria.

An assessment task in an assignment must be a distinct activity, completed independently by learners. It is a separate, more formal activity but can follow on from teaching activities that learners complete with direction from tutors.

When setting your assignments, you need to work with the information given in the *Essential information for assessment decisions* and the *Assessment activity* sections of the units. You can choose to use the suggested scenarios or to adapt them to take account of local circumstances, provided that assignments are verified.

In designing your own assignments you should bear in mind the following points.

- A learning aim must always be assessed as a whole.
- Assessment tasks in assignments must be structured to allow learners to demonstrate the full range of achievement at all grade levels. All learners need to be treated fairly by being given the opportunity to achieve a higher grade if they have the ability.
- Learners should be given clear tasks, activities and structures for evidence, the criteria should not be given as tasks.
- Assessment tasks in assignments provide a final summative assessment of a learning aim.
- Assessment tasks will draw on the specified range of teaching content for the learning aim. The specified teaching content is compulsory. The evidence for assessment need not cover every aspect of the teaching content as learners will normally be given particular examples, case studies or contexts in their assignments. For example, if a learner is carrying out a practical performance, then they must address all the relevant range of content that applies in that instance.

An assignment should have:

- a vocational scenario or context that motivates the learner to apply their learning through the assignment, such as an audience or purpose for which the evidence is being provided
- clear instructions to the learner about what they are required to do, normally set out through a series of tasks.

Forms of evidence

The units allow for a variety of forms of evidence to be used, provided that they are suited to the type of learning aim being assessed. For most units, the practical demonstration of skills is necessary. The units give information on suitable forms of evidence that would give learners the opportunity to apply a range of transferable and sector skills. Centres may choose to use different suitable forms for evidence to those proposed. Overall, learners should be assessed using varied forms of evidence.

The main forms of evidence include:

- projects
- recordings of performance, role play, interviews and practical tasks
- oral or written presentations with assessor questioning
- work logbooks and reflective journals.

It is important to note that an observation record is a source of evidence and does not confer an assessment decision. It must be sufficiently detailed to enable others to make a judgement about the quality and sufficiency of the performance and must document clearly the rationale for the assessment decision. Observation records should be accompanied by supporting evidence, which may take the form of video, audio recordings, photographs, preparation notes, learner logs and other similar types of record.

The form(s) of evidence selected must allow:

- the learner to provide all the evidence required for the learning aim(s) and the associated assessment criteria at all grade levels
- the learner to produce evidence that is their own independent work
- a verifier to independently reassess the learner to check the assessor's decisions.

Centres need to take particular care in ensuring that learners produce independent work.

Making valid assessment decisions

Assessment decisions through applying unit-based criteria

Assessment decisions for this qualification are based on the specific criteria given in each unit and set at each grade level. The way in which individual units are written provides a balance of assessment of sector-specific knowledge, technical and practical skills, and transferable skills appropriate to the purpose of the qualification.

Pass, Merit and Distinction criteria all relate to individual learning aims. The assessment criteria for a unit are hierarchical and holistic where, in satisfying the M criteria, a learner would also have satisfied the P criteria. The unit assessment grid shows the relationships of the criteria so that assessors can apply all the criteria to the learner's evidence at the same time.

Assessors must show how they have reached their decisions using the criteria in the assessment records. When a learner has completed all the assessment for a unit then the assessment team will give a grade for the unit. This is given according to the highest level for which the learner is judged to have met all the criteria. Therefore:

- to achieve a Distinction, a learner must have satisfied all the Distinction criteria (and all the Pass and Merit criteria); these define outstanding performance across the unit as a whole
- to achieve a Merit, a learner must have satisfied all the Merit criteria (and all the Pass criteria) through high performance in each learning aim

- to achieve a Pass, a learner must have satisfied all the Pass criteria for the learning aims, showing coverage of the unit content and therefore attainment at Level 3 of the national framework.

The award of a Pass is a defined level of performance and cannot be given solely on the basis of a learner completing assignments.

Learners who do not satisfy the Pass criteria should be reported as Unclassified.

Making assessment decisions using criteria

Assessors should review authenticated learner work and make judgements on standards using the assessment criteria and the supporting information provided in units and training materials. The evidence from a learner can be judged using all the relevant criteria at the same time. The assessor needs to make a judgement against each criterion that evidence is present and sufficiently comprehensive.

Assessors should use the following information and support in reaching assessment decisions:

- the *Essential information for assessment decisions* section in each unit
- your Lead IV and assessment team's collective experience, supported by the standardisation materials we provide.

Once the team has agreed the outcome, a formal assessment decision is recorded and reported to learners. The information given:

- must show the formal decision and indicate where criteria have been met
- may show where attainment against criteria has not been demonstrated
- avoid giving direct, specific instructions on how the learner can improve the evidence to achieve a higher grade.

Authenticity of learner work

Assessors must ensure that evidence is authentic to a learner through setting valid assessments and supervising them during the assessment period. Assessors must take care not to provide direct input, instructions or specific feedback that may compromise authenticity.

Once an assessment has begun, learners must not be given feedback that relates specifically to their evidence and how it can be improved, learners must work independently.

An assessor must assess only learner work that is authentic, i.e. learners' own independent work. Learners must authenticate the evidence that they provide for assessment through signing a declaration stating that it is their own work. Assessors must complete a declaration that:

- the evidence submitted for this assessment is the learner's own
- the learner has clearly referenced any sources used in the work
- they understand that false declaration is a form of malpractice.

Centres can use Pearson templates or their own templates to document authentication. During assessment, an assessor may suspect that some or all of the evidence from a learner is not authentic. The assessor must then take appropriate action using the centre's policies for malpractice. Further information is given in *Section 8 Administrative arrangements*.

Resubmission of improved evidence

The final assessment of evidence for the relevant learning aims is normally the final assessment decision, except where the Lead IV approves one opportunity to resubmit improved evidence based on the completed assessment.

The Lead IV has the responsibility to make sure that resubmission is operated fairly. This means:

- checking that a learner can be reasonably expected to perform better through a second submission, for example that the learner has not performed as expected
- making sure that giving a further opportunity does not give an unfair advantage over other learners, for example through the opportunity to take account of feedback given to other learners
- checking that the learner will be able to provide improved evidence without further guidance and that the original evidence submitted remains valid.

Once an assessment decision has been given to the learner, the resubmission opportunity must have a deadline within 15 working days in the same academic year. However, we recognise that there are circumstances where the resubmission period may fall outside of the 15-day limit owing to a lack of resources being available, for example where learners may need to access a performance space or have access to specialist equipment. Where it is practical to do so, for example evaluations, presentations, extended writing, resubmission must remain within the normal 15-day period.

For assessment to be fair, it is important that learners are all assessed in the same way and that some learners are not advantaged by having additional time or the opportunity to learn from others. Therefore, learners who did not complete assessment tasks by the planned deadline or by an authorised extension deadline (if one was given for specific circumstances), may not have the opportunity to subsequently resubmit. Similarly, learners who submit work that is not their own should not be given an opportunity to resubmit.

The outcome of any resubmission of the assessment task by the learner is then recorded as the final decision.

A learner who has not achieved their expected level of performance in the relevant learning aims **after resubmission** of an assessment may be offered a single retake opportunity using a new assessment task. The highest grade that may be awarded is a Pass.

The Lead IV must authorise a retake with a new assessment only in exceptional circumstances and where it is necessary, appropriate and fair to do so. For further information on offering a retake opportunity please refer to the *BTEC Centre Guide to Internal Assessment* available on our website. There is information on writing assignments for retakes on our website, see www.btec.co.uk/keydocuments.

7 Administrative arrangements

Introduction

This section focuses on the administrative requirements for delivering a BTEC qualification. It will be of value to Quality Nominees, Lead IVs, Programme Leaders and Examinations Officers.

Learner registration and entry

Shortly after learners start the programme of learning, you need to make sure that they are registered for the qualification and that appropriate arrangements are made for internal and external assessment. You need to refer to the *Information Manual* for information on making registrations for the qualification and entries for external assessments.

Learners can be formally assessed only for a qualification on which they are registered. If learners' intended qualifications change, for example if a learner decides to choose a different pathway specialism, then the centre must transfer the learner appropriately.

Access to assessment

Both internal and external assessments need to be administered carefully to ensure that all learners are treated fairly, and that results and certification are issued on time to allow learners to progress to chosen progression opportunities.

Our equality policy requires that all learners should have equal opportunity to access our qualifications and assessments, and that our qualifications are awarded in a way that is fair to every learner. We are committed to making sure that:

- learners with a protected characteristic are not, when they are undertaking one of our qualifications, disadvantaged in comparison to learners who do not share that characteristic
- all learners achieve the recognition they deserve for undertaking a qualification and that this achievement can be compared fairly to the achievement of their peers.

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*.

Administrative arrangements for internal assessment

Records

You are required to retain records of assessment for each learner. Records should include assessments taken, decisions reached and any adjustments or appeals. Further information can be found in the *Information Manual*. We may ask to audit your records so they must be retained as specified.

Reasonable adjustments to assessment

A reasonable adjustment is one that is made before a learner 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 learners. 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 learners with protected characteristics are given on our website in the document *Supplementary guidance for reasonable adjustment and special consideration in vocational internally-assessed units*.

Special consideration

Special consideration is given after an assessment has taken place for learners who have been affected by adverse circumstances, such as illness. You must operate special consideration in line with our 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 policy.

Appeals against assessment

Your centre must have a policy for dealing with appeals from learners. 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 Lead IV or other member of the programme team. The assessment plan should allow time for potential appeals after assessment decisions have been given to learners. If there is an appeal by a learner, you must document the appeal and its resolution. Learners have a final right of appeal to Pearson but only if the procedures that you have put in place have not been followed. Further details are given in the document *Enquiries and appeals about Pearson vocational qualifications and end point assessment policy*.

Administrative arrangements for external assessment

Entries and resits

For information on the timing of assessment and entries, please refer to the annual examinations timetable on our website.

Access arrangements requests

Access arrangements are agreed with Pearson before an assessment. They allow students with special educational needs, disabilities or temporary injuries to:

- access the assessment
- show what they know and can do without changing the demands of the assessment.

Access arrangements should always be processed at the time of registration. Learners will then know what type of arrangements are available in place for them.

Granting reasonable adjustments

For external assessment, a reasonable adjustment is one that we agree to make for an individual learner. A reasonable adjustment is defined for the individual learner and informed by the list of available access arrangements.

Whether an adjustment will be considered reasonable will depend on a number of factors, to include:

- the needs of the learner with the disability
- the effectiveness of the adjustment
- the cost of the adjustment; and
- the likely impact of the adjustment on the learner with the disability and other learners.

Adjustment may be judged unreasonable and not approved if it involves unreasonable costs, timeframes or affects the integrity of the assessment.

Special consideration requests

Special consideration is an adjustment made to a student's mark or grade after an external assessment to reflect temporary injury, illness or other indisposition at the time of the assessment. An adjustment is made only if the impact on the learner is such that it is reasonably likely to have had a material effect on that learner being able to demonstrate attainment in the assessment.

Centres are required to notify us promptly of any learners who they believe have been adversely affected and request that we give special consideration. Further information can be found in the special requirements section on our website.

Conducting external assessments

Centres must make arrangements for the secure delivery of external assessments. External assessments for BTEC qualifications include examinations, set tasks and performance.

Each external assessment has a defined degree of control under which it must take place. Some external assessments may have more than one part and each part may have a different degree of control. We define degrees of control as follows.

High control

This is the completion of assessment in formal invigilated examination conditions.

Medium control

This is completion of assessment, usually over a longer period of time, which may include a period of controlled conditions. The controlled conditions may allow learners to access resources, prepared notes or the internet to help them complete the task.

Low control

These are activities completed without direct supervision. They may include research, preparation of materials and practice. The materials produced by learners under low control will not be directly assessed.

Further information on responsibilities for conducting external assessment is given in the document *Instructions for Conducting External Assessments*, available on our website.

Dealing with malpractice in assessment

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

Pearson does not tolerate actions (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 incidents (or attempted incidents) of malpractice have been proven.

Malpractice may arise or be suspected in relation to any unit or type of assessment within the qualification. For further details regarding malpractice and advice on preventing malpractice by learners, please see Pearson's *Centre guidance: Dealing with malpractice and maladministration in vocational qualifications*, available on our website.

The procedures we ask you to adopt vary between units that are internally assessed and those that are externally assessed.

Internally-assessed units

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 that a centre is failing to conduct internal assessment according to our policies. The above document gives further information, 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.

Externally-assessed units

External assessment means all aspects of units that are designated as external in this specification, including preparation for tasks and performance. For these assessments, centres must follow the JCQ procedures set out in the latest version of *JCQ Suspected Malpractice in Examinations and Assessments Policies and Procedures* (www.jcq.org.uk).

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.

Learner malpractice

Heads of Centres are required to report incidents of any suspected learner malpractice that occur during Pearson external assessments. We ask that centres do so by completing a *JCQ Form M1* (available at www.jcq.org.uk/exams-office/malpractice) and emailing it and any accompanying documents (signed statements from the learner, invigilator, copies of evidence, etc.) to the Investigations 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.

Teacher/centre malpractice

Heads of Centres are required to inform Pearson's Investigations Team of any incident of suspected malpractice by centre staff, before any investigation is undertaken. Heads of centres are requested to inform the Investigations Team by submitting a *JCQ Form M2(a)* (available at www.jcq.org.uk/exams-office/malpractice) with supporting documentation to pqsmalpractice@pearson.com. Where Pearson receives allegations of malpractice from other sources (for example Pearson staff or anonymous informants), the Investigations Team will conduct the investigation directly or may ask the head of centre to assist.

Incidents of maladministration (accidental errors in the delivery of Pearson qualifications that may affect the assessment of learners) should also be reported to the Investigations Team using the same method.

Heads of Centres/Principals/Chief Executive Officers or their nominees are required to inform learners and centre staff suspected of malpractice of their responsibilities and rights; see Section 6.15 of the *JCQ Suspected Malpractice in Examinations and Assessments Policies and Procedures* document.

Pearson reserves the right in cases of suspected malpractice to withhold the issuing of results and/or certificates while an investigation is in progress. Depending on the outcome of the investigation results and/or certificates may be released or withheld.

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

Sanctions and appeals

Where malpractice is proven we may impose sanctions or penalties.

Where learner malpractice is evidenced, penalties may be imposed such as:

- mark reduction for external assessments
- disqualification from the qualification
- being barred 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 you to create an improvement action plan
- requiring staff members to receive further training
- placing temporary blocks on your certificates
- placing temporary blocks 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 centres that are considering appeals against penalties and sanctions arising from malpractice. Appeals against a decision made by Pearson will normally be accepted only from Heads of Centres (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 our *Enquiries and appeals about Pearson vocational qualifications and end point assessment policy*, which is on our website. In the initial stage of any aspect of malpractice, please notify the Investigations Team by email via pqsmalpractice@pearson.com who will inform you of the next steps.

Certification and results

Once a learner has completed all the required components for a qualification, even if final results for external assessments have not been issued, then the centre can claim certification for the learner, provided that quality assurance has been successfully completed. For the relevant procedures please refer to our *Information Manual*. You can use the information provided on qualification grading to check overall qualification grades.

Results issue

After the external assessment session, learner results will be issued to centres. The result will be in the form of a grade. You should be prepared to discuss performance with learners, making use of the information we provide and post-results services.

Post-assessment services

Once results for external assessments are issued, you may find that the learner has failed to achieve the qualification or to attain an anticipated grade. It is possible to transfer or reopen registration in some circumstances. The *Information Manual* gives further information.

Changes to qualification requests

Where a learner who has taken a qualification wants to resit an externally-assessed unit to improve their qualification grade, you firstly need to decline their overall qualification grade. You may decline the grade before the certificate is issued. For a learner receiving their results in August, you should decline the grade by the end of September if the learner intends to resit an external assessment.

Additional documents to support centre administration

As an approved centre you must ensure that all staff delivering, assessing and administering the qualifications have access to this documentation. These documents are reviewed annually and are reissued if updates are required.

- *Pearson Quality Assurance Handbook*: this sets out how we will carry out quality assurance of standards and how you need to work with us to achieve successful outcomes.
- *Information Manual*: this gives procedures for registering learners for qualifications, transferring registrations, entering for external assessments and claiming certificates.
- *Lead Examiners' Reports*: these are produced after each series for each external assessment and give feedback on the overall performance of learners in response to tasks or questions set.
- *Instructions for Conducting External Assessments (ICEA)*: this explains our requirements for the effective administration of external assessments, such as invigilation and submission of materials.
- *Regulatory policies*: our regulatory policies are integral to our approach and explain how we meet internal and regulatory requirements. We review the regulated policies annually to ensure that they remain fit for purpose. Policies related to this qualification include:
 - adjustments for candidates with disabilities and learning difficulties, access arrangements and reasonable adjustments for general and vocational qualifications
 - age of learners
 - centre guidance for dealing with malpractice
 - recognition of prior learning and process.

This list is not exhaustive and a full list of our regulatory policies can be found on our website.

8 Quality assurance

Centre and qualification approval

As part of the approval process, your centre must make sure that the resource requirements listed below are in place before offering the qualification.

- Centres must have appropriate physical resources (for example, equipment, IT, learning materials, teaching rooms) to support the delivery and assessment of the qualification.
- Staff involved in the assessment process must have relevant expertise and/or occupational experience.
- There must be systems in place to ensure continuing professional development for staff delivering the qualification.
- Centres must have in place appropriate health and safety policies relating to the use of equipment by learners.
- Centres must deliver the qualification in accordance with current equality legislation.
- Centres should refer to the teacher guidance section in individual units to check for any specific resources required.

Continuing quality assurance and standards verification

On an annual basis, we produce the *Pearson Quality Assurance Handbook*. It contains detailed guidance on the quality processes required to underpin planning for delivery including appropriate employer involvement, and for robust assessment and internal verification.

The key principles of quality assurance are that:

- a centre delivering BTEC programmes must be an approved centre, and must have approval for the programmes or groups of programmes that it is delivering
- the centre agrees, as part of gaining approval, to abide by specific terms and conditions around the effective delivery and quality assurance of assessment; it must abide by these conditions throughout the period of delivery
- Pearson makes available to approved centres a range of materials and opportunities, through online standardisation, intended to exemplify the processes required for effective assessment, and examples of effective standards. Approved centres must use the materials and services to ensure that all staff delivering BTEC qualifications keep up to date with the guidance on assessment
- an approved centre must follow agreed protocols for standardisation of assessors and verifiers, for the planning, monitoring and recording of assessment processes, and for dealing with special circumstances, appeals and malpractice.

The approach of quality-assured assessment is through a partnership between an approved centre and Pearson. We will make sure that each centre follows best practice and employs appropriate technology to support quality-assurance processes, where practicable. We work to support centres and seek to make sure that our quality-assurance processes do not place undue bureaucratic processes on centres. We monitor and support centres in the effective operation of assessment and quality assurance.

The methods we use to do this for BTEC Level 3 include:

- making sure that all centres complete appropriate declarations at the time of approval
- undertaking approval visits to centres
- making sure that centres have effective teams of assessors and verifiers who are trained to undertake assessment
- undertaking an overarching review and assessment of a centre's strategy for ensuring sufficient and appropriate engagement with employers at the beginning of delivery of any BTEC programme(s)
- undertaking a review of the employer involvement planned at programme level to ensure its appropriateness at a time when additional activities can be scheduled where necessary
- assessment sampling and verification, through requested samples of assessments, completed assessed learner work and associated documentation

- an overarching review and assessment of a centre's strategy for delivering and quality assuring its BTEC programmes, for example making sure that synoptic units are placed appropriately in the order of delivery of the programme.

Centres that do not fully address and maintain rigorous approaches to delivering, assessing and quality assurance cannot seek certification for individual programmes or for all BTEC Level 3 programmes. An approved centre must make certification claims only when authorised by us and strictly in accordance with requirements for reporting.

Centres that do not comply with remedial action plans may have their approval to deliver qualifications removed.

9 Understanding the qualification grade

Awarding and reporting for the qualification

This section explains the rules that we apply in awarding a qualification and in providing an overall qualification grade for each learner. It shows how all the qualifications in this sector are graded.

The awarding and certification of these qualifications will comply with regulatory requirements.

Eligibility for an award

In order to be awarded a qualification, a learner must complete all units, achieve a Near Pass (N) or above in all external units and a pass or above in all mandatory units unless otherwise specified. Refer to the structure in *Section 2*.

To achieve any qualification grade, learners must:

- complete and **have an outcome** (D, M, P, N or U) for all units within a valid combination
- achieve the **required units at pass or above** shown in *Section 2*, and for the Diploma achieve a minimum of 600 GLH and Extended Diploma achieve a minimum 900 GLH at Pass or above (or N or above in external units)
- achieve the **minimum number of points** at a grade threshold.

It is the responsibility of a centre to ensure that a correct unit combination is adhered to. Learners who do not achieve the required minimum grade (N or P) in units shown in the structure will not achieve a qualification.

Learners who do not achieve sufficient points for a qualification or who do not achieve all the required units may be eligible to achieve a smaller qualification in the same suite provided they have completed and achieved the correct combination of units and met the appropriate qualification grade points threshold.

Calculation of the qualification grade

The final grade awarded for a qualification represents an aggregation of a learner's performance across the qualification. As the qualification grade is an aggregate of the total performance, there is some element of compensation in that a higher performance in some units may be balanced by a lower outcome in others.

In the event that a learner achieves more than the required number of optional units, the mandatory units along with the optional units with the highest grades will be used to calculate the overall result, subject to the eligibility requirements for that particular qualification title.

BTEC Nationals are Level 3 qualifications and are awarded at the grade ranges shown in the table below.

Qualification	Available grade range
Certificate, Extended Certificate, Foundation Diploma	P to D*
Diploma	PP to D*D*
Extended Diploma	PPP to D*D*D*

The *Calculation of qualification grade* table, shown further on in this section, shows the minimum thresholds for calculating these grades. The table will be kept under review over the lifetime of the qualification. The most up to date table will be issued on our website.

Pearson will monitor the qualification standard and reserves the right to make appropriate adjustments.

Learners who do not meet the minimum requirements for a qualification grade to be awarded will be recorded as Unclassified (U) and will not be certificated. They may receive a Notification of Performance for individual units. The *Information Manual* gives full information.

Points available for internal units

The table below shows the number of **points** available for internal units. For each internal unit, points are allocated depending on the grade awarded.

	Unit size	
	60 GLH	90 GLH
U	0	0
Pass	6	9
Merit	10	15
Distinction	16	24

Points available for external units

Raw marks from the external units will be awarded **points** based on performance in the assessment. The table below shows the **minimum number of points** available for each grade in the external units.

	Unit size	
	90 GLH	120 GLH
U	0	0
Near Pass	6	8
Pass	9	12
Merit	15	20
Distinction	24	32

Pearson will automatically calculate the points for each external unit once the external assessment has been marked and grade boundaries have been set. For more details about how we set grade boundaries in the external assessment please go to our website.

Claiming the qualification grade

Subject to eligibility, Pearson will automatically calculate the qualification grade for your learners when the internal unit grades are submitted and the qualification claim is made. Learners will be awarded qualification grades for achieving the sufficient number of points within the ranges shown in the relevant *Calculation of qualification grade* table for the cohort.

Calculation of qualification grade

Applicable for registration from 1 September 2018.

Certificate		Extended Certificate		Foundation Diploma		Diploma		Extended Diploma	
180 GLH		360 GLH		540 GLH		720 GLH		1080 GLH	
Grade	Points threshold	Grade	Points threshold	Grade	Points threshold	Grade	Points threshold	Grade	Points threshold
U	0	U	0	U	0	U	0	U	0
Pass	18	P	36	P	54	PP	72	PPP	108
						MP	88	MPP	124
								MMP	140
Merit	26	M	52	M	78	MM	104	MMM	156
						DM	124	DMM	176
								DDM	196
Distinction	42	D	74	D	108	DD	144	DDD	216
						D*D	162	D*DD	234
								D*D*D	252
Distinction*	48	D*	90	D*	138	D*D*	180	D*D*D*	270

The table is subject to review over the lifetime of the qualification. The most up-to-date version will be issued on our website.

Examples of grade calculations based on table applicable to registrations from September 2018

Example 1: Achievement of an Extended Certificate (Sound Engineering) with a P grade

	GLH	Type (Int/Ext)	Grade	Unit points
Unit 2	60	Int	Pass	6
Unit 6	120	Ext	Pass	12
Unit 13	60	Int	Pass	6
Unit 14	60	Int	Pass	6
Unit 18	60	Int	Pass	6
Totals	360		P	36

The learner has achieved N or higher in Unit 6 and P or higher in Unit 2.

The learner has sufficient points for a P grade.

Example 2: Achievement of an Extended Certificate (Sound Engineering) with a M grade

	GLH	Type (Int/Ext)	Grade	Unit points
Unit 2	60	Int	Merit	10
Unit 6	120	Ext	Near Pass	8
Unit 13	60	Int	Distinction	16
Unit 14	60	Int	Distinction	16
Unit 18	60	Int	Distinction	16
Totals	360		M	66

The learner has sufficient points for a M grade.

Example 3: An Unclassified Result for an Extended Certificate (Sound Engineering)

	GLH	Type (Int/Ext)	Grade	Unit points
Unit 2	60	Int	Unclassified	0
Unit 6	120	Ext	Merit	20
Unit 13	60	Int	Distinction	16
Unit 14	60	Int	Merit	10
Unit 18	60	Int	Merit	10
Totals	360		U	56

The learner has a U in Unit 2.

The learner has sufficient points for an M grade but has not met the minimum requirement for an N or higher in Unit 6 and P or higher in Unit 2.

10 Resources and support

Our aim is to give you a wealth of resources and support to enable you to deliver BTEC National qualifications with confidence. On our website you will find a list of resources to support teaching and learning, and professional development.

Support for setting up your course and preparing to teach

Specification

This **specification** (for teaching from September 2018) includes details on the administration of qualifications and information on all the units for the qualification.

Delivery Guide

This free guide gives you important advice on how to choose the right course for your learners and how to ensure you are fully prepared to deliver the course. It explains the key features of BTEC Nationals (for example employer involvement and employability skills). It also covers guidance on assessment (internal and external) and quality assurance. The guide tells you where you can find further support and gives detailed unit-by-unit delivery guidance. It includes teaching tips and ideas, assessment preparation and suggestions for further resources.

Schemes of work

Free sample schemes of work are provided for each mandatory unit. These are available in Word™ format for ease of customisation.

Curriculum models

These show how the BTECs in the suite fit into a 16–19 study programme, depending on their size and purpose. The models also show where other parts of the programme, such as work experience, maths and English, tutorial time and wider study, fit alongside the programme.

Study skills activities

A range of case studies and activities is provided; they are designed to help learners develop the study skills they need to successfully complete their BTEC course. The case studies and activities are provided in Word™ format for easy customisation.

myBTEC

myBTEC is a free, online toolkit that lets you plan and manage your BTEC provision from one place. It supports the delivery, assessment and quality assurance of BTECs in centres and supports teachers with the following activities:

- checking that a programme is using a valid combination of units
- creating and verifying assignment briefs (including access to a bank of authorised assignment briefs that can be customised)
- creating assessment plans and recording assessment decisions
- tracking the progress of every learner throughout their programme.

To find out more about myBTEC, visit the myBTEC page on the support services section of our website. We will add the new BTEC National specifications to myBTEC as soon as possible.

Support for assessment

Sample assessment materials for externally-assessed units

Sample assessments are available for the Pearson-set units. One copy of each of these assessments can be downloaded from the website/available in print. For each suite an additional sample for one of the Pearson-set units is also available, allowing your learners further opportunities for practice.

Further sample assessments will be made available through our website on an ongoing basis.

Sample assessment materials for internally-assessed units

We do not prescribe the assessments for the internally-assessed units. Rather, we allow you to set your own, according to your learners' preferences and to link with your local employment profile.

We do provide a service in the form of Authorised Assignment Briefs, which are approved by Pearson Standards Verifiers. They are available via our website or free on myBTEC.

Sample marked learner work

To support you in understanding the expectation of the standard at each grade, examples of marked learner work at PM/MD grades are linked to the Authorised Assignment Briefs.

Training and support from Pearson

People to talk to

There are many people who are available to support you and provide advice and guidance on delivery of your BTEC Nationals. These include:

- Subject Advisors – available for all sectors. They understand all Pearson qualifications in their sector and so can answer sector-specific queries on planning, teaching, learning and assessment
- Standards Verifiers – they can support you with preparing your assignments, ensuring that your assessment plan is set up correctly, and support you in preparing learner work and providing quality assurance through sampling
- Curriculum Development Managers (CDMs) – they are regionally based and have a full overview of the BTEC qualifications and of the support and resources that Pearson provides. CDMs often run network events
- Customer Services – the ‘Support for You’ section of our website gives the different ways in which you can contact us for general queries. For specific queries, our service operators can direct you to the relevant person or department.

Training and professional development

Pearson provides a range of training and professional development events to support the introduction, delivery, assessment and administration of BTEC National qualifications. These sector-specific events, developed and delivered by specialists, are available both face to face and online.

‘Getting Ready to Teach’

These events are designed to get teachers ready for delivery of the BTEC Nationals. They include an overview of the qualifications’ structures, planning and preparation for internal and external assessment, and quality assurance.

Teaching and learning

Beyond the ‘Getting Ready to Teach’ professional development events, there are opportunities for teachers to attend sector- and role-specific events. These events are designed to connect practice to theory; they provide teacher support and networking opportunities with delivery, learning and assessment methodology.

Details of our training and professional development programme can be found on our website.

Appendix 1 Links to industry standards

BTEC Nationals have been developed in consultation with industry and appropriate sector bodies to ensure that the qualification content and approach to assessment aligns closely to the needs of employers. Where they exist, and are appropriate, National Occupational Standards (NOS) and professional body standards have been used to establish unit content.

Appendix 2 Glossary of terms used for internally-assessed units

This is a summary of the key terms used to define the requirements in the units.

Term	Definition
Accomplished	Demonstrate skills, expertise and mastery of activity or instrument.
Accurate	Perform music with precision and without error.
Analyse	Outcome of methodical and detailed examination, breaking down a topic to interpret and study the interrelationships between the parts.
Articulate	Express fluently and clearly.
Assured	Confident in own technique, understanding or knowledge when applying practical skills.
Coherent	Logically or aesthetically consistent and holding together as a harmonious or credible whole.
Collaborate	Work jointly with others.
Competent	Having the necessary knowledge or skill to do something suitably or sufficiently in amount or extent.
Comprehensive	Full, covering a range of factors related to goals, briefs or objectives.
Confident	Demonstrate secure application of skills or processes.
Considered	A well-thought-out and developed idea, proposal or response.
Consistent	Able to reliably repeat an action that progresses towards achieving an aim.
Control/Controlled	Being in command of skills and techniques.
Creative	Use techniques, equipment and processes to express ideas or feelings in new ways.
Define	State or describe the nature, scope or meaning of a subject as objective facts.
Demonstrate	Carry out and apply knowledge, understanding and/or skills in a practical situation.
Describe	Give a clear account that includes all the relevant features and characteristics – ‘painting a picture with words’.
Discuss	Consider different aspects of a topic and how they interrelate, and the extent to which they are important.
Diverse	A variety of, to show a complete range.
Ease	Without noticeable difficulty or effort.
Effective	Show control over techniques, equipment and processes to efficiently meet the details and broad aims of a requirement.
Engagement/Engaging	Connecting with and responding to the material.

Term	Definition
Evaluate	Drawing on varied information, themes or concepts to consider aspects such as strengths, weaknesses, alternative actions, relevance or significance. Enquiries lead to a supported judgement showing relationship to its context, often in a conclusion.
Explain	Work shows clear details and gives reasons and/or evidence to support an opinion, view or argument. Learners show comprehension of origins, functions and objectives of a subject and its suitability for purpose.
Flair	Performed in a creative manner, with finesse.
Fluent	Expressed with apparent ease and confidence.
Identify	Indicate the main features or purpose of something by recognising it and/or being able to discern and understand facts or qualities.
Imaginative	Develop ideas and concepts in new, engaging and inventive ways.
Insightful	Having or showing an accurate and deep understanding, being perceptive and discerning.
Interpret	State the meaning, purpose or qualities of something through the use of imagery, words or another means of expression.
Justify	Give reasons or evidence to support an opinion or prove something right or reasonable.
Musicality	Musical shape, balance and expression.
Outline	Learners' work, performance or practice gives a summary, overview or a brief description.
Perceptive	Showing an observant and discerning understanding.
Qualitative	Relating to, measuring, or measured by the quality of something rather than its quantity.
Reflect	Think carefully and review information and/or performance – includes articulating ideas, concepts, activities, findings or features.
Responsive	Reacting in a positive and thoughtful manner.
Review	Assess formally, appraising existing information or prior events with the intention of instituting change if necessary.
Secure	Well-practised, confident in own ability and skills.
Show	Learners' work, performance or practice presents evidence using knowledge, understanding and skills.
State	Learners can express the condition of, or facts about something definitely or clearly.
Summarise	Learners can give a brief statement of the main points.
Sustained	Maintained through successive stages or over an extended period.

This is a key summary of the types of evidence used for BTEC Nationals.

Type of evidence	Definition and purpose
Case study	A specific example to which all learners must select and apply knowledge. Used to show application to a realistic context where direct experience cannot be gained.
Individual project based	A self-directed, large-scale activity requiring planning, research, exploration, outcome and review. Used to show self-management, project management and/or deep learning, including synopticity.
Group project based	A large-scale activity requiring planning, research, exploration, outcome and review. Used to show self-management in a particular role, aspects of project management and participation in teamwork to achieve goals.
Development log/blog	A record kept by learners to show the process of development. Used to show method, self-management and skill development.

Pearson BTEC Level 3 Nationals in Music Technology

Certificate in Music Technology

Extended Certificates in:
Sound Engineering
Digital Music Production

Foundation Diploma in Music Technology

Diploma in Music Technology

Extended Diploma in Music Technology

For more information about Edexcel, BTEC or LCCI qualifications
visit qualifications.pearson.com

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