PEARSON

BTEC

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Pearson BTEC
Level 3 Technical Occupational Entry for

Data Technicians (Certificate)

Specification

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Specification

BTEC Technical Occupational Entry qualification
First registration 2026

About Pearson

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

Welcome

With a track record built over 30 years of student success, BTEC qualifications are widely recognised and respected. They provide progression to the workplace either directly or via study at higher levels. Recent data has shown that 1 in 5 adults of working age in the UK has a BTEC qualification.

Why choose BTEC Technical Qualifications?

BTEC Technical Qualifications enable students to develop a purposeful and coherent combination of knowledge, skills and behaviours to confidently enter or progress into employment at entry level in occupations that are recognised and demanded by employers.

The qualification, which is based on the occupational standards published by the Institute for Apprenticeships and Technical Education (IfATE), embodies a fundamentally student-centred approach to the curriculum, with a flexible, unit-based structure and an approach to learning and assessment that:

- provides students with meaningful and occupationally relevant learning experiences
- engages and motivates students to achieve as assessments can be focused on individual student needs and can be achieved as they progress through the qualifications
- promotes self-directed learning through the clarity and transparency of the standards to be achieved
- makes the qualifications accessible to a wider range of students, including part-time and adult students.

In developing these qualifications, we have collaborated with employers to ensure that the qualifications meet the current and emerging needs of industry. We have also worked with colleges and training providers to ensure that the qualifications meet their needs and those of their students.

We are providing a range of support to ensure that students and their tutors have the best possible experience during their course. Further information is provided on the qualification pages of our website.

A word to students

This qualification will require commitment and hard work. You will have to complete the learning for the required range of units, be organised and complete your assessments, which may include practical work-based activities, projects and vocational assignments. But you can feel proud to achieve a BTEC Technical Occupational Entry qualification as you can be confident in your readiness to advance your career in your chosen occupation.

Good luck, and we hope you enjoy your course.

Contents

1 Introducing the qualification

What are Level 3 Technical Occupational Entry Qualifications?

Level 3 Technical Occupational Entry Qualifications are qualifications that are at Level 3 on the Regulated Qualifications Framework (RQF) and are designed to deliver the knowledge, skills and behaviours needed to enter the workplace. They can be delivered through a combination of classroom and work-based learning and assessment.

These qualifications are based on occupational standards designed by employers and published by the Institute for Apprenticeships and Technical Education (IfATE), who also approves the qualifications. IfATE has specified different categories under which Level 3 Technical Qualifications can be approved based on their scope and purpose. Detailed information about these categories can be found on IfATE's website.

Qualification purpose

The Pearson BTEC Level 3 Technical Occupational Entry for Data Technicians (Certificate) enables students to develop a purposeful combination of knowledge, skills and behaviours to enter employment as a data technician at entry level. The qualification provides a strong foundation for them to achieve full occupational competence with further training and development in the workplace.

The qualification is designed to meet the needs of students (19+) and provides progression to employment in an occupation that is recognised and demanded by employers.

The qualification will:

- develop students' ability and confidence to apply the knowledge, skills and behaviours in carrying out the relevant occupational duties and functions to meet entry-level competence

- develop transferable skills and professional behaviours, such as managing own time to meet deadlines, managing stakeholder expectations, having a structured approach to prioritising tasks and reviewing own development, that are essential to personal effectiveness in a data technician role

- develop knowledge and understanding of the role of data and legislation, including common data issues and associated correction methods, applying data science principles and communicating using data, including collating, formatting and interpreting data

- provide opportunities for students to achieve a nationally recognised qualification to support them in taking the next step in their career journey

- provide employers with reliable evidence of students' attainment against the data technician occupational standard and their readiness to enter employment in the related occupation at entry level.

The qualification can be taken on a part-time or full-time basis to meet the needs of older 19+ students.

Employer engagement and validation

In developing the Pearson BTEC Level 3 Technical Occupational Entry for Data Technicians (Certificate), we have worked closely with a dedicated panel of employers from a range of different types of organisations, who have:

- validated the demand for the qualification and confirmed that it is occupationally relevant and meets the current and emerging needs of industry
- confirmed that students will have an appropriate combination of knowledge, skills and behaviours relevant to the occupational standard that attests to their readiness to enter into employment in the related occupation at an entry level.

Progression opportunities

Students who achieve the Pearson BTEC Level 3 Technical Occupational Entry for Data Technicians (Certificate) will most likely progress into specific employment at entry level in roles such as business analyst or data analyst.

2 Qualification summary and key information

Qualification title	**Pearson BTEC Level 3 Technical Occupational Entry for Data Technicians (Certificate)**
Qualification Number (QN)	610/6197/9
Regulation start date	11/08/25
Operational start date	01/08/2026
Approved age ranges	19+
Total qualification time (TQT)	214
Guided learning hours (GLH)	200
Assessment	Internal assessment demonstrating evidence of entry level competence. Required methods of assessment and evidence will be described in the unit. Please see *Section 5 Assessment requirements*
Grading information	The qualification and units are graded Pass/Fail.
Entry requirements	No prior knowledge, understanding, skills or qualifications are required before students register for this qualification.
Funding	This qualification is eligible for funding as a Technical Occupational Entry qualification. Information about funding can be found on the <u>Find a learning aim database.</u>

3 Qualification structure

Pearson BTEC Level 3 Technical Occupational Entry for Data Technicians (Certificate)

The requirements outlined in the table below must be met for Pearson to award the qualification.

Minimum number of units that must be achieved	3

Unit number	Mandatory units title	Level	Guided learning hours
1	Role of Data and Legislation	3	70
2	Applying Data Science Principles	3	80
3	Communicating Using Data	3	50

4 Delivery

Occupational entry-level competence

This qualification is designed to be delivered in post-16 learning contexts. Delivery should focus on students' ability to use knowledge, skills and appropriate behaviours in the workplace. Links with the workplace should be encouraged throughout.

5 Assessment requirements

Language of assessment

Students must use English only during the assessment of this qualification.

A student taking the qualification(s) may be assessed in British Sign Language where it is permitted for the purpose of reasonable adjustment.

Further information on the use of language in qualifications is available in our *Use of languages in qualifications policy*, available on our website, qualifications.pearson.com.

Internal assessment

Internally assessed units are subject to standards verification. This means that centres set and mark the final summative assessment for each unit, drawing on mandatory evidence requirements and support that Pearson provides.

To pass each internally assessed unit, students must:

- achieve all the specified learning outcomes
- satisfy all the assessment criteria by providing sufficient and valid evidence for each criterion
- meet any prescribed evidence requirements for a unit, i.e. units may mandate practical demonstration of skills in a workplace or simulated environment
- prove that the evidence is their own.

Centres must ensure:

- assessment is carried out by tutors with relevant expertise in both the occupational area and assessment. For the occupational area, this can be evidenced by a relevant qualification or current (within three years) occupational experience that is at an equivalent level or higher than this qualification. Assessment expertise can be evidenced by qualification in teaching or assessing and/or internal quality assurance or current (within three years) experience of assessing or internal verification

- internal verification systems are in place to ensure the quality and authenticity of students' work, as well as the accuracy and consistency of assessment. These must include processes for detecting and reporting student malpractice such as plagiarism (including AI misuse), copying and collusion.

Students who do not successfully pass an assessment are allowed to resubmit evidence for the assessment.

Levels of control in internal assessment

Task setting

Centres are able to design tasks that address the assessment criteria within a unit. Restrictions on task setting such as mandatory forms of evidence requirement, or restrictions surrounding the context of assessment will be stated within the qualification unit and any accompanying authorised assignment brief(s). Although task setting is characterised as low control, Pearson applies quality assurance methodology to ensure that centre systems are in place to develop and assure high-quality assessments for students. The authorised assignment brief serves as a model for the expected presentation of a unit assessment. Further guidance and references are provided in *Section 9 Quality assurance of centres*.

Task taking

Centres must be able to authenticate the student response to the assessment. Supervision may not always be appropriate, if for example a student is gathering evidence for an assessment that is then prepared in a classroom environment. However, centres must be assured that students produce their own response to assessment criteria. This may require supervision of students in writing up outcomes to ensure they do not use text-generative AI software.

Task marking

Centre assessors and tutors will mark the student assessment response, using Pearson BTEC assessment/grading criteria and the guidance we provide in the specification and surrounding process, and training we provide supporting our quality assurance process. Pearson will quality assure the processes that centres use to ensure the standard of marking outcomes. We operate a risk-based quality assurance process ensuring that new centres, centres with large cohorts and centres with other risk factors get the support they need to ensure students achieve the outcome they have worked for.

Authorised Assignment Briefs (AABs)

Pearson has produced an Authorised Assignment Brief (AAB) for each unit to support centres in the assessment of this qualification. The AAB is published separately to the specification on the Pearson website both as a PDF and word document and sets out a recommended assessment approach. If students meet the requirements of the published AAB then they will meet the requirements set out in the assessment criteria.

It is strongly recommended that centres refer to the AAB for each unit.

Centres can use an AAB in three ways:

- As the assignment brief for students, without changing it.
- As a guide to the level of evidence that is required from students, while choosing to write their own assessment brief.

As a basis for their own assessments, taking the AAB and amending in line with a particular context or local need.

6   Centre recognition and approval

Centres must have approval prior to delivering any of the units in this qualification.

Centres that have not previously offered BTEC qualifications need to apply for, and be granted, centre recognition as part of the process for approval to offer individual qualifications.

Guidance on seeking approval to deliver BTEC qualifications is given on our website.

Approval agreement

All centres are required to enter into an approval agreement with Pearson, in which the head of centre or principal agrees to meet all the requirements of the qualification specification and to comply with the policies, procedures, codes of practice and regulations of Pearson and relevant regulatory bodies. If centres do not comply with the agreement, this could result in the suspension of certification or withdrawal of centre or qualification approval.

Centre resource requirements

As part of the approval process, centres must make sure that the resource requirements below are in place before offering the qualification:

- appropriate physical resources (for example IT, learning materials, teaching rooms, workshops, simulated workplaces and access to work experience where appropriate) to support the delivery and assessment of the qualification
- suitable staff for delivering and assessing the qualification (see *Section 5 Assessment requirements*)
- systems to ensure continuing professional development (CPD) for staff delivering and assessing the qualification
- health and safety policies that relate to the use of equipment by students
- internal verification systems and procedures (see *Section 5 Assessment requirements*)
- any unit-specific resources stated in individual units.

7 Access to qualifications

Access to qualifications for students with disabilities or specific needs

Equality and fairness are central to our work. Our *Equality, diversity and inclusion policy* requires all students to have equal opportunity to access our qualifications and assessments, and that our qualifications are awarded in a way that is fair to every student.

We are committed to making sure that:

- students with a protected characteristic (as defined by the Equality Act 2010) are not, when they are taking one of our qualifications, disadvantaged in comparison to students who do not share that characteristic
- all students achieve the recognition they deserve from their qualification and that this achievement can be compared fairly to the achievement of their peers.

For students with disabilities and specific needs, the assessment of their potential to achieve the qualification must identify, where appropriate, the support that will be made available to them during delivery and assessment of the qualification.

Centres must deliver the qualification in accordance with current equality legislation. For full details of the Equality Act 2010, please visit www.legislation.gov.uk.

Reasonable adjustments and special consideration

Centres are permitted to make adjustments to assessment to take account of the needs of individual students. Any reasonable adjustment must reflect the normal learning or working practice of a student in a centre or a student working in the occupational area.

Centres cannot apply their own special consideration – applications for special consideration must be made to Pearson and can be made on a case-by-case basis only.

Centres must follow the guidance in the Pearson document *Supplementary guidance for reasonable adjustments and special consideration in internal assessments.*

8 Recognising prior learning and achievement

Recognition of Prior Learning (RPL) considers whether a student can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and so do not need to develop through a course of learning.

Pearson encourages centres to recognise students' previous achievements and experiences in and outside the workplace, as well as in the classroom. RPL provides a route for the recognition of the achievements resulting from continuous learning.

RPL enables recognition of achievement from a range of activities using any valid assessment methodology. If the assessment requirements of a given unit or qualification have been met, the use of RPL is acceptable for accrediting a unit, units or a whole qualification. Evidence of learning must be valid, authentic, reliable, current and sufficient.

Further guidance is available in our policy document *Recognition of prior learning policy and process*, available on our website.

9 Quality assurance of centres

For the qualification in this specification, the Pearson quality assurance model will consist of the following processes.

Centres will receive at least one visit from our Standards Verifier, followed by ongoing support and development. This may result in more visits or remote support, as required to complete standards verification. The exact frequency and duration of Standards Verifier visits/remote sampling will reflect the level of risk associated with a programme, taking account of the:

- number of assessment sites
- number and throughput of students
- number and turnover of assessors
- number and turnover of internal verifiers
- amount of previous experience of delivery.

Following registration, centres will be given further quality assurance and sampling guidance.

For further details, please see the work-based learning quality assurance handbooks, available in the support section of our website:

- *Pearson Work-based Learning Centre Guide to Quality Assurance*
- *Pearson Work-based Learning Delivery Guidance & Quality Assurance Requirements.*
- Support is also available on our work based learning quality assurance webpages Quality Assurance – Work-based Learning (WBL) | Pearson qualifications

10 Units

This section of the specification contains the units that form the assessment for the qualification.

It is compulsory for students to meet all learning outcomes and the assessment criteria to achieve a grade. The assessment criteria determine the standard required. Content is compulsory unless it is provided as an example and is therefore marked 'e.g.,'. All compulsory content must be delivered, but assessments may not cover all content.

Where legislation is included in delivery and assessment, centres must ensure that it is current and up to date.

Unit 1: Role of Data and Legislation

Level:	3
Unit type:	Mandatory
Assessment type:	Internal
Guided learning hours:	70

Unit introduction

Data plays a vital role in an organisation, from influencing business decisions to highlighting new and exciting areas for growth and development.

In this unit students will examine data sets and learn different statistical methods and algorithms that can be used to find patterns and trends. They will use these tools to maximise the utilisation of data to ensure it reaches its full potential and facilitates the drawing of effective conclusions.

Students will explore the inherent complications that arise when compiling data from different sources and learn effective strategies to overcome these.

Students will understand the meaning of data governance and review the legislative landscape associated with data usage, focusing on concerns such as data protection, security and sharing as well as the ethical use of data.

Students will explore the roles and responsibilities of individuals within a data science team and how different collaboration tools can be used to allow teams to work together.

Finally, students will explore the personal attributes of a data technician and complete a skills audit to review their own development needs.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria
1. Be able to use data handling tools, statistical methods and algorithms to summarise trends and patterns in data	1.1 Use techniques to carry out data modelling including normalising unstructured data 1.2 Use statistical methods and algorithms to interrogate data 1.3 Identify patterns and trends in a given data set 1.4 Summarise findings coherently to meet the purpose and audience requirements 1.5 Describe how artificial intelligence can be used to manage and analyse data
2. Investigate commonly occurring data quality issues and design methods to overcome these	2.1 Import and clean given data sets ready for analysis 2.2 Assess the range of factors that affect the quality of given data sets and suggest how to overcome these 2.3 Design appropriate validation rules in data entry to reduce errors 2.4 Apply cross-checking techniques to identify faults to increase the confidence in data and its integrity
3. Understand data governance, legal and regulatory requirements surrounding the use of data and ethical issues	3.1 Explain the importance of data governance and the components that should be included to ensure organisations manage data effectively 3.2 Summarise legislation related to the use of data by organisations and use of intellectual property, its scope and enforcement 3.3 Discuss the ethical use of data including the concerns around privacy
4. Understand the roles of people within a multi-functional team and how collaboration tools can be used to allow teams to work effectively together	4.1 Describe the roles and responsibilities of individuals within a functional team 4.2 Discuss different communication and collaboration tools that can be used to allow teams to work together effectively 4.3 Demonstrate sensitivity to the needs of others and value difference within a team and data processing

Learning outcomes	Assessment criteria
5. Understand the different personal attributes of data technicians and review their own development needs	5.1 Describe the personal attributes of a data technician 5.2 Carry out a skills audit to review their own development needs and set targets for development 5.3 Discuss developments in technology and how these may impact the role of a data technician and their development needs

Unit content

What needs to be learned
Learning outcome 1: Be able to use data handling tools, statistical methods and algorithms to summarise trends and patterns in data

1A Data handling tools to create, import and prepare data sets

- Spreadsheet tools:
  - o Importing and exporting data
  - o Data cleaning tools
  - o Formulas
  - o Functions
  - o Sorting
  - o Filtering
  - o Pivot tables
  - o Conditional formatting
  - o Data validation.
- Database tools:
  - o Importing and exporting data
  - o Data cleaning tools
  - o Queries
  - o Functions
  - o Grouping
  - o Sorting.

1B Statistical methods to identify trends and patterns

- Averages:
  - o Mean
  - o Median
  - o Mode.
- Dispersion:
  - o Range
  - o Inter-quartile range
  - o Variance
  - o Standard deviation.

1C Tools and techniques to identify trends and patterns

- Regression analysis (e.g. simple, multiple).
- Cohort analysis.
- Cluster analysis.

What needs to be learned

- Factor analysis.
- Monte Carlo simulation.

1D Algorithms to identify trends, patterns and automate solutions to problems

- Algorithms to implement the methods, tools and techniques listed in 1A and 1B.
- Count occurrences algorithms.
- Anomaly detection algorithms.
- Search algorithms.
- Sort algorithms.

1E Data modelling techniques

- Identify entities and attributes.
- Establish relationships between entities.
- Identify primary and foreign keys.
- Normalisation of data:
  - First Normal Form (1NF):
    - Identified primary key
    - Unique field names
    - No repeating data
    - Atomic data
  - Second Normal Form (2NF):
    - Data is in 1NF
  - Non-key attributes depend on key attributes
  - Third Normal Form (3NF):
    - Data is in 2NF
    - Non-key attributes do not depend on other non-key attributes.

1F Use of Artificial Intelligence (AI)

Students should have an awareness of how AI can be used as a tool for data management, data analysis and workflow.

- Data cleaning and pre-processing.
- Identifying trends and patterns.
- Automating repetitive tasks.
- Creating data visualisations.
- Anomaly detection.
- Providing recommendations.

What needs to be learned
Students should adopt a continuous learning mindset and stay updated with advancements in AI technologies and how these impact data management and analysis.

1G Summarising and explaining gathered data

- Presentation tools:
  - o Graphical format
  - o Textual format
  - o Tabular format.
- Charts, e.g.:
  - o Line graph
  - o Scatter graph
  - o Histogram
  - o Heat map
  - o Stacked bar
  - o Pie chart.
- Dashboards:
  - o Slicers
  - o Filters.
- 'Drill down'.

Learning outcome 2: Investigate commonly occurring data quality issues and design methods to overcome these

2A Commonly occurring data quality issues

- Misclassification.
- Data redundancy:
  - o Repeated keys
  - o Duplicate data
  - o Orphaned data.
- Spelling errors.
- Obsolete data.
- Interpretation of compliance issues.
- Incorrect translation of meaning.

- Data entry errors:
  - Typographical errors
  - Inconsistent format
  - Abbreviations
  - Missing data.
- Irrelevant data.

2B Data validation

- Validation types:
  - Presence check
  - Length check
  - Type check
  - Range check
  - Format check
  - Lookup check
  - Check digit.
- Importance of taking corrective action:
  - Improved accuracy of data
  - Improved consistency and integrity of data
  - Improved decision making
  - Reduced operational risks
  - Compliance with regulation requirements.

2C Data cleaning techniques and considerations

- Techniques:
  - Removal of duplicate data and entries
  - Removal of typing errors
  - Removal of out-of-date data
  - Parse and format data according to national standards.
- Students should ensure they choose suitable data cleaning techniques that:
  - Remove errors, inconsistencies and duplicate data
  - Allow the data to be repurposed for different uses
  - Allow the data to be rehoused in different systems and on different platforms
  - Comply with legal regulations and ethical considerations.

2D Methods of assessing confidence and integrity of data

- Use of data validation techniques.
- Checking the age of data.
- Checking the accuracy of data.

- Checking the source of data.

- Checking the presentation of data.

2E Cross-checking techniques for identifying faults

Students should develop an awareness of different cross-checking techniques cross-verifying and double checking data accuracy.

- Reviewing data against other sources.

- Proofreading data.

- Double entry of data.

- Checking for outliers.

- Sampling data.

- Use of checksums/hashing.

Students should ensure cross-checking techniques include data within a central data system that caters to various business units and functions.

- Decision making.

- Strategic.

- Operational.

- Forecasting.

- Risk management.

Students should understand the importance of maintaining and ensuring quality throughout the entire workflow rather than considering this a task to be performed only at specific points in a process.

Learning outcome 3: Understand data governance, legal and regulatory requirements surrounding the use of data and ethical issues

3A Data governance components

Students should understand the importance of having effective policies, processes and practices in place to ensure organisations manage data effectively.

- Data governance components:
  - Data management (including collection, storage, processing, usage, archiving and deletion of data)
  - Quality assurance
  - Data security and privacy
  - Data ownership
  - Data retention.

- Importance of effective data governance:
  - Ensures data is high quality
  - Ensures compliance with legal and regulatory requirements

- o Maximises the value of data
- o Improves decision making
- o Fosters a culture of accountability
- o Builds trust in the data outcomes.

3B Legal and regulatory requirements

Students should understand the current legal and regulatory requirements surrounding the collection of data, use of data, storage of data (both on premises and on the cloud) and the retention of data.

- The role of the Information Commissioner's Office (ICO) as an independent body.
- Data Protection Act - General Data Protection Regulation (GDPR):
  - o Definition of personal data
  - o Principles for lawful and fair processing
  - o Data subject rights
  - o Penalties for non-compliance.
- Computer Misuse Act:
  - o Offences
  - o Penalties for non-compliance.
- Freedom of Information Act:
  - o Definition of public bodies
  - o Exceptions
  - o Penalties for non-compliance.
- Intellectual Property Rights:
  - o Patents, trademarks and copyright
  - o Assets protected
  - o Duration of rights
  - o Penalties for non-compliance.

Students should understand that data is constantly evolving and therefore ensure that any iterations made to a data model continue to meet legal requirements.

3C Data processing considerations

- Data sharing considerations:
  - o Consent of individuals
  - o Sharing only data that is necessary for the intended purpose
  - o Ensuring data is shared securely
  - o Requirements for sharing data outside of the European Economic Area (EEA).

- Marketing consent considerations:
  - Consent definition
  - Knowing when consent is required
  - Limitation of consent for specific purposes
  - Age of person giving consent
  - Withdrawal of consent.

3D Ethical use of data

- Transparency of data collection, processing and use.
- Avoiding bias in data processing and analysis.
- Avoiding making automatic decisions on individual's behalf.
- Ensuring consent has been obtained.
- Collection and use of data for specified and legitimate purposes.
- Avoiding unnecessary data collection.
- Striving for data accuracy:
  - Implementing robust security measures to protect data from unauthorised access.

Learning outcome 4: Understand the roles of people within a multi-functional team and how collaboration tools can be used to allow teams to work effectively together

4A Different roles within an organisation

Students should develop an understanding of the general roles and responsibilities of different team members.

- Customers.
- Managers.
- Clients.
- Peers.
- Technical members.
- Non-technical members.

4B Different roles and responsibilities within a data science team

Students should develop an understanding of the specific roles and responsibilities of different team members within a data science team.

- Data engineer.
- Data analyst.
- Data scientist.
- Data steward.

What needs to be learned

- Data ethicist.
- Data journalist.

4C Communication and collaboration tools

Students should investigate different communication and collaboration tools that can be used to allow teams to work effectively together.

- Workflow tools (e.g. assigning tasks to individuals, setting deadlines, sending reminders etc.).
- Collaborative working environments.
- Shared workspaces.
- Version control.
- Track changes.
- Communication tools to allow team members to communicate (e.g. chat facilities, discussion threads, video conferencing, document collaboration).

4D Value difference and be sensitive to the needs of others

Students should show that they can:

- Value difference and be sensitive to the needs of others within a team:
  - Respect differences in opinions
  - Actively listen to others
  - Maintain an open mind to learn from others
  - Actively listen to others without judgement or interruption.
- Value difference and be sensitive to the needs of others within data processing:
  - Make data accessible for diverse audiences and needs
  - Consider cultural differences in data collection, storage and usage
  - Ensure data sets represent a diverse population
  - Respect an individual's right to data privacy
  - Ensure input from various perspectives in the development of data governance policies and practices
  - Ensure data analysis does not exclude or misrepresent groups of people.

Learning outcome 5: Understand the different personal attributes of data technicians and review their own development needs

5A Personal attributes of a data technician

Students should understand the personal attributes required of a data technician.

- An analytical mindset.
- Curiosity.
- Attention to detail.

What needs to be learned

- Teamwork skills.
- Problem-solving skills.
- Adaptability.
- Resilience.

Students should be able to show the ability to be curious, question the origins of data, assess the effectiveness of data sources, and consider possible ethical, regulatory, and legal aspects.

5B Draw upon a range of learning techniques

Students should be encouraged to draw upon a range of different learning techniques in order to solve problems and carry out projects.

- Gained qualifications.
- Books.
- Online resources.
- Work experience.
- Mentors.
- Sector experts.

5C Review own development needs

Students should review their own development needs by:

- Completing a skills audit using a recognised framework.
- Identifying gaps in knowledge and skills.
- Establishing clear and achievable ways to address gaps in knowledge and skills.
- Identifying suitable training materials.

5D Keep up to date with developments in technology

Students should be encouraged to actively keep themselves up to date with developments in technologies, trends and innovation, including the impact that these developments have on their own development needs, e.g.:

- Artificial intelligence
- Machine learning
- Big data analytics
- Internet of Things
- Edge computing
- Quantum computing.

Students should be encouraged to use a range of sources such as online materials, online communities, research publications, newsletters and academic journals.

Essential information for tutors and assessors

Essential resources

For this unit, students need access to:

- sources of large data sets (e.g. Office for National Statistics or organisations such as Statista)
- appropriate software to import and analyse data (e.g. Microsoft Excel, Google Sheets)
- standard office software to summarise and present findings.

Assessment

This unit is internally assessed. To pass this unit, the evidence that students present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in the context of the students showing how they have demonstrated and developed their skills drawing on learning from the unit. It must be designed in a way that enables students to meet all the assessment criteria.

The Authorised Assignment Brief (AAB) that includes this unit is a recommended assessment approach and sets out suitable sources of evidence for the learning outcomes. It also gives information about the standard and quality of evidence expected for students to achieve the learning outcome and pass each assignment. It is important that the information is used carefully alongside the assessment criteria.

Centres are free to amend the AAB or create their own assignment if they are confident it enables students to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Unit 2: Applying Data Science Principles

Level:	3
Unit type:	Mandatory
Assessment type:	Internal
Guided learning hours:	80

Unit introduction

Data science is an exciting and rapidly evolving field. Combining skills and knowledge from a range of related fields, including technology, computer science and statistics, data science enables people to extract valuable insights from vast amounts of data.

In this unit students will explore the core technological, mathematical and statistical skills required to develop data solutions.

They will cover essential aspects of data science and apply the data science life cycle, which will include planning a solution in response to a given problem, gathering and preparing suitable data, and building a model to analyse the data.

Finally, students will review and refine the data model.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria
1. Investigate the use of data in a given context	1.1 Describe the meaning of data and information and when data becomes information
	1.2 Explain different types of data and how these are used to meet business and user needs
	1.3 Explore how data is generated and where it can be sourced
2. Be able to produce an initial plan for a given business problem	2.1 Describe the importance of using a structured approach during investigation work
	2.2 Define business and data needs in a given context
	2.3 Analyse the most appropriate available data sources, formats and architectures
	2.4 Assess the potential benefits and risks of the project
	2.5 Produce a high-level project plan
3. Be able to source and collect data for a given problem	3.1 Access and extract data from a range of relevant data sets and sources
	3.2 Summarise the gathered data
	3.3 Explain the purpose and value of the gathered data in meeting the intended aims
4. Be able to produce a useable data set for a given problem	4.1 Combine data sets as appropriate to the intended aims
	4.2 Assess combined data sets to identify potential quality issues
	4.3 Cleanse and reformat data sets to meet intended aims
	4.4 Collate and format data in line with industry standards
5. Be able to produce a model for a given problem	5.1 Carry out exploratory analysis of the data to explore the problem further and inform possible solutions
	5.2 Analyse the outcomes of exploratory analysis to classify the problem and identify the correct type of model
	5.3 Build a model to extract relevant data and information

Learning outcomes	Assessment criteria
6. Be able to monitor and maintain a data model	6.1 Review the results of the model in relation to the intended aims
	6.2 Refine the model and/or data sets to ensure it better meets the intended aims
	6.3 Discuss the need for continuous monitoring, upkeep and proactive maintenance of data
	6.4 Describe the key considerations that should be taken into account when disposing of or retaining data

Unit content

What needs to be learned

Learning outcome 1: Investigate the use of data in a given context

1A Difference between data and information

- Meaning of data.
- Meaning of information.
- The relationship between data and information.

1B Common sources of data

How data is generated, its characteristics and how it can be accessed in order to meet business needs.

- Types of data and its characteristics:
  - o Structured
  - o Unstructured
  - o Semi-structured
  - o Time-series.
- Internal sources of data, including:
  - o Customer relationship management (CRM) systems
  - o Employee surveys
  - o Enterprise resource planning (ERP) systems
  - o Financial data
  - o Operational data
  - o Point-of-sale (POS) systems
  - o Social media analytics
  - o Website analytics.
- External sources of data, including:
  - o Government agencies
  - o Industry associations
  - o Market research firms
  - o News and media sources
  - o Public databases
  - o Social media.

What needs to be learned

1C The use of data in businesses

How internal and external data can be used to gain insights into a range of business areas and performance.

- Internal data, including:
  - o Customer needs and behaviours
  - o Employee performance and/or opinions
  - o Efficiency of systems and processes
  - o Trends in sales and related markets
  - o Quality assurance.
- Using external data, including:
  - o Market trends
  - o Competitive landscape
  - o Customer needs and demographics
  - o Economic factors
  - o Legislative and regulatory factors.
- Data formats, their importance for analysis and how they impact use and accuracy.
- How internal and external data sources can be used to add value to a business or project (e.g. assessing risk, predicting demand for resources and products, identifying potential growth areas, evaluating customer satisfaction).

Throughout this learning outcome, students should investigate the role of data in the context of the digital world, including how data underpins every digital interaction and connectedness across the digital landscape such as applications, devices, Internet of Things and customer centricity.

Learning outcome 2: Be able to produce an initial plan for a given problem

2A Use of a structured investigative approach

Students should understand the importance of using a structured approach during their investigations, even during experimental tasks. Students should understand the importance of a structured approach in:

- Determining what should be measured at the start of an investigation
- Selecting and using data collection methods
- Selecting and using data cleaning tools
- Selecting and using analytical methods and techniques
- Interpreting results
- Documenting and reporting results
- Evaluating the project.

What needs to be learned

2B Data architecture

How data architecture is used in business to support data projects and business operations.

- Purpose and aims of data architecture:
    - Improve quality and consistency of data
    - Support use of data through data integration and sharing
    - Support governance and compliance
    - Support Confidentiality, Integrity and Availability (CIA) principles
    - Reduce costs associated with data management.
- The three levels of data architecture:
    - Conceptual – high-level business requirements
    - Logical – data models and the relationships between data
    - Physical – systems to store and manage the data (e.g. databases, storage devices).
- How data architecture is implemented in different scenarios to meet specific needs.

2C Defining the business problem

Explore the needs of a business problem to establish objectives and develop a plan to inform subsequent stages of a data project.

- Project summary:
    - Business context and overview
    - Issues that need to be resolved
    - Potential value of the project for the business.
- Explore the types of data, sources and formats that may be required.
- Explore potential data architectures that would be required to complete the project.
- Determine the potential value and pitfalls of the project (e.g. benefits, drawbacks, SWOT analysis), including consideration of:
    - The data currently available and what will need to be sourced
    - Data architecture currently in use in the business
    - Changes/additions that will need to be made to current data architecture
    - Timescales
    - Costs
    - Legal, regulatory and ethical considerations
    - Stakeholders.

What needs to be learned

2D High-level project plan

How the use of a high-level plan informs the data acquisition and data preparation stages of a project.

- High-level project plan to include:
  - Refined project summary based on initial analysis
  - Identification of data sources that will be used in the project
  - Key objectives, success criteria and evaluation metrics
  - Timelines and budgets:
    - Critical tasks to prioritise to ensure the project remains within given timescales and the budget available
    - Non-critical tasks that will not delay the project or impact the budget
    - Risk management plan.

Learning outcome 3: Be able to source and collect data for a given problem

3A Data acquisition

Explore processes and techniques for acquiring data from a range of sources.

- Selecting suitable data and data sources:
  - Reviewing readily available data (internal and external)
  - Identifying appropriateness and suitability of current available data
  - Identifying shortfalls in current data in relation to the objectives
  - Identifying and exploring additional data sources to improve current data and rectify shortfalls.
- Gathering data sets for a project:
  - The concept of bias and how it may impact the data
  - Selecting and using appropriate data structures and formats to store initial sources of data (e.g. JSON, CSV, XML).
- Accessing internal and external data sets:
  - Databases/CRM systems/business information systems
  - Application programming interfaces (APIs)
  - Open/public and private data sets
  - Web and social media analytics tools.
- Extract raw data from internal and external data sets.
- Legislative, ethical and security considerations and how these may impact the availability and use of data.
- Current data protection and computer security legislation.

What needs to be learned
• Ethical issues, including individual and organisational rights and responsibilities, e.g. guaranteeing individual anonymity while maintaining the quality of data, ensuring security and privacy of personal and sensitive data, protecting data against damage or corruption.

Learning outcome 4: Be able to produce a useable data set for a given problem

4A Data collection and formatting tools

Selecting and using appropriate tools to collect and format data.

- Back-end tools to structure and store data:
  - Cloud, network and local-based data storage
  - Database management systems (e.g. SQL/relational, NoSQL, In-memory, object-oriented).
- Front-end tools to extract and manipulate data:
  - Spreadsheet software (e.g. formulas, functions, pivot tables)
  - Business intelligence tools (e.g. Microsoft Power BI, Tableau, Dundas, Oracle BI)
  - Programming languages and data analysis libraries (e.g. Python with pandas and matplotlib, R with ggplot2)
  - Low-code/no-code platforms (e.g. Microsoft Power apps)
  - Dashboard builders.

4B Combining data sets

Appropriate data handling tools to produce combined data sets and explore the extent to which they meet the needs of the project.

- Initial exploration of the unmerged data sets to consider:
  - Content of the data set
  - Quality of the data within the data set (cleanliness, completeness, accuracy)
  - Structure of the data set
  - Overlap with other data sets
  - Privacy and security.
- Identify which sets to combine into a single data set.
- Transform data (e.g. change data type, rename fields, create new data points) to ensure data can be combined appropriately and that quality data can be achieved.
- Combining data sets ready for use, including:
  - Identifying common keys and related data points
  - Blending or merging data sets
  - Handling conflicts
  - Linking data sets where merging is not possible or not appropriate.

What needs to be learned

4C Cleansing and reformatting data sets

Apply data wrangling techniques to ensure the combined data sets are of high quality and will meet the needs of the project.

- Correct missing values.

- Remove duplicates and reduce data redundancy.

- Identify inconsistent values and why these may have occurred:
  - Human error (e.g. typos, incorrect values, misinterpreting information)
  - Data integrated from different sources (e.g. different scales, units, formats used)
  - Changes over time (e.g. changes in measurement methods, user/customer perception, emergence of new technologies)
  - Faulty infrastructure (e.g. sensors malfunctioning leading to inconsistent data readings)
  - Inconsistent definitions (e.g. use of acronym vs full term, non-standardised terms for similar data items, differences in languages and dialects).

- Apply validation to data sets to identify potential inconsistencies or anomalies in data sets and ensure future validity of data.

- Take corrective actions based on the outcomes of validation processes.

4D Collate and format data in line with industry standards

- Students should be able to collate and format data using recognised industry conventions, formats and guidelines, e.g.:
  - Using standardised formatting (e.g. for dates, postcodes, telephone numbers etc.)
  - Using naming conventions to ensure uniformity and clarity
  - Using universal file formats to ensure files are compatible with other systems
  - Using data encoding methods that are compatible with other systems
  - Normalising data to reduce redundancy.

Learning outcome 5: Be able to produce a model for a given problem

5A Exploratory data analysis (EDA)

Explore data characteristics and ensure that it is appropriate for use in the data project.

- Review the data structures, data types and meaning of the data to gain an understanding of the data as a whole.

- Define/revisit key metrics relevant to business requirements and available data.

- Perform statistical operations to develop an understanding of the data.

- Identify initial distribution of data, outliers and potential patterns.

- Gather additional data or expand/reduce existing data sets as appropriate to need.

- Iterate exploratory analysis on expanded data sets or until data is fully understood.

What needs to be learned

5B Data problem classification and analysis

Apply simple statistical methods and data modelling techniques to build a data model for the project.

- Classify the type of problem and model required based on the output it should generate:
  - o Number (regression)
  - o Class (classification)
  - o A set of groups (clustering)
  - o Main features in complex data (dimensionality reduction).
- Select and apply appropriate statistical methods based on the type of problem, including:
  - o Descriptive statistics
  - o Inferential statistics
  - o Correlation and regression.
- Select and apply appropriate data modelling techniques and algorithms based on the type of problem, including:
  - o Linear regression
  - o Logistic regression
  - o Trees and forests.
- Establish preliminary hypotheses.
- Deploy and run the model.

Learning outcome 6: Be able to monitor and maintain a data model

Students should develop an understanding that data is not static and that there is a need for continuous monitoring, upkeep and proactive maintenance to ensure data remains accurate, relevant and reliable over time.

6A Review results and refine a data model

Continually review and iterate your data model to effectively meet business requirements.

- Check the model, data outcomes for faults and anomalies:
  - o Cross-check with stakeholders
  - o Use domain knowledge to check outcomes are sensible
  - o Automated testing tools to check for consistency, normalisation and application of agreed standards
  - o Run additional validation checks.
- Review the outcomes of the model against preliminary hypotheses, the objectives of the business and the project requirements.

- Refine the hypotheses and/or project requirements as appropriate.
- Continually carry out reviews to ensure data:
  o Should and can continue to be used
  o Is still useful
  o Remains accurate and effective
  o Remains relevant
  o Still complies with legal and regulatory requirements
  o Continues to be safe and secure.

6B Data disposal and retention considerations

At the end of a project, students should understand the importance of classifying data based on sensitivity, relevance and legal requirements and how these impact the decision to retain or dispose of data.

- Data disposal considerations, e.g.:
  o Legal requirements and obligations related to data disposal
  o Secure disposable methods (e.g. physical destruction, data wiping, deleting encryption keys)
  o Ensuring data is disposed of from all devices used during the project, including removal media (e.g. USB memory sticks, portable hard drives etc.)
  o Ensuring third-party organisations follow compliant and secure data erasure methods
  o Carry out post-disposal checks/audits to ensure no data remains.
- Data retention considerations, e.g.:
  o Legal requirements and obligations related to data retention
  o Further data cleaning to remove/anonymise personally identifiable information
  o Ensuring data is not kept longer than necessary
  o Retaining only data required to meet business needs
  o Implementing robust measures to protect retained data from unauthorised access and misuse
  o Use of procedures to automatically delete or archive data once the specified retention period expires.

Essential information for tutors and assessors

Essential resources

For this unit, students need access to:

- Sources of large data sets
- Industry-standard software, including:
  - Spreadsheet software
  - Interactive development environments
  - Suitable programming and scripting languages (and associated libraries) to manipulate data (e.g. Python, R, SQL, TensorFlow)
  - Database management software (e.g. PostgreSQL, MySQL, MongoDB)
- Visualisation and dash-boarding software
- Cloud technologies to store and manipulate large data sets, as required (e.g. AWS DynamoDB, AWS SageMaker, Google AI).

Assessment

This unit is internally assessed. To pass this unit, the evidence that students present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in the context of the students showing how they have demonstrated and developed their skills drawing on learning from the unit. It must be designed in a way that enables students to meet all the assessment criteria.

The Authorised Assignment Brief (AAB) that includes this unit is a recommended assessment approach and sets out suitable sources of evidence for the learning outcomes. It also gives information about the standard and quality of evidence expected for students to achieve the learning outcome and pass each assignment. It is important that the information is used carefully alongside the assessment criteria.

Centres are free to amend the AAB or create their own assignment if they are confident it enables students to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

Unit 3: Communicating Using Data

Level:	3
Unit type:	Mandatory
Assessment type:	Internal
Guided learning hours:	50

Unit introduction

Modern organisations are increasingly data driven. Information is abundant and influential and underpins decision making across diverse sectors and domains.

This unit introduces the value of data and how by understanding the trends and patterns in data, organisations can improve their operations and add measurable value.

Students will examine how data is used in different contexts and how data needs can differ from stakeholder to stakeholder within different organisations.

Students will have the opportunity to develop data analysis skills to extract insights from data and explore how data insights should be presented to best suit the needs and expectations of different stakeholders.

Learning outcomes and assessment criteria

Learning outcomes	Assessment criteria
1. Understand the value of data in a business context	1.1 Explain the significance of data and the value it adds to a business 1.2 Explain the data requirements for a given business context
2. Be able to collate and format data in a given context	2.1 Explore data sources to identify data appropriate to a business context 2.2 Use data tools to format and prepare required data ready for analysis
3. Be able to interrogate and communicate data in a given context	3.1 Extract meaningful results from data to meet stakeholder and business needs 3.2 Prepare the results of data analysis ready for communication to stakeholders 3.3 Communicate the results of data analysis to stakeholders to meet identified business needs

Unit content

What needs to be learned

Learning outcome 1: Understand the value of data in a business context

1A The significance and value of data in the business environment

Use of data in organisations and how it is used to meet business requirements.

- Differences between strategic and operational use of data.
- The use of data in an organisation:
  - Identifying and calculating risk
  - Issue tracing and root cause analysis
  - Predicting changes in markets
  - Business modelling
  - Impact analysis
  - Social media and web analytics
  - Customer behaviour analysis and targeted marketing.
- How use of data adds measurable value to an organisation:
  - Improving quality of customer service
  - Optimising processes
  - Minimising costs and increasing profits
  - Improving brand awareness and reach
  - Predicting market trends and analysing competition.

1B Data requirements of a business

Explore business data requirements in a range of sectors and contexts.

- Internal stakeholders:
  - Management
  - Employees.
- External stakeholders:
  - Investors
  - Communities
  - Government organisations
  - Trade associations
  - Special interest groups
  - Customers/clients.
- Defining specific internal and external audiences for data and information.

What needs to be learned

• The data and information required by **internal** stakeholders to support:
   o Operational and strategic processes
   o Formal reports (e.g. proposals, financial summaries, sales reports)
   o Change planning and management
   o Incident response
   o Staff training.
• The data and information required by **external** stakeholders to support:
   o Advertising (direct and indirect)
   o Change planning and management
   o Incident response
   o Support and customer relationships management (CRM)
   o Compliance with industry-specific guidance and regulations
   o Gaining investment.

Learning outcome 2: Be able to collate and format data in a given context

2A Data collection and formatting tools

Select and use appropriate tools to collate and format data.

- Back-end tools to structure and store data:
  - Cloud, network and local-based data storage
  - Database management systems (e.g. SQL/relational, NoSQL, In-memory, object-oriented).
- Front-end tools to extract and manipulate data, e.g.:
  - Spreadsheet software
  - Business intelligence tools (e.g. Microsoft Power BI, Tableau, Dundas, Oracle BI)
  - Programming languages and data analysis libraries (e.g. Python with pandas and matplotlib, R with ggplot2)
  - Low-code/no-code platforms (e.g. Microsoft Power apps)
  - Dashboard builders.

2B Preparing data for use in a business data solution

Extract and combine data from a range of identified data sources to meet business needs.

- Collating data from different data sets (e.g. financial data, operational data, website analytics):
  - Identifying suitable data points to combine
  - Identifying common keys and related data points
  - Blending or merging data sets
  - Linking data sets where merging is not possible or not appropriate.

What needs to be learned

• Format data to ensure the combined data set is suitable for business needs, including:
   o Change data type (e.g. string to integer, integer to real)
   o Change formats (e.g. decimals and whole numbers, rounding values, capitalisation of strings)
   o Rename fields
   o Create new data points (e.g. calculations based on existing data).

Learning outcome 3: Be able to interrogate and communicate data in a given context

3A Data interrogation and extraction

Explore the use of data tools to analyse data and extract meaningful information.

- Define key data requirements relevant to different stakeholders.
- Perform mathematical operations to explore the data and produce initial results, including:
  - Basic mathematical operations (e.g. summation, averages, calculating differences)
  - Gaining insights and extracting meaning:
    – Comparing the outcomes of two or more data subsets
    – Establishing relationships between data points and subsets of data
    – Identifying correlations between data points and outcomes.
- Analyse initial results and refine interrogation method as appropriate.

3B Communicating data to different stakeholders

Explore how data is communicated to different stakeholders.

- Amount and type of information presented.
- Maintaining company image/brand identity.
- Legislative requirements.
- Use of technical vocabulary or jargon.
- Visual and textual balance.
- Clarity of information.
- Inclusion and diversity.
- Accessibility support.

3C Presenting a data narrative

Use data tools to convey a meaningful message and useful information to identified stakeholders.

- Produce clear and consistent technical documentation using standard organisational templates.

What needs to be learned

- Collate results and associated data points:
  - Ensure sufficient data points to meet need and convey meaning
  - Generate subsets of data appropriate to identified needs.
- Provide contextualisation for the data.
- Select appropriate tools to communicate with intended stakeholders, e.g.:
  - Written
  - Verbal
  - Non-verbal
  - Presentation
  - Email
  - Conversations.
- Select appropriate visualisation tools for extracted results and intended stakeholders:
  - Infographic
  - Charts and graphs
  - Tables.
- Factors to take into account when presenting a data narrative:
  - Significance of customer issues and problems
  - Business values
  - Brand awareness
  - Cultural awareness/diversity
  - Accessibility
  - Internal/external audience
  - Level of technical knowledge.
- Refine/adapt data visualisations to meet the needs of specific stakeholders (e.g. increasing/decreasing data points, changing tone of message, drawing greater attention to different metrics).
- Storytelling to convey the required message:
  - Introduction
  - Data analysis and interpretation
  - Conclusion/actionable insights.
- Interactivity (where appropriate) to allow stakeholder to explore the data further.
- Establishing a narrative:
  - What does the data show?
  - Why does this matter?
  - What actions can/should follow based on the data?

What needs to be learned

• Data interpretation:
    o What patterns, trends and outliers have been discovered? Why are these noteworthy?
    o Are there any limitations or uncertainties that should be noted? How might these impact the accuracy or the interpretation?
 • Present recommendations for specific actions to aid informed decisions.

Essential information for tutors and assessors

Essential resources

For this unit, students need access to:

- sources of large data sets
- industry-standard software, including:
  - spreadsheet software
  - interactive development environments
  - suitable programming and scripting languages (and associated libraries) to manipulate data (e.g. Python, R, SQL)
  - database management software (e.g. PostgreSQL, MySQL, MongoDB)
- visualisation and dash-boarding software.

Assessment

This unit is internally assessed. To pass this unit, the evidence that students present for assessment must demonstrate that they have met the required standard specified in the learning outcomes and assessment criteria.

The assessment for this unit should be set in the context of the students showing how they have demonstrated and developed their skills drawing on learning from the unit. It must be designed in a way that enables students to meet all the assessment criteria.

The Authorised Assignment Brief (AAB) that includes this unit is a recommended assessment approach and sets out suitable sources of evidence for the learning outcomes. It also gives information about the standard and quality of evidence expected for students to achieve the learning outcome and pass each assignment. It is important that the information is used carefully alongside the assessment criteria.

Centres are free to amend the AAB or create their own assignment if they are confident it enables students to provide suitable and sufficient evidence to meet the stated standard of the assessment criteria and achieve the learning outcomes.

11 Appeals

Centres must have a policy for dealing with appeals from students. Appeals may relate to assessment decisions being incorrect or assessment not being conducted fairly. The first step in such a policy is a consideration of the evidence by a Lead Internal Verifier or other member of the programme team. The assessment plan should allow time for potential appeals after students have been given assessment decisions.

Centres must document all students' appeals and their resolutions. Further information on the appeals process can be found in the document *Internal assessment in vocational qualifications: Reviews and appeals policy*, available on our website.

12   Malpractice

Dealing with malpractice in assessment

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

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

Malpractice may occur or be suspected in relation to any unit or type of assessment within a qualification. For further details on malpractice and advice on preventing malpractice by students, please see Pearson's *Centre Guidance: Dealing with Malpractice* available on our website.

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

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

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

Student malpractice

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

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

Failure to report malpractice constitutes staff or centre malpractice.

Teacher/centre malpractice

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

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

You should be aware that Pearson may need to suspend certification when undertaking investigations, audits and quality 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, such as:

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

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

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

The centre will be notified if any of these apply.

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

13 Further information and publications

- Edexcel, BTEC and Pearson Work Based Learning contact details: https://qualifications.pearson.com/en/contact-us.html.

- Books, software and online resources for UK schools and colleges: www.pearsonschoolsandfecolleges.co.uk.

- Our publications catalogue lists all the material available to support our qualifications. To access the catalogue and order publications, please visit our website.

Further documents that support the information in this specification:

- *Access arrangements and reasonable adjustments* (JCQ)

- *A guide to the special consideration process* (JCQ)

- *Collaborative and consortium arrangements for the delivery of vocational qualifications policy* (Pearson)

- *UK information manual* (updated annually and available in hard copy) **or** *Entries and information manual* (available online) (Pearson).

- *Distance learning and assessment policy* (Pearson)

14 Glossary

General terminology used in specification

Term	Description
Level	Units and qualifications have a level assigned to them. The level assigned is informed by the level descriptors defined by Ofqual, the qualifications regulator.
Guided learning hours (GLH)	This indicates the number of hours of activities that directly or immediately involve tutors and assessors in teaching, supervising, and invigilating students, for example lectures, tutorials, online instruction and supervised study. Units may vary in size.
Total qualification time (TQT)	This indicates the total number of hours that a typical student will take to complete the qualification. This is in terms of both guided learning hours but also unguided learning, for example private study, time spent in the workplace to master skills.
Learning outcomes	The learning outcomes of a unit set out what a student knows, understands or is able to do as the result of a process of learning.
Assessment criteria	The assessment criteria specify the standard the student is required to meet to achieve a learning outcome.
Unit content	This section sets out the required teaching content of the unit and specifies the knowledge, skills and understanding required for achievement of the unit. It enables centres to design and deliver a programme of learning that will enable students to achieve each learning outcome and to meet the standard determined by the assessment criteria.
Summative assessment	Assessment that takes place after the programme of learning has taken place.
Valid assessment	The assessment assesses the skills or knowledge/understanding in the most sensible, direct way to measure what it is intended to measure.
Reliable assessment	The assessment is consistent, and the agreed approach delivers the correct results on different days for the same students and different cohorts of students.

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BTEC