Level 3

Diploma in Business & Computing

(610/6701/5)

nqual.

SPECIFICATION PACK

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ABOUT NQUAL

NQual provides high-quality vocational and occupational qualifications designed to meet the needs of learners and employers.

At NQual we are committed to certificating current and relevant qualifications that meet the demands of today's ever-changing industries. Our dedication to staying at the forefront of knowledge ensures that our qualifications reflect the latest trends in your field of interest.

QUALIFICATION SPECIFICATION

Qualification Specifications are used to inform and guide centres to deliver the qualification set out within this document. Information within this specification includes a qualification overview, unit breakdowns, assessment guidance and learning outcomes.

Alongside the specification, you will also find a qualification 'Fact Sheet'. These are used as handy tools to provide an overview of the qualifications.

QUALIFICATION INFORMATION

The NQual Level 3 Diploma in Business and Computing is regulated by Ofqual.

- Qualification Number: 610/6701/5

Overview

This qualification is designed to support learner progression, enhance skills transferability, and reduce the need for repeated training and assessment when individuals change roles or sectors within the business and computing fields. It ensures that learners develop a strong foundation of both academic and practical skills that are widely applicable across industry settings.

The NQual Level 3 Diploma in Business and Computing has been developed to align with current employer expectations and sector standards. It incorporates essential competencies in communication, digital literacy, data handling, business operations, and programming.

This qualification is informed by national educational frameworks and industry input to ensure its relevance and applicability. It is internally assessed and externally quality assured, and follows NQual's quality assurance procedures and delivery standards.

Entry Requirements

- Minimum age 16
- Successful completion of GCSEs or an equivalent secondary school qualification

There are no further entry requirements for this qualification.

Unit Guidance

Learners must achieve all mandatory units. The total credit value for this qualification is 120

Mandatory Units

Unit Reference	Title	Level	GLH	Credit Value
D/651/8487	Essential Communication Skills	3	90	15
F/651/8488	Essential Academic Skills	3	90	15
H/651/8489	Essential Digital Skills	3	90	15
L/61/8490	Introduction to Artificial Intelligence	3	60	10

Optional Unit:

Unit Reference	Title	Level	GLH	Credit Value
M/651/8491	Principles of Business	3	90	15
R/651/8492	Business Finance	3	90	15
T/651/8493	Business Economics	3	60	10
Y/651/8494	Mathematics for Business	3	90	15
A/651/8495	Mathematics for Computing	3	90	15
D/651/8496	Critical Thinking and Analysis in Business	3	60	10
F/651/8497	Computational Thinking	3	60	10
H/651/8498	Computer Programming	3	90	15
J/651/8499	Working with Data	3	90	15
T/651/8500	Digital Circuits and Logic Design	3	60	10
Y/651/8501	Mathematics for Business Data Analytics	3	45	5
A/651/8502	Mathematics for Data Science	3	45	5

Guided Learning Hours

These hours are made up of contact time, guidance or supervision from course tutors, trainers, or training providers. The Guided Learning Hours for this qualification is 720.

Total Qualification Time

This is an estimate of the total length of time it is expected that a learner will typically take to achieve and demonstrate the level of understanding required for the award of this qualification. This includes the Guided Learning Hours and time spent completing independent study.

The Total Qualification Time for this qualification is 1200

Delivery Options

NQual allows qualifications to be delivered both online and face-to-face. Please check the additional requirements with your Centre EQA if delivering qualifications online.

Grading and Assessment

Assessment is used to measure a learner's skill or knowledge against the standards set in this qualification. This qualification is internally assessed and externally quality assured.

The assessment consists of:

- An internally assessed Portfolio of Evidence and externally quality assured by NQual.

A Portfolio of Evidence can contain:

- Assignments
- Examinations
- Course work
- Projects
- Evidence of working projects

Please note this is not an exhaustive list.

Approved Centre

To deliver any NQual qualification, each centre must be approved by NQual and meet the qualification approval criteria. The recognition process requires centres to implement policies and procedures to protect learners when undergoing NQual qualifications.

Approved centres must seek approval for each qualification they wish to offer.

The approval process requires centres to demonstrate that they have the resources, including staff, and processes in place to deliver and assess the qualification.

Once approved to offer this qualification, centres must register learners before any assessment takes place. Centres must follow NQual's procedures for registering learners.

Support From NQual

NQual support all new and existing approved centres. We respond to all communication within 48 hours and hold regular information webinars. If you would like to book our next webinar, please visit the 'News & Events' section on our website.

Initial Assessment

It is part of the enrolment process by the approved centre to complete an initial assessment. Approved centres must ensure everyone undertaking an NQual qualification complete some form of initial assessment. This will be used to inform the tutor/trainer of current knowledge and understanding.

Reasonable Adjustment

NQual is committed to providing fair and reasonable adjustments for learners to help reduce the effect of a disability or difficulty that places the learners at a disadvantage during an assessment. For more information on Reasonable Adjustments, please see our Reasonable Adjustments and Fair Access Policy.

Responsibilities

Assessor

It is important to note, that to assess qualification content, the assessor must be occupationally competent to assess skills-based competence and/or occupationally knowledgeable to assess knowledge-based content.

Assessors who deliver NQual qualifications must possess a qualification appropriate for the level they are delivering. Examples of these can include at least one of the following:

- D32 Assess Candidate Performance and D33 Assess Candidate Using Differing Sources of Evidence
- A1 Assess Candidate Performance Using a Range of Methods and A2 Assessing Candidates' Performance through Observation
- Level 3 Award in Assessing Competence in the Work Environment (for competence/skills learning outcomes only)
- Level 3 Award in Assessing Vocationally Related Achievement (for knowledge learning outcomes only)
- Level 3 Certificate in Assessing Vocational Achievement
- HEI Certificate in Education
- Qualified Teacher Status Certificate in Education in Post Compulsory Education (PCE)
- Post Graduate Certificate in Education
- Teaching Certificate in Teaching in the Lifelong Learning Sector (CTLLS)
- Diploma in Teaching in the Lifelong Learning Sector (DTLLS)
- L&D9DI - Assessing workplace competence using Direct and Indirect methods (Scotland)
- L&D9D - Assessing workplace competence using Direct methods (Scotland)
- Level 4 Certificate in Education and Training
- Level 5 Diploma in Education and Training
- Level 3 Learning and Skills Assessor Apprenticeship
- Level 5 Learning and Skills Teacher Apprenticeship

Examples of evidence for subject knowledge can include:

- Qualification at the same level or above, the qualification you are delivering
- Extensive experience at the same level or above, the qualification you are delivering

Internal Quality Assurer

Centre staff who complete Internal Quality Assurance for NQual qualification must possess or be working towards a relevant qualification. Examples of these can include at least one of the following:

- D34 Unit **Internally verify the assessment process**
- V1 Verifiers Award
- Level 4 Award in the Internal Quality Assurance of Assessment Processes and Practice or
- Level 4 Certificate in Leading the Internal Quality Assurance of Assessment Processes and Practice

Examples of evidence for subject knowledge must include at least one of the following:

- Qualification at the same level or above, the qualification you are quality assuring
- Extensive experience at the same level or above, the qualification you are quality assuring

MANDATORY UNITS

Unit Breakdown: Level 3 Diploma in Business and Computing

Learners must complete all mandatory units for this qualification.

Unit: Essential Communication Skills

Unit Code: D/651/8487

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Demonstrate clear and effective oral and written communication in academic and professional contexts.	1.1 Identify the key components of effective oral and written communication. 1.2 Produce written documents that are structured, clear, and appropriate to the context. 1.3 Deliver oral presentations using appropriate tone, pace, and body language. 1.4 Adapt communication style to suit academic and professional audiences. 1.5 Use correct grammar, punctuation, and spelling in written communication. 1.6 Evaluate the effectiveness of own communication through feedback and reflection.
2. Apply active listening, questioning, and interpersonal techniques to participate confidently in group discussions and presentations.	2.1 Demonstrate active listening skills in group interactions. 2.2 Use open and closed questioning techniques to elicit information. 2.3 Contribute constructively to group discussions. 2.4 Show awareness of non-verbal communication cues. 2.5 Apply interpersonal skills to build rapport and manage conflict. 2.6 Reflect on own participation and suggest improvements
3. Structure and present arguments logically, using appropriate vocabulary, grammar, and style for the intended audience.	3.1 Identify the components of a logical arguments. 3.2 Organise ideas coherently in written and oral formats. 3.3 Use appropriate vocabulary and tone for different audiences. 3.4 Apply correct grammar and syntax in communication. 3.5 Support arguments with evidence and examples. 3.6 Evaluate the clarity and persuasiveness of own arguments.

4. Use digital and non-digital communication tools to convey information accurately and persuasively.	4.1 Select appropriate communication tools for different contexts. 4.2 Use digital platforms (e.g., email, presentation software) effectively. 4.3 Create visual aids to support communication (e.g., charts, slides). 4.4 Demonstrate proficiency in non-digital tools (e.g., formal letters, reports). 4.5 Ensure accuracy and clarity in all forms of communication. 4.6 Assess the impact of chosen tools on audience understanding.
5. Reflect on personal communication strengths and areas for improvement to support progression to higher-level study.	5.1 Identify personal strengths in communication through self-assessment. 5.2 Recognise areas for improvement based on feedback. 5.3 Set SMART goals for communication development. 5.4 Develop an action plan to improve communication skills. 5.5 Monitor progress and adjust strategies as needed.

Unit Overview:

This unit aims to develop learners' ability to communicate effectively in academic and professional settings, using a range of oral, written, and digital formats. Learners will build confidence in group discussions, presentations, and reflective practice, while developing transferable skills essential for progression in business and computing environments.

Unit Guidance

Delivery should be interactive and practical, using workshops, role-play, and group activities. Tutors should encourage peer feedback, use digital tools for presentations, and integrate real-world scenarios.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback forms
- Reflective Accounts
- Story Boards
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Essential Academic Skills

Unit Code: F/651/8488

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Apply academic conventions, including referencing and citation, to produce written work in line with higher education standards.	1.1 Identify key academic conventions used in higher education writing. 1.2 Use appropriate referencing styles (e.g., Harvard, APA) consistently in written work. 1.3 Apply in-text citations accurately to support claims. 1.4 Compile a reference list or bibliography in line with academic standards. 1.5 Avoid plagiarism through correct paraphrasing and citation. 1.6 Evaluate the importance of academic integrity in written work.
2. Demonstrate independent learning skills through effective time management, note-taking, and study strategies.	2.1 Create and follow a personal study schedule to manage academic workload. 2.2 Use effective note-taking techniques during lectures or independent study. 2.3 Apply a range of study strategies to support learning and retention. 2.4 Demonstrate initiative in seeking resources and support for learning. 2.5 Reflect on own learning habits and identify areas for improvement.
3. Identify, analyse, and evaluate information from a range of academic sources to support arguments and assignments.	3.1 Identify credible academic sources relevant to a given topic. 3.2 Summarise key ideas from academic texts accurately. 3.3 Analyse the relevance and reliability of selected sources. 3.4 Integrate evidence from multiple sources to support arguments. 3.5 Evaluate the strengths and limitations of different types of sources. 3.6 Reference sources appropriately in written work.
4. Produce structured academic writing that shows coherence, clarity, and critical awareness at Level 3.	4.1 Plan and structure academic writing using appropriate formats (e.g., essays, reports). 4.2 Develop clear and coherent arguments supported by evidence. 4.3 Use formal academic language and tone throughout written work.

	4.4 Demonstrate critical awareness by comparing and contrasting viewpoints. 4.5 Apply correct grammar, punctuation, and spelling. 4.6 Review and edit written work to improve clarity and coherence.
5. Reflect on feedback from peers and tutors to improve academic performance and prepare for progression to Level 4 study.	5.1 Interpret feedback from tutors and peers to identify strengths and areas for improvement. 5.2 Set SMART targets based on feedback to enhance academic performance. 5.3 Implement changes in response to feedback in future assignments. 5.4 Reflect on academic progress and readiness for Level 4 study. 5.5 Maintain a personal development plan to track improvement over time.

Unit Overview:

This unit supports learners in developing core academic competencies required for success in higher-level study. Learners will build independent learning strategies, apply academic conventions such as referencing and citation, and produce structured, coherent written work. Through critical engagement with academic sources and reflective practice, learners will enhance their ability to communicate effectively in academic contexts.

Unit Guidance

Delivery should include workshops on referencing, study skills, and academic writing. Tutors should use exemplars, peer review, and guided practice.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Assignments
- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback forms
- Reflective Accounts
- Story Boards
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Essential Digital Skills

Unit Code: H/651/8489

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Demonstrate competence in using productivity software (e.g., word processing, spreadsheets, and presentation tools) for academic tasks.	1.1 Create and format documents using word processing software for academic purposes. 1.2 Use spreadsheet functions to organise, calculate, and present data. 1.3 Design and deliver presentations using appropriate software tools. 1.4 Apply consistent formatting and layout conventions across digital outputs. 1.5 Use templates and styles to enhance clarity and professionalism. 1.6 Save, organise, and manage files effectively across platforms.
2. Apply digital research techniques to locate, evaluate, and use reliable information sources.	2.1 Use search engines and academic databases to locate relevant information. 2.2 Apply advanced search techniques (e.g., Boolean operators, filters). 2.3 Evaluate the credibility and relevance of digital sources. 2.4 Extract key information from online texts and multimedia. 2.5 Reference digital sources accurately using academic conventions. 2.6 Reflect on the reliability and bias of online information.
3. Use virtual learning environments (VLEs), online collaboration platforms, and digital communication tools effectively for study.	3.1 Navigate and use features of a virtual learning environment (e.g., Moodle, Teams). 3.2 Participate in online discussions and forums appropriately. 3.3 Collaborate with peers using shared documents and project tools. 3.4 Communicate effectively using email, messaging, and video conferencing tools. 3.5 Submit assignments and access resources via digital platforms. 3.6 Troubleshoot common issues when using online learning tools.
4. Demonstrate an awareness of digital safety, security, and ethical practices in academic and professional contexts.	4.1 Identify common digital threats (e.g., phishing, malware) and protective measures. 4.2 Apply secure practices when handling personal and academic data.

	4.3 Demonstrate ethical behaviour in digital communication and content use. 4.4 Understand and comply with copyright and data protection regulations. 4.5 Use strong passwords and manage account security responsibly. 4.6 Reflect on the importance of digital citizenship and online professionalism
5. Create and present digital outputs (documents, presentations, or data visualisations) to communicate information clearly and effectively.	5.1 Select appropriate digital formats for different types of information. 5.2 Use visual elements (e.g., charts, tables, infographics) to enhance communication. 5.3 Ensure clarity, accuracy, and consistency in digital outputs. 5.4 Tailor digital content to suit the intended audience and purpose. 5.5 Present digital work using suitable platforms and tools. 5.6 Review and improve digital outputs based on feedback

Unit Overview:

This unit equips learners with the digital competencies required for academic and professional success. Learners will develop proficiency in productivity software, digital research, online collaboration, and communication tools. The unit also promotes awareness of digital safety, ethics, and responsible data handling.

Unit Guidance

Delivery should include hands-on sessions using word processors, spreadsheets, and presentation tools. Tutors should integrate VLEs and collaborative platforms.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Digital Portfolios
- Professional Discussion and/or Q&A records
- Written answers
- Presentations
- Feedback forms
- Practical Tasks

Please note this is not an exhaustive list.

Unit: Introduction to Artificial Intelligence

Unit Code: L/61/8490

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Demonstrate understanding of fundamental AI concepts, including machine learning, natural language processing, and robotics.	1.1 Define key AI concepts such as machine learning, natural language processing, and robotics. 1.2 Describe how machine learning algorithms learn from data. 1.3 Explain the role of natural language processing in AI systems. 1.4 Identify basic components and functions of AI-driven robotics. 1.5 Compare different branches of AI and their applications
2. Identify real-world applications of AI across business, healthcare, and society, recognising both opportunities and limitations.	2.1 Describe how AI is used in business, healthcare, and social contexts. 2.2 Identify benefits of AI in improving efficiency and decision-making. 2.3 Discuss limitations and risks associated with AI technologies. 2.4 Evaluate the impact of AI on employment and human interaction. 2.5 Provide examples of successful AI applications to solve problems.
3. Apply basic problem-solving approaches for specific domain using AI techniques.	3.1 Identify the problem exists in the given domain. 3.2 Analyse the current situation by conducting the background study. 3.3 Develop AI based solution to address the given problem. 3.4 Demonstrate the proposed solution using story boards. 3.5 Evaluate and justify the effectiveness of AI-inspired problem-solving approaches
4. Demonstrate awareness of ethical, social, and legal considerations in the development and use of AI.	4.1 Identify key ethical concerns related to AI (e.g., bias, privacy). 4.2 Identify key legal considerations relating to the development and use of AI 4.3 Discuss the social implications of AI in decision-making and surveillance. 4.4 Reflect on the role of human oversight in ethical AI development.

5. Reflect on the importance of AI in modern computing and its relevance for progression to higher-level study.	5.1 Summarise the role of AI in shaping modern computing practices. 5.2 Identify areas of computing where AI is increasingly influential. 5.3 Reflect on personal interest and readiness to pursue further study in AI. 5.4 Discuss how foundational AI knowledge supports progression to Level 4 or higher. 5.5 Set learning goals related to AI for future academic or career development.

Unit Overview:

This unit introduces learners to the fundamental concepts and applications of artificial intelligence. Learners will explore machine learning, natural language processing, and robotics, and examine real-world uses of AI across sectors. Ethical, legal, and social implications are also considered.

Unit Guidance

Delivery could include in class lectures, case studies, interactive discussions, and simulation tasks. Tutors should use multimedia resources and encourage reflection.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Professional Discussion and/or Q&A records
- Written answers
- Presentations
- Feedback forms
- Story Boards
- Witness Testimony

Please note this is not an exhaustive list.

OPTIONAL UNITS

Unit: Principles of Business

Unit Code: M/651/8491

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Demonstrate understanding of key business concepts, including organisational structures, business environments, and stakeholder roles.	1.1 Define key business concepts such as organisational structures and stakeholder roles. 1.2 Describe different types of organisational structures and their functions. 1.3 Explain the characteristics of various business environments (e.g., public, private, voluntary). 1.4 Identify the roles and interests of internal and external stakeholders. 1.5 Analyse how organisational structure influences business operations.
2. Analyse how businesses operate within local, national, and global contexts.	2.1 Describe the differences between local, national, and global business operations. 2.2 Identify factors that influence business activity in different geographic contexts. 2.3 Analyse the impact of globalisation on business strategy and operations. 2.4 Evaluate the challenges and opportunities of operating in international markets. 2.5 Use examples to illustrate how businesses adapt to different contexts.
3. Apply basic business theories to explain decision-making and performance in different types of organisations.	3.1 Identify key business theories relevant to decision-making and performance. 3.2 Apply basic models (e.g., SWOT, PESTLE, Maslow's hierarchy) to business scenarios. 3.3 Explain how business theories inform strategic and operational decisions. 3.4 Compare decision-making approaches in different types of organisations. 3.5 Evaluate the effectiveness of business theories in explaining performance outcomes.
4. Evaluate the impact of external factors such as competition, regulation, and technology on business activity.	4.1 Identify external factors that influence business activity. 4.2 Analyse the impact of competition on business strategy and performance. 4.3 Explain how regulation affects business operations and compliance.

	4.4 Evaluate the role of technology in driving innovation and efficiency. 4.5 Assess how businesses respond to changes in the external environment. 4.6 Use case studies to support evaluation of external influences.
5. Reflect on the relevance of business principles to future study and career development in management and entrepreneurship	5.1 Identify key business principles relevant to management and entrepreneurship. 5.2 Reflect on personal strengths and interests in relation to business careers. 5.3 Explain how understanding business principles supports future study. 5.4 Set personal goals for progression in business-related fields. 5.5 Evaluate the importance of business knowledge in entrepreneurial success

Unit Overview:

This unit provides learners with a foundational understanding of business operations and environments. Learners will explore organisational structures, stakeholder roles, and external influences on business activity. The unit supports progression into management and entrepreneurship.

Unit Guidance

Delivery should include business simulations, guest speakers, and analysis of case studies. Tutors should encourage group work and use real-world examples.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback forms
- Reflective Accounts
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Business Finance

Unit Code: R/651/8492

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Demonstrate understanding of fundamental financial concepts, including revenue, costs, profit, and cash flow.	1.1 Define key financial terms: revenue, costs, profit, and cash flow. 1.2 Distinguish between fixed and variable costs. 1.3 Calculate profit using basic financial data. 1.4 Explain the importance of cash flow in business operations. 1.5 interpret simple cash flow statements to assess financial health.
2. Apply financial tools such as break-even analysis, ratio analysis, and budgeting to business scenarios.	2.1 Calculate break-even points using relevant data. 2.2 Apply budgeting techniques to plan business expenditure and income. 2.3 Use financial ratios (e.g., gross profit margin, current ratio) to assess performance. 2.4 Interpret the results of financial tools to inform decision-making. 2.5 Evaluate the usefulness of financial tools in different business contexts.
3. Interpret financial statements and use them to assess the performance of a business.	3.1 Identify key components of financial statements (e.g., income statement, balance sheet). 3.2 Extract relevant data from financial statements. 3.3 Analyse financial performance using trends and comparisons. 3.4 Assess the financial health of a business based on statement data. 3.5 Explain how financial statements support strategic decision-making.
4. Present and explain financial information clearly using tables, charts, and graphs.	4.1 Select appropriate formats to present financial data (e.g., bar charts, pie charts, tables). 4.2 Create visual representations of financial information using digital tools. 4.3 Label and annotate charts and graphs for clarity and accuracy. 4.4 Interpret visual data to explain financial trends and outcomes. 4.5 Tailor financial presentations to suit different audiences (e.g., investors, managers).

5. Develop awareness of the importance of financial planning and management for business success.	5.1 Explain the role of financial planning in achieving business objectives. 5.2 Identify risks associated with poor financial management. 5.3 Discuss strategies for effective financial control and monitoring. 5.4 Reflect on the importance of financial literacy for business professionals. 5.5 Evaluate how financial planning supports long-term sustainability and growth.

Unit Overview:

This unit introduces learners to key financial principles and tools used in business. Learners will explore concepts such as revenue, costs, profit, and cash flow, and apply techniques like budgeting, ratio analysis, and break-even analysis to assess performance.

Unit Guidance

Delivery should include practical exercises using financial data, spreadsheet modelling, and scenario analysis. Tutors should use case studies and encourage interpretation of financial statements.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Financial Reports
- Calculations
- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback forms
- Reflective Accounts
- Story Boards
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Business Economics

Unit Code: T/651/8493

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Demonstrate understanding of fundamental economic concepts, including supply and demand, market structures, and government intervention.	1.1 Define key economic concepts such as supply, demand, market structures, and government intervention. 1.2 Explain how supply and demand influence pricing and resource allocation. 1.3 Describe different market structures (e.g., perfect competition, monopoly) and their characteristics. 1.4 Outline the role of government in regulating markets and correcting market failures. 1.5 Use examples to illustrate how economic concepts apply to real-world business scenarios.
2. Apply basic economic theories to analyse how individuals, businesses, and governments make decisions.	2.1 Identify economic theories relevant to decision-making (e.g., opportunity cost, marginal utility). 2.2 Apply basic economic models to explain consumer and business behaviour. 2.3 Analyse how governments use economic tools (e.g., taxation, subsidies) to influence outcomes. 2.4 Compare decision-making approaches across individuals, businesses, and governments. 2.5 Evaluate the effectiveness of economic theories in explaining real-world decisions.
3. Interpret simple economic data (graphs, tables, and statistics) to explain trends and patterns in business contexts.	3.1 Extract relevant information from economic graphs, tables, and datasets. 3.2 Identify trends and patterns in economic data. 3.3 Use data to explain changes in business activity or market conditions. 3.4 Present interpretations using appropriate terminology and reasoning. 3.5 Evaluate the reliability and limitations of economic data sources.
4. Evaluate the impact of microeconomic and macroeconomic factors on business performance and strategy.	4.1 Distinguish between microeconomic and macroeconomic factors affecting business. 4.2 Analyse how factors such as inflation, interest rates, and unemployment influence business decisions. 4.3 Evaluate the impact of consumer behaviour and market competition on business performance. 4.4 Assess how economic policy (e.g., fiscal or monetary) affects strategic planning. 4.5 Use case studies to support evaluation of economic influences on business.

5. Develop awareness of how economic thinking supports informed decision-making in higher-level business studies.	5.1 Explain the relevance of economic principles to business strategy and planning. 5.2 Reflect on how economic thinking enhances problem-solving and analysis. 5.3 Identify areas of business study where economics plays a key role. 5.4 Set personal goals for applying economic knowledge in future academic or career pathways.

Unit Overview:

This unit explores economic principles and their application to business decision-making. Learners will examine supply and demand, market structures, and government intervention, and analyse microeconomic and macroeconomic factors affecting business performance.

Unit Guidance

Delivery should include economic simulations, data interpretation tasks, and policy analysis. Tutors should use current events and encourage debate. Assessment may include essays, data analysis, and case study evaluations.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Observation Records
- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback forms
- Reflective Accounts
- Story Boards
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Mathematics in Business

Unit Code: Y/651/8494

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Apply essential mathematical techniques (e.g., percentages, ratios, and indices) to solve practical business problems.	1.1 Calculate percentages to determine changes in sales, costs, or profits. 1.2 Use ratios to compare financial or operational data. 1.3 Apply index numbers to measure changes over time (e.g., inflation, market trends). 1.4 Solve business problems using appropriate mathematical techniques. 1.5 Interpret results to inform business decision
2. Use algebraic methods and simple equations to support financial and operational decision-making.	2.1 Construct and solve linear equations relevant to business scenarios. 2.2 Use formulas to calculate financial metrics (e.g., profit, revenue, cost). 2.3 Rearrange equations to isolate variables and solve for unknowns. 2.4 Evaluate the usefulness of algebraic methods in decision-making.
3. Interpret and present business-related quantitative information through charts, tables, and graphs.	3.1 Extract data from business tables and charts. 3.2 Create bar charts, pie charts, and line graphs to present business data. 3.3 Label and format visual data accurately for clarity. 3.4 Interpret trends and patterns from graphical representations. 3.5 Select appropriate visual formats based on the type of data and audience.
4. Analyse and solve problems involving business mathematics concepts such as break-even, profit margins, and basic statistics.	4.1 Calculate break-even points using cost and revenue data. 4.2 Determine profit margins and assess business performance. 4.3 Apply basic statistical measures (e.g., mean, median, mode) to business data. 4.4 Analyse business scenarios using quantitative methods. 4.5 Evaluate the implications of mathematical findings for business strategy.

5. Demonstrate confidence in applying mathematical reasoning to business case studies, supporting progression to higher-level study in business and data analytics.	5.1 Apply mathematical techniques to solve problems in business case studies. 5.2 Justify mathematical approaches used in decision-making. 5.3 Reflect on personal strengths and areas for improvement in business maths. 5.4 Set goals for developing mathematical skills for future study. 5.5 Evaluate the role of mathematical reasoning in business and data analytics.

Unit Overview:

This unit develops learners' ability to apply mathematical techniques to business scenarios. Learners will use percentages, ratios, algebra, and statistics to solve problems and support decision-making in financial and operational contexts.

Unit Guidance

Delivery should include problem-solving workshops, spreadsheet modelling, and visual data tasks. Tutors should use business case studies and encourage reasoning. Assessment may include calculations, graphs, and written justifications.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Observation Records
- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback forms
- Reflective Accounts
- Story Boards
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Mathematics for Computing

Unit Code: A/651/8495

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Apply key mathematical concepts (e.g., algebra, functions, and basic calculus) relevant to computing and data analysis.	1.1 Solve algebraic expressions and equations relevant to computing tasks. 1.2 Apply functions and mappings to model computational relationships. 1.3 Use basic calculus concepts (e.g., differentiation) to analyse change in computing contexts. 1.4 Interpret mathematical notation used in computing and data analysis. 1.5 Evaluate the relevance of algebra, functions, and calculus in solving computing problems.
2. Demonstrate competence in number systems, logic, and Boolean algebra used in computational contexts.	2.1 Convert between number systems (binary, decimal, hexadecimal). 2.2 Perform arithmetic operations in binary and hexadecimal formats. 2.3 Apply logic gates and truth tables to solve computational problems. 2.4 Use Boolean algebra to simplify logical expressions. 2.5 Explain the role of number systems and logic in computer architecture and programming.
3. Use mathematical techniques to model and solve structured problems in computing scenarios.	3.1 Identify mathematical models suitable for solving computing problems. (e.g. linear equations, graphs, matrices) 3.2 Apply appropriate techniques (e.g., linear equations, graphs, matrices) to model scenarios. 3.3 Solve structured problems using step-by-step mathematical reasoning. 3.4 Interpret solutions in the context of computing applications. 3.5 Evaluate the effectiveness of mathematical models in solving real-world computing problems.
4. Interpret and present quantitative data using graphs, tables, and appropriate mathematical notation.	4.1 Organise computing-related data into tables and charts. 4.2 Create graphs to represent trends and relationships in quantitative data. 4.3 Interpret graphical and tabular data to draw conclusions. 4.4 Present data clearly and accurately for technical and non-technical audiences.

5. Develop confidence in applying mathematical reasoning to support progression into higher-level computing and data science modules	5.1 Apply mathematical reasoning to solve computing-related case studies. 5.2 Reflect on personal strengths and areas for development in mathematical skills. 5.3 Identify how mathematical concepts support further study in computing and data science. 5.4 Set goals for improving mathematical competence in preparation for Level 4 study. 5.5 Evaluate the importance of mathematical thinking in computing careers.

Unit Overview:

This unit supports learners in applying mathematical principles to computing contexts. Learners will explore algebra, functions, calculus, number systems, and logic to model and solve problems in programming and data analysis.

Unit Guidance

Delivery should include coding exercises, logic puzzles, and mathematical modelling. Tutors should use visual tools and computing applications.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Diagrams
- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback forms
- Reflective Accounts
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Critical Thinking and Analysis in Business

Unit Code: D/651/8496

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Demonstrate understanding of critical thinking concepts, including argument, evidence, and reasoning.	1.1 Define key critical thinking concepts such as argument, evidence, and reasoning. 1.2 Distinguish between fact, opinion, and assumption in business contexts. 1.3 Explain the role of evidence in supporting business arguments. 1.4 Identify logical reasoning patterns used in business decision-making. 1.5 Evaluate the quality of arguments based on clarity, relevance, and support.
2. Analyse and evaluate business problems by identifying assumptions, strengths, and weaknesses in arguments.	2.1 Identify assumptions underlying business decisions or proposals. 2.2 Analyse the strengths and weaknesses of arguments in business case studies. 2.3 Evaluate the credibility and reliability of sources used to support arguments. 2.4 Apply critical questioning techniques to assess business problems. 2.5 Suggest improvements to arguments based on logical analysis.
3. Apply structured problem-solving and decision-making frameworks to case studies.	3.1 Select appropriate problem-solving frameworks (e.g., SWOT, root cause analysis). 3.2 Apply decision-making models (e.g., cost-benefit analysis, decision trees) to business scenarios. 3.3 Break down complex problems into manageable components. 3.4 Justify decisions using structured reasoning and evidence. 3.5 Reflect on the effectiveness of chosen frameworks in solving business problems.

4. Communicate balanced, well-reasoned conclusions supported by evidence from multiple sources.	4.1 Structure written or verbal conclusions clearly and logically. 4.2 Use evidence from multiple sources to support conclusions. 4.3 Present balanced viewpoints, acknowledging alternative perspectives. 4.4 Apply appropriate academic and professional conventions in communication. 4.5 Review and refine conclusions based on feedback and further analysis.
5. Reflect on the role of critical thinking as a transferable skill for higher education and professional business practice.	5.1 Explain the importance of critical thinking in academic and workplace settings. 5.2 Reflect on personal strengths and areas for development in critical thinking. 5.3 Identify examples of how critical thinking supports business decision-making. 5.4 Set goals for improving critical thinking skills in future study or employment. 5.5 Evaluate the relevance of critical thinking for progression to higher-level business modules.

Unit Overview:

This unit develops learners' ability to think critically and analyse business problems using structured reasoning and evidence. Learners will explore concepts such as argument, evidence, and logic, and apply decision-making frameworks to real-world scenarios. Emphasis is placed on evaluating arguments, communicating conclusions, and reflecting on critical thinking as a transferable skill for higher education and professional practice.

Unit Guidance

Delivery should focus on active learning through case studies, debates, and structured problem-solving tasks. Tutors should introduce critical thinking models and encourage learners to analyse business scenarios using questioning techniques.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback forms
- Reflective Accounts
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Computation Thinking

Unit Code: F/651/8497

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Demonstrate understanding of fundamental computational thinking concepts, including abstraction, decomposition, pattern recognition, and algorithms.	1.1 Define key computational thinking concepts: abstraction, decomposition, pattern recognition, and algorithms. 1.2 Explain how abstraction helps simplify complex problems. 1.3 Describe the process of breaking down problems using decomposition. 1.4 Identify patterns in data or processes to support problem-solving. 1.5 Outline the role of algorithms in solving structured tasks.
2. Apply logical reasoning and step-by-step problem-solving techniques to structured tasks.	2.1 Use logical reasoning to analyse and solve computing-related problems. 2.2 Apply step-by-step approaches to break down and solve tasks. 2.3 Identify errors or inefficiencies in problem-solving processes. 2.4 Justify chosen methods based on logical analysis. 2.5 Reflect on the effectiveness of problem-solving strategies used.
3. Translate simple real-world problems into computational representations such as flowcharts or pseudocode.	3.1 Identify key components of a real-world problem suitable for computational modelling. 3.2 Create flowcharts to represent problem-solving processes. 3.3 Write basic pseudocode to describe algorithmic solutions. 3.4 Use standard conventions and symbols in flowcharts and pseudocode. 3.5 Evaluate the clarity and accuracy of computational representations.
4. Demonstrate the ability to design and implement flowcharts that apply the principles of sequence, selection, and repetition to solve computational problems, using appropriate digital tools.	4.1 Construct flowcharts that accurately represent step-by-step sequence structures to model computational processes. 4.2 Incorporate selection (decision-making) structures within flowcharts to solve problems involving conditional logic. 4.3 Develop flowcharts that use repetition (looping) structures to represent tasks requiring iterative processing.

	4.4 Execute and test flowcharts using appropriate digital tools to ensure they function correctly and meet the intended outcomes.
5. Demonstrate understanding of the fundamental features of a high-level programming language, including its syntax, structure, and how these elements are used to construct computational solutions	5.1 Select suitable digital tools (e.g., code editors, visual programming platforms) for designing and developing algorithmic solutions. 5.2 Describe the key characteristics and intended use of a high-level programming language. 5.3 Identify and explain the syntax rules and conventions of a chosen programming language. 5.4 Outline how the syntax of a programming language is applied to develop simple programs. 5.5 Test and validate programs using conditional logic to ensure they function as intended.

Unit Overview:

This unit introduces learners to the core principles of computational thinking, including abstraction, decomposition, pattern recognition, and algorithms. Learners will apply logical reasoning to solve structured problems and translate real-world scenarios into computational representations such as flowcharts and pseudocode. The unit supports progression into programming and data science by building foundational problem-solving skills.

Unit Guidance

Delivery should include hands-on activities such as flowchart creation, pseudocode writing, and algorithm design. Tutors should use visual tools and structured tasks to reinforce concepts. Learners should be encouraged to test and refine their solutions using digital platforms.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Problem-solving exercises, design tasks,
- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback forms
- Reflective Accounts
- Story Boards
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Computer Programming

Unit Code: H/651/8498

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Demonstrate understanding of data structures and algorithms.	1.1 Explain data structures such as lists, sets and sequence. 1.2 Explain how data structures store data and their different characteristics 1.3 Use data structures to develop computational algorithms.
2. Understand data types and determine appropriate usage in computing scenarios.	2.1 Explain the differences between common data types (e.g., integer, float, string, Boolean). 2.2 Describe the characteristics and limitations of each data type (e.g., size, precision, mutability).. 2.3 Select suitable data types for storing and processing data in given scenarios. 2.4 Identify errors or inefficiencies in problem-solving caused by incorrect data type selection (e.g., type mismatch, memory overhead).
3. Understand modularity in programming and how functions support modular design.	3.1 Define modularity and explain its importance in programming. 3.2 Describe the role of functions in achieving modularity. 3.3 Create simple functions to demonstrate modular design. 3.4 Create simple functions to demonstrate modular design. 3.5 Apply modularity principles in a small program by breaking tasks into functions.
4. Apply advanced modularisation concepts using modules and packages to structure programs effectively.	4.1 Explain how modularization extends beyond individual functions. 4.2 Demonstrate how related functions can be grouped logically into modules. 4.3 Implement complex algorithms using modules and packages for better organization. 4.4 Evaluate the benefits of reusability and maintainability in a modular approach.
5. Apply practical techniques for data storage and retrieval using text files and databases.	5.1 Explain the practical uses of data storage in computing. 5.2 Demonstrate how to store data using simple text files. 5.3 Apply methods to search, retrieve, and modify data in text files. 5.4 Compare text files and databases in terms of structure and functionality. 5.5 Perform basic database operations: create, read, update, and delete data.

	5.6 Explain how effective data storage supports complex programming tasks.

Unit Overview:

This unit provides learners with foundational programming skills. Learners will write simple programs using variables, control structures, and functions, and apply debugging and testing techniques to refine code.

Unit Guidance

Delivery should include coding labs, walkthroughs, and peer review. Tutors should use high-level languages and encourage experimentation.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Code Submissions, design plans and error logs
- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback forms
- Reflective Accounts
- Story Boards
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Working with Data

Unit Code: J/651/8499

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Understand the evolution of data storage systems and evaluate the characteristics of relational and non-relational databases.	1.1 Describe the transition from paper-based to file-based and relational database systems. 1.2 Explain the key features of relational and non-relational databases 1.3 Compare the advantages and limitations of relational vs non-relational models. 1.4 Evaluate the impact of database evolution on modern business data management.
2. Be able to construct and interpret conceptual data models using entity-relationship diagrams.	2.1 Identify entities, attributes, and relationships from a given scenario. 2.2 Create an entity-relationship diagram (ERD) using appropriate notation. 2.3 Apply correct multiplicities (cardinalities) to relationships. 2.4 Justify the design choices made in the conceptual model.
3. Be able to design a relational database system that meets specified user requirements.	3.1 Produce a logical database design including tables, fields, and relationships. 3.2 Apply normalisation techniques up to 3NF. 3.3 Create a data dictionary and schema documentation. 3.4 Justify how the design meets the specified requirements.
4. Be able to implement and manipulate a relational database using SQL.	4.1 Use DDL commands to create and modify database structures. 4.2 Use DML commands to insert, update, and delete data. 4.3 Apply referential integrity constraints and primary/foreign keys. 4.4 Create and execute queries using multiple tables and criteria.
5. Design and implement secure database integration with external applications, demonstrating proficiency in user access control, data protection, and backup and recovery techniques	5.1 Identify and establish basic connections between a database and an external application to enable data interaction. 5.2 Apply simple user authentication and authorization techniques to control access to database resources. 5.3 Demonstrate the use of basic data protection methods, such as input validation and secure handling of information.

	5.4 Describe and perform basic database backup and recovery procedures to protect and restore data when required.

Unit Overview:

This unit introduces learners to the fundamental principles and practices of working with data in a business and computing context. It explores the historical development of data storage systems, from paper-based records to modern relational and non-relational databases. Learners will develop skills in data modelling, database design, and implementation using SQL. Through practical tasks, they will construct and manipulate relational databases, applying industry-standard techniques such as normalisation and referential integrity. The unit also emphasises the importance of evaluating database solutions against user requirements, ensuring learners can design systems that are both functional and fit for purpose.

Unit Guidance

This unit should be delivered through a blend of theoretical teaching and practical application. Tutors are encouraged to use real-world case studies and vocational scenarios to illustrate the evolution of data systems and the role of databases in business. Learners should engage in hands-on activities such as creating entity-relationship diagrams, designing schemas, and writing SQL queries using industry-standard tools.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Database projects, queries, and visual reports.
- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback forms
- Reflective Accounts

Please note this is not an exhaustive list.

Unit: Digital Circuits and Logic Design

Unit Code: T/651/8500

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Demonstrate understanding of number systems, logic gates, and Boolean algebra as the foundation of digital systems.	1.1 Convert between binary, decimal, and hexadecimal number systems. 1.2 Identify and describe the function of basic logic gates (AND, OR, NOT, NAND, NOR, XOR). 1.3 Explain how Boolean algebra is used to represent logical operations. 1.4 Apply Boolean expressions to model digital logic circuits. 1.5 Evaluate the role of number systems and logic in digital computing.
2. Construct and interpret truth tables, logic expressions, and circuit diagrams.	2.1 Create truth tables for basic and compound logic expressions. 2.2 Interpret truth tables to determine circuit behaviour. 2.3 Write Boolean expressions based on logic gate configurations. 2.4 Draw circuit diagrams using standard logic gate symbols. 2.5 Analyse the output of circuits using truth tables and Boolean logic.
3. Design and test simple combinational and sequential circuits using standard techniques.	3.1 Design basic combinational circuits (e.g., adders, multiplexers). 3.2 Construct simple sequential circuits (e.g., flip-flops, counters). 3.3 Simulate circuit behaviour using digital tools or software. 3.4 Test circuit designs for accuracy and functionality. 3.5 Refine circuit designs based on testing and feedback.
4. Apply logical reasoning to solve structured problems in circuit design and digital electronics.	4.1 Analyse structured problems to identify logical requirements. 4.2 Apply Boolean simplification techniques to optimise circuit design. 4.3 Use Karnaugh maps or other methods to minimise logic expressions. 4.4 Justify design choices using logical reasoning and technical principles. 4.5 Evaluate the effectiveness of solutions in meeting design specifications.

5. Reflect on the importance of digital logic in underpinning modern computing systems.	5.1 Explain how digital logic supports the operation of computing hardware. 5.2 Identify real-world applications of digital logic in computing and electronics. 5.3 Reflect on personal learning and confidence in digital logic concepts. 5.4 Set goals for progression into advanced computing or electronics modules. 5.5 Evaluate the relevance of digital logic for careers in IT, engineering, or data systems.

Unit Overview:

This unit introduces learners to the principles of digital logic and circuit design. Learners will explore number systems, Boolean algebra, and logic gates, and design and test simple digital circuits. The unit provides a foundation for understanding how digital logic underpins modern computing systems and supports progression into electronics, IT, and engineering pathways.

Unit Guidance

Delivery should include circuit simulations, truth table exercises, and logic puzzles. Tutors should use visual tools and hands-on activities to reinforce concepts such as number system conversions, logic gate functions, and Boolean algebra. Learners should be encouraged to design, test, and refine combinational and sequential circuits using digital tools or software.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Diagrams, calculations, circuit design projects
- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback Forms
- Reflective Accounts
- Story Boards
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Mathematics for Business Data Analysis

Unit Code: Y/651/8501

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Demonstrate understanding of mathematical concepts relevant to business decision-making, including algebra, calculus, and financial mathematics.	1.1 Define key mathematical concepts used in business decision-making. 1.2 Apply algebraic techniques to model business relationships and solve equations. 1.3 Use basic calculus (e.g., differentiation) to analyse rates of change in business contexts. 1.4 Apply financial mathematics to calculate interest, annuities, and investment returns. 1.5 Evaluate the relevance of mathematical concepts in supporting business decisions.
2. Apply statistical methods such as correlation, regression, and hypothesis testing to business data.	2.1 Calculate correlation coefficients to assess relationships between variables. 2.2 Perform simple linear regression analysis on business datasets. 2.3 Conduct hypothesis testing using appropriate statistical methods. 2.4 Interpret statistical results to inform business decisions. 2.5 Evaluate the reliability and limitations of statistical findings.
3. Use mathematical models to analyse trends, forecast outcomes, and support evidence-based business decisions.	3.1 Identify appropriate mathematical models for analysing business data. 3.2 Apply trend analysis techniques to interpret historical data. 3.3 Use forecasting methods (e.g., moving averages, exponential smoothing) to predict outcomes. 3.4 Justify model selection based on business context and data characteristics. 3.5 Evaluate the effectiveness of models in supporting decision-making.
4. Interpret and present quantitative information using graphs, charts, and dashboards.	4.1 Create visual representations of business data using graphs and charts. 4.2 Use dashboards to present key performance indicators and trends. 4.3 Format and label visual data clearly for professional presentation. 4.4 Interpret visual data to draw conclusions and support recommendations. 4.5 Tailor data presentation to suit different business audiences.

5. Develop confidence in applying mathematical reasoning to practical business and data analytics scenarios, supporting progression to higher-level study.	5.1 Apply mathematical reasoning to solve real-world business problems. 5.2 Reflect on personal strengths and areas for development in business mathematics. 5.3 Identify how mathematical skills support further study in data analytics and business strategy. 5.4 Set goals for improving mathematical competence in preparation for Level 4 study. 5.5 Evaluate the role of mathematical thinking in business innovation and decision-making.

Unit Overview:

This unit develops learners' ability to apply mathematical and statistical techniques to business data. Learners will use algebra, calculus, financial mathematics, and statistical methods to analyse trends, forecast outcomes, and support evidence-based business decisions. The unit supports progression into data analytics and higher-level business study by building confidence in interpreting and presenting quantitative information.

Unit Guidance

Delivery should include data analysis workshops, practical exercises using statistical software, and dashboard creation. Tutors should use real business datasets and encourage learners to apply mathematical models to solve authentic problems. Integration with business case studies and data analytics modules is recommended to contextualise learning and develop practical skills.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Reports, visualisations, calculations, and model evaluations.
- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback Forms
- Reflective Accounts
- Story Boards
- Witness Testimony

Please note this is not an exhaustive list.

Unit: Mathematics for Data Science

Unit Code: A/651/8502

Learning Outcomes *To achieve this unit a learner must be able to:*	Assessment Criteria *Assessment of these outcomes demonstrates a learner can:*
1. Understand core mathematical concepts used in data science, including algebra, functions, and introductory calculus.	1.1 Define key mathematical concepts relevant to data science. 1.2 Apply algebraic techniques to manipulate expressions and solve equations in data contexts. 1.3 Use functions and graphs to model relationships between variables. 1.4 Apply basic calculus (e.g., differentiation) to analyse rates of change in data trends. 1.5 Evaluate the role of mathematical foundations in supporting data science workflows.
2. Apply statistical methods to explore, analyse, and interpret data.	2.1 Calculate and interpret descriptive statistics (mean, median, standard deviation, etc.). 2.2 Use correlation and regression to identify relationships between variables. 2.3 Conduct hypothesis testing using appropriate statistical techniques. 2.4 Interpret statistical outputs to draw conclusions from datasets. 2.5 Assess the validity and limitations of statistical findings in data science projects.
3. Use mathematical models and algorithms to support data-driven problem solving.	3.1 Identify appropriate models or algorithms for analysing structured data. 3.2 Apply basic classification or clustering techniques (e.g., k-means, decision trees). 3.3 Use mathematical reasoning to evaluate model performance (e.g., accuracy, precision). 3.4 Justify model selection based on data characteristics and problem context. 3.5 Evaluate the effectiveness of models in solving real-world data problems.
4. Interpret and present data using visualisation techniques and computational tools.	4.1 Create visual representations of data using graphs, plots, and charts. 4.2 Use software tools (e.g., Python, R, or spreadsheets) to generate and customise visualisations. 4.3 Format and label visual data clearly for technical and non-technical audiences. 4.4 Interpret visualisations to identify patterns, trends, and anomalies.

	4.5 Evaluate the effectiveness of visualisations in communicating data insights.
5. Develop confidence in applying mathematical and computational thinking to data science tasks.	5.1 Apply mathematical reasoning to solve real-world data science problems. 5.2 Reflect on personal strengths and areas for development in data science mathematics. 5.3 Identify how mathematical and computational skills support further study in data science and AI. 5.4 Set goals for improving mathematical and coding competence in preparation for Level 4 study. 5.5 Evaluate the role of mathematical thinking in innovation and ethical data use.

Unit Overview:

This unit develops learners' understanding of mathematical concepts and techniques essential for data science. Learners will apply algebra, functions, calculus, and statistical methods to analyse, interpret, and visualise data. Emphasis is placed on using mathematical reasoning to support data-driven problem solving and model development. The unit builds confidence in applying quantitative analysis within computational environments, supporting progression into advanced data analytics, machine learning, and computing-related study.

Unit Guidance

Delivery should include practical workshops focused on mathematical modelling, statistical analysis, and the use of computational tools such as spreadsheets or introductory programming environments (e.g., Python or R). Tutors are encouraged to use real-world datasets and case studies to help learners apply mathematical concepts to authentic data science problems. Integration with computing and analytics modules is recommended to contextualise learning, reinforce cross-disciplinary skills, and develop learners' confidence in applying mathematical reasoning to data-driven tasks.

Assessment Requirements

Portfolio evidence can include, but is not limited to:

- Calculations, data visualisations, reports, and model evaluations
- Professional Discussion and/or Q&A records
- Written answers
- PowerPoint Presentations
- Feedback Forms
- Reflective Accounts
- Story Boards
- Witness Testimony

Please note this is not an exhaustive list.

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