DIPLOMA GUIDE

Access to Higher Education

gateway qualifications

Qualification No: QAAQ002528
Aim Code: 40006347
Validation: 1 August 2018 – 31 July 2024
Version: 3.0

Access to HE

Apprenticeships

Digital

Employability & Enterprise

English & Maths

ESOL

Personal & Social Development

Professional Development

Vocational

Access to HE Diploma (Computing)

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About this Access to HE Diploma guide

This Access to HE Diploma specification is intended for Tutors, Assessors, Internal Quality Assurers, Quality Managers and other staff within Gateway Qualifications Access to HE approved providers/or prospective providers.

It sets out what is required of the learner in order to achieve the Access to HE Diploma. It also contains information specific to managing and delivering the Access to HE Diploma (s) including specific quality assurance requirements.

The guide should be read in conjunction with the Gateway Qualifications Access to HE Provider Handbook and other publications available on the website which contain more detailed guidance on assessment and verification practice.

In order to offer this Access to HE Diploma you must be a Gateway Qualifications recognised centre and approved to offer Access to HE Diplomas.

If your centre is not yet recognised, or diploma approved, please contact our Development Team to discuss

Telephone: 01206 911211
Email: enquiries@gatewayqualifications.org.uk
Website: https://www.gatewayqualifications.org.uk/advice-guidance/delivering-our-qualifications/become-recognised-centre/

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1. Diploma Information

1.1 Overview of the Access to Higher Education Diploma

The Access to Higher Education (HE) Diploma is a nationally recognised qualification with common requirements relating to the description of learner achievement. The Diploma is:

- a level 3 qualification, regulated by the Quality Assurance Agency (QAA) for Higher Education
- a unitised qualification, based on units of assessment which are structured in accordance with the Access to HE unit specification
- a credit-based qualification, operated in accordance with the terms of the Access to HE credit specification
- a graded qualification, as determined by the Access to HE Grading Scheme.

Details of the credit framework and requirements relating to the award of credit are provided within the Quality Assurance Agency Recognition Scheme for Access to Higher Education: The Access to Higher Education Diploma specification 2013.

Individual named Diplomas are identified by separate titles and are validated at by Gateway Qualifications as an Access Validating Agency (AVA) recognised by the Quality Assurance Agency for Higher Education (QAA). Each Diploma has its own approved set of units of assessment, governed by rules of combination, which are appropriate to the subject of the particular Diploma. The common grading requirements apply to all individual Diplomas.

1.2 About this Diploma

The Diploma allows learners to undertake study related to computing. Learners will have the opportunity to develop skills which will enable progression to a range of degree level programmes within the sector. Many learners join these types of degrees after following A level study, so the diploma will place the Access to HE learners on a level with those who have followed A level studies.

Learners will complete mandatory units which cover an introduction to computing and programming as well as maths for computing, which is an important element of any computing programme. They will be able to research an area of interest to them in more depth. They will study a range of optional units covering computer systems, networks and software as well as a unit which explores the impact of robotics within the industry.

Ungraded units include units which will support access to higher education whilst supporting study and personal skills.

Learners who have followed these routes may need to develop skills in specific areas as well as learning more about subjects in which they have an interest. If the learner has gone straight into employment, they may not have studied at Level 3 and so this Access Diploma will help them to build on existing skills and provide a good grounding for further academic study.

1.3 Purpose

The primary purpose of Access to HE Diplomas is to provide higher education progression opportunities for adults who, because of social, education or individual circumstances, may have achieved few, if any, prior qualifications.

1.4 Aims

The qualification aims to:

- reintroduce learners to education recognising prior skills and experience and the particular needs of those returning to learn
- offer learners a responsive, supportive return to learn experience at a level appropriate for entry to HE
- develop the appropriate skills such as study skills that are necessary to enable learners to succeed in their HE career
- address issues of widening participation and social inclusion
- raise learner awareness of the opportunities that a return to study and lifelong learning can bring.

1.5 Objectives

The objective of the Diploma is to enable learners to:

- satisfy the general academic requirements for entry to Higher Education
- prepare learners for HE level study generally and in subject areas appropriate to an intended HE course destination
- demonstrate appropriate levels of competence in subject specific skills and knowledge
- demonstrate practical, transferable and academic skills
- develop their confidence and ability to cope with a return to education at an advanced level
- enhance personal and career opportunities
- develop as independent and lifelong learners.

1.6 Sector Subject Area

6.1 ICT Practitioners

1.7 Target groups

- Adults who, because of social, educational or individual circumstances may have achieved few, if any, prior qualifications and wish to progress to HE
- Adults who have gone straight into industry (perhaps following apprenticeship routes) who wish to progress to HE.

1.8 Delivery methods

Delivery methods for the Access to HE Diploma (Computing) can include:

- Face to face
- Blended learning including online platforms such as Moodle or Pearl.

Work placements would also be beneficial and visits to software companies would widen opportunities.

Centres should complete Understand Robots and Control Systems before completing Creating Robots and Control Systems, however, Understand Robots and Control Systems can be delivered independently without creating a robot if the centre does not have the facilities to build a robot and control system.

The mandatory ungraded unit Writing Reports should be delivered early in the course to allow the learners to develop these skills which are used throughout the diploma.

Assessment methods should include:

Academic posters, exam, controlled assessment, projects e.g. creating programmes including developmental notes, data dictionaries, presentations, self-evaluation, SWOT analysis, case studies analysis, short answer questions, reports, role plays, design diagrams and test plans.

1.9 Achievement methodology

The Diploma will be awarded to learners who successfully achieve an approved combination of units through a Portfolio of Evidence that has been successfully verified and monitored through Gateway Qualifications' Quality Assurance process.

The qualification is therefore determined by successful achievement of all required unit assessments with no further requirement for additional/terminal assessment.

1.10 Geographical coverage

This qualification has been approved by for delivery in England.

1.11 Progression opportunities

Progression routes are into a range of degrees including:

BSc (H) Computer Science (single honours)
BSc (H) Computer Science and Education with Qualified Teacher Status
BSc (H) Computing for Business
BSc (H) Computing
BSc (H) Computing and ICT
BSc (H) Computer Science and Mathematics
BSc (H) Software Engineering

1.12 Equality, Diversity and Inclusion

It is Gateway Qualifications' aim that there shall be equal opportunities and so meet the organisation's legal responsibilities to prevent discrimination.

In accordance it is the organisation's intention that there should be no discrimination on the grounds of a protected characteristic including age, disability, gender assignment, marriage and civil partnership, pregnancy and maternity, race, religion and belief, sex, sexual orientation. It is acknowledged that this is not an exhaustive list.

2. Learner Entry Requirements

2.1 Age

The course is designed to meet the needs of adults who have been out of full time education for a significant period of time and who have not achieved some or any formal qualifications. This generally would apply to learners over the age of 19.

2.2 Prior qualifications

There is no requirement for learners to have achieved prior qualifications or units prior to undertaking this qualification.

Providers may ask learners for GCSEs as a mark of ability at Level 2 as an appropriate entry requirement to a Level 3 course.

2.3 Prior skills/knowledge/understanding

There is no requirement for learners to have prior skills, knowledge or understanding. However, learners would be expected to be able to demonstrate the skills and ability to study at Level 3.

2.4 Access to qualifications for learners with disabilities or specific needs

Gateway Qualifications and recognised providers have a responsibility to ensure that the process of assessment is robust and fair and allows the learner to show what they know and can do without compromising the rigour of the assessment used to evidence the criteria.

Gateway Qualification has a duty to permit a reasonable adjustment where an assessment arrangement would disadvantage a learner with a disability, medical condition or learning need.

The following adaptations are examples of what may be considered for the purposes of facilitating access, as long as they do not impact on any competence standards being tested:

- adapting assessment materials
- adaptation of the physical environment for access purposes
- adaptation to equipment
- assessment material in an enlarged format or Braille
- permitting readers, signers, scribe, prompter, practical assistant
- changing or adapting the assessment method
- extra time, e.g. assignment extensions
- transcript
- use of assistive software where the software does not influence the learners' ability to demonstrate the skills, knowledge or understanding e.g. use of spellchecker in an English assessment

- using assistive technology
- use of CCTV, coloured overlays, low vision aids
- use of a different assessment location
- use of ICT/responses using electronic devices.

It is important to note that not all of the adjustments (as above) will be reasonable, permissible or practical in particular situations. The learner may not need, nor be allowed the same adjustment for all assessments.

Learners should be fully involved in any decisions about adjustments/adaptations. This will ensure that individual needs can be met, whilst still bearing in mind the specified assessment criteria for a particular qualification.

A reasonable adjustment for a particular learner may be unique to that individual and may not be included in the list of available access arrangements specified above.

Details on how to make adjustments for learners is set out in the Reasonable Adjustment and Special Considerations Policy and Procedures.

2.5 Additional requirements/guidance

Learners must have a UK address (including BFO) to be registered on an Access to HE Diploma.

2.6 Recruiting learners with integrity

It is vital that providers recruit with integrity. Providers must ensure that learners have the correct information and advice on their selected qualification(s) and that the qualification(s) will meet their needs.

The recruitment process must include the provider undertaking the assessment of each potential learner and making justifiable and professional judgements about the learner's potential to successfully complete the assessment and achieve the qualification. Such an assessment must identify, where appropriate, the support that will be made available to the learner to facilitate access to the qualification.

3. Achieving the Access to HE Diploma

3.1 Qualification specification

The generic requirements for the Access to HE Diploma are that learners must achieve a total of 60 credits of which 45 credits must be achieved at level 3 from graded units that are concerned with academic subject and the remaining 15 credits can be achieved at level 2 or level 3 from units which are ungraded. It is recommended you include no more than 6 ungraded 'academic subject content' credits. The ungraded credits can be mandatory or optional within the Diploma. The approved Rules of Combination for this qualification are detailed below.

Where there is a selection of optional units within the permitted rules of combination, the selection of units to be used to form the Diploma course must be made before the learners are registered. Learners must be registered with Gateway Qualifications within 12 weeks of the start of the course or before application to UCAS, whichever is soonest.

3.2 Rules of Combination

The structure sets out the units required to be achieved the Access to Diploma, comprising of:

- Graded Academic mandatory units – Level 3
- Graded Academic optional units - Level 3
- Graded Research units - Level 3
- Ungraded units – Level 2/3.

Learners must complete at total of 60 credits of which 45 credits must be achieved at level 3 from graded units which are concerned with academic subject content and the remaining 15 credits must be achieved at level 3 from units which are ungraded.

Learners must complete 45 graded credits at level 3 from academic subject content units. Learners must complete 12 Credits from the Mandatory group, a maximum of 6 Credits from the Research Optional group and the remaining 27 Credits must be taken from the Computing Optional unit group. Learners must complete 15 Credits from the Ungraded group.

Mandatory Units: Graded Academic Subject Content

Learners must achieve 12 credits from this group.

Unit Code	Unit Title	Level	Credits	Content	Grade Descriptors	Suggested Assessment Methods	Assessment Volume
QU026127	Introduction to Computer Systems	3	6	Academic	1, 3, 7	3 x Academic poster Exam	400 words x 3 1.5 hours closed book
QU026123	Introduction to Programming Implementation	3	3	Academic	3, 7	Creation of program with developmental notes	Program, 500 words
QU026125	Mathematics for Computing	3	3	Academic	3, 7	Controlled assessment	2 hours open book

Graded Units: Research

Learners must achieve 6 credits from this group.

Unit Code	Unit Title	Level	Credits	Content	Grade Descriptors	Suggested Assessment Methods	Assessment Volume
QU026380	Research Project for IT - Methodology	3	6	Academic	2, 3, 4, 5, 7	Research plan Research report Evidence of research carried out	200 words 2,500 words 300 words
QU026131	Research: Practical Investigation Project for Computing	3	6	Academic	2, 3, 4, 6, 7	Risk assessment Project diary Project proposal Research review Report Evaluation	250 words 500 words 250 words 500 words 1250 words 250 words
QU033677	Research: Practical Investigation Project for Digital Technology	3	6	Academic	2, 3, 4, 6, 7	Risk assessment Project diary Project proposal	250 words 500 words 250 words

Unit Code	Unit Title	Level	Credits	Content	Grade Descriptors	Suggested Assessment Methods	Assessment Volume
						Research review Report Evaluation	500 words 1250 words 250 words

Optional Graded Units: Computing

Learners must achieve a minimum of 12 credits from this group.

Unit Code	Unit Title	Level	Credits	Content	Grade Descriptors	Suggested Assessment Methods	Assessment Volume
QU019995	Algebra and Trigonometry	3	3	Academic	1, 3, 7	Exam (closed book)	2 hours
QU026136	Computer Networks	3	6	Academic	2, 7	Report Individual presentation (presentation handout supported with notes) inc Q&A (tutor observation/recording)	2000 words 10 minutes
QU026451	Creating Robots and Control Systems	3	3	Academic	2, 3, 7	Project - plan, create, test and evaluate a robot and control system	880 -1000 words plus simple working robot and control system
QU028477	Games Project	3	6	Academic	2, 3, 5, 7	High Concept Design of basic game idea Project Management Report	2000 words (max 4 pages) 1000 words
QU011341	IT Project	3	6	Academic	3, 4, 7	Report including: - Data dictionary - Design diagrams - Test plan	2000 words

Unit Code	Unit Title	Level	Credits	Content	Grade Descriptors	Suggested Assessment Methods	Assessment Volume
QU026138	JavaScript	3	6	Academic	3, 7	Structured questions Practical application of use of JavaScript in controlled conditions x 2	500 words 2 x 1.5 hours closed book
QU007424	Mathematics: Algebra, Exponentials and Logarithms	3	3	Academic	3, 5, 7	Worksheets	1500 words
QU007941	Matrices	3	3	Academic	3, 7	Controlled assessment – open book	1.5 hours open book
QU028434	Mobile Games Development	3	6	Academic	1, 2, 3, 7	Report Mobile Game	2000 words Mobile game developed
QU016767	Principles of keywords and optimisation	3	6	Academic	1, 3, 7	Short answer questions Practical activities Case study analysis	750 words 1 hour 1500 words
QU014306	Relational Database	3	3	Academic	3, 7	Controlled assessment	1.5 hours closed book
QU007957	Series	3	3	Academic	2, 3, 7	Exam (closed book)	2 hours
QU011300	Software Fundamentals - Object Oriented Programming	3	3	Academic	3, 6, 7	Creation of program with developmental notes Test data plan	Program, 250 words 250 words
QU011302	Systems Analysis	3	3	Academic	3, 6, 7	Context, Level 1 and 2 Data Flow Diagrams Report including feasibility study	750 words 750 words
QU026152	Understanding Robots and Control Systems	3	3	Academic	3, 4, 5, 7	Report	1500 words
QU026454	Website Design and Development	3	6	Academic	2, 3, 5, 7	Project - Plan, design and develop interactive website with a minimum of five	Production of website with minimum of five pages Development diary -

Unit Code	Unit Title	Level	Credits	Content	Grade Descriptors	Suggested Assessment Methods	Assessment Volume
						pages including development diary Report	400-500 words 1500 words

Mandatory Units: Ungraded

Learners must achieve 9 credits from this group.

Unit Code	Unit Title	Level	Credits	Content	Suggested Assessment Methods	Assessment Volume
QU026150	Computer Data Protection	3	3	Academic	Structured questions Case study analysis	750 words 750 words
QU025532	Preparation for Higher Education	3	3	Other	Analysis, UCAS Statement, Preparing for interview questions, Chart	1500 words in total
QU026155	Writing reports	3	3	Other	Report plan Presentation of report plan Report	Plan 2-3 minutes 1000 words

Optional Units: Ungraded

Learners must achieve 6 credits from this group.

Unit Code	Unit Title	Level	Credits	Content	Suggested Assessment Methods	Assessment Volume
QU007486	Application of Number - Interpreting and Presenting Information	3	3	Other	2 x controlled assessments	2 x 1 hour assessments
QU025280	Optimising Examination Performance	3	3	Other	Examination preparation plan Examination paper from another unit Reflective journal	500 words 1-2 hours 800 words
QU028487	Promoting Wellbeing and Building Resilience	3	3	Other	Report	1500 words
QU011467	Spreadsheets	3	3	Academic	Case study analysis and creation of spreadsheets to meet customer needs, manipulation of data within spreadsheets, create graphs, charts and pivot tables, report	Case study analysis 500 words, report including data from spreadsheets, graphs and charts 1000, pivot table
QU018318	Study Skills	3	3	Other	Study Plan, Worksheets, Assignment Plan	200 words 250 words 500 words
QU033854	Sustainability Project	3	3	Academic	Report, including project plan and reflection	1000 words
QU033880	The Fundamentals of Environmental Sustainability	3	3	Academic	Report	1500 words
QU025609	Work Placement	3	3	Other	Evaluation of Work Placement, Evaluation of Structure, Evaluation of Work Experience	1500 words in total

3.3 Additional completion requirements

Learners will probably require a pass in biology/science subject alongside maths and English at GCSE level to progress onto a degree course.

Delivery providers should make learners aware of HEI course entry requirements.

3.4 Recognition of Prior Learning

Recognition of prior learning is a process that considers if a learner can meet the specified assessment requirements through knowledge, understanding or skills that they already possess and that can contribute towards the attainment of a qualification for which they are undertaking.

For further information please refer Annex C, Access to HE Diploma Specification, https://www.accesstohe.ac.uk/AboutUs/Publications/Documents/Access-Diploma-Specification.pdf

4. Access to HE Units of Assessment

4.1 Unit specification

A common unit specification applies to all units with Access to HE Diplomas the unit specification follows a standard template covering the following elements:

- title
- level
- credit value
- unit code
- learning outcomes
- assessment criteria
- grade descriptors
- type of unit (academic subject content or not).

The units of assessment for this Access to HE Diploma are contained within this Access to HE Diploma Guide.

4.2 Academic subject content

A unit is classified as having academic subject content, if the unit's knowledge and skills are directly related to the subject of the name of the Access to HE Diploma. Units will not meet the academic subject content requirement if they are principally concerned with personal development, generic English or mathematics, or study skills.

4.3 Graded and ungraded units

Graded units – grading operates at unit level and only applies to units which have been approved by Gateway Qualifications within a named Access to HE Diploma. Learner achievement for graded units is recorded as Pass, Merit or Distinction for each unit, as set out in the QAA Access to HE Grading Scheme, 2012. Graded units will also satisfy the criteria of academic subject content.

There is a common set of broad generic grade descriptors which are used as the basis for all grading judgements on all courses:

1 Understanding the subject
2 Application of knowledge
3 Application of skills
4 Use of knowledge
5 Communication and presentation
6 Autonomy / Independence
7 Quality.

The seven grade descriptors are not subject specific. They can, however, through careful selection and in appropriate combinations, be used on all courses, with all units and for all

assignments. The descriptors to be used with a particular unit are selected with reference to the main aspects of learner performance that need to be taken into account when grading decisions are made for that unit. They are formally assigned to the unit when it is validated.

Each of the seven grade descriptors comprises two sets of components, one which describes characteristics or qualities typical of performance at merit, and a parallel set of components which describes typical performance in the same areas at distinction. (There are no components for pass, because a pass grade is gained when a learner meets the learning outcomes but does not achieve the standard required for merit.) Some of these components are more relevant to certain subjects than others and some particular terms are also more relevant for use with particular types of assessment than others. In order to ensure the grade descriptors are relevant for specific assignments, tutors identify the components of the descriptors being used that are most relevant for the particular assignment. The selected components of the descriptors (at merit and distinction) are then included in the assignment brief(s).

The grading scheme is not based on an assumed one-to-one relationship between the grade descriptors and learning outcomes (although it is possible that in some units, because of the way the learning outcomes have been structured, something close to a one-to-one relationship may emerge). In general, however, judgements about learner work in relation to grading apply across the work for a unit, whether that unit is assessed through one, or more than one, assignment.

The full Grade Descriptors can be accessed by the following link, which also provides detailed information on grading:

http://www.accesstohe.ac.uk/AboutUs/Publications/Documents/Access-Grading-Scheme-Section-B.pdf

4.4 Revisions to Access to HE Units of Assessment

Gateway Qualifications reserves the right to review and amend units of assessment and will issue providers notification of the changes to the units of assessment. Gateway Qualifications undertakes regular unit reviews to ensure currency of units, providers are required to use updated versions where units are replaced.

5. Assessment and Quality Assurance

5.1 Provider requirements

Providers must be approved by Qualifications as centre and are required to ensure that:

- the main base is in the UK
- systems are in place to ensure that only learners with a UK address (including BFO) are registered for an Access to HE Diploma
- there are clear arrangements for the day-to-day operational management and coordination of Access to HE delivery.
- there are appropriate facilities and resources at each site, and for each mode of delivery
- staff have the professional competence and skills to teach and assess necessary to teach and assess the units available on the Diploma
- arrangements are in place to provide pre-course guidance to applicants and criteria for selection and admission to Access to HE Diplomas and are consistent with QAA requirements with respect to admissions. https://www.accesstohe.ac.uk/AboutUs/Publications/Documents/Guidance-admission-of-learners-AHE-07.pdf.
- expertise and resources to provide information, advice and guidance on HE applications and progression opportunities.
- Systems for maintaining secure records of individual learners' registration and achievement
- internal moderation arrangements that meet Gateway Qualification requirements.
- arrangements for internal course monitoring and self-evaluation and feedback
- procedures and criteria for the recognition of prior learning that meet Gateway Qualifications requirements.
- quality assurance procedures relating to the delivery of provision, including transparent processes for handling appeals and complaints.

Providers should refer to the Gateway Qualifications' Access to HE Provider Handbook for further information on centre requirements.

5.2 Staffing requirements

Providers are required to ensure that:

- staff have the professional competence and skills to teach and assess necessary to teach and assess the units available on the Diploma
- staff have expertise to provide information, advice and guidance on HE applications and progression opportunities.

5.3 Facilities and resources

Providers will require computer labs including use of JavaScript (server) and software to facilitate all modules.

5.4 Quality Assurance Requirements

Gateway Qualifications applies a quality assurance model to the Access to HE Diploma of:

- internal assessment and internal verification by the provider
- moderation by Gateway Qualifications comprising of centre moderation and subject moderation.

These processes are set out within Quality Assurance section of the Gateway Qualifications' Access to HE Provider Handbook.

5.5 Additional requirements/guidance

There are no additional requirements that Learners must satisfy in order for assessment to be undertaken and the unit/qualification to be awarded.

6. Unit Details

Mandatory Units: Graded Academic Subject Content

Access to HE Diploma Unit

Unit Code:	QU026127		
Title:	Introduction to Computer Systems		
Unit Level:	Level 3	**Unit Credit:**	6
Grading type:	Graded		
Grade descriptors:	• GD1-Understanding the subject • GD3-Application of skills • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	3 x academic posters ~ 400 words each Closed book exam ~ 1.5 hours		

This unit has 6 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Understand the characteristics of computer hardware components	1.1 Describe and illustrate the five main components of a computer 1.2 Explain how these components are connected and communicate via data and address buses 1.3 Explain the flow of data to and from these components (fetch-decode-execute)
2. Understand the use of Input/Output devices.	2.1 Analyse a variety of I/O devices and their use for specific purposes.
3. Understand the function and range of storage media.	3.1 Evaluate the effectiveness of a range of storage media devices for specific purposes.
4. Understand how data is represented on a computer.	4.1 Explain how data is represented on a computer including: • bits and bytes

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	• different methods used to represent text, numeric and other information.
5 Understand the start-up procedures of a computer	5.1 Explain the role of the following in relation to a specific computer system: (a) BIOS routines (b) the POST procedure (c) the role of the CMOS RAM 5.2 Summarise the operating system files and the order in which they are loaded for a selected operating system. 5.3 Explain the role of Plug-and-Play in a selected operating system: • at start-up • whilst the system is in use.
6 Understand computer specifications for a given purpose.	6.1 Explain how ports are used to connect external devices. 6.2 Where a choice of different types of port exists, justify the preference for one port over another. 6.3 Explain the function of three cards that could be used in a computer system. 6.4 Analyse when different cards might be chosen.

Access to HE Diploma Unit

Unit Code:	QU026123		
Title:	Introduction to Programming Implementation		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Graded		
Grade descriptors:	• GD3-Application of skills • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Creation of program and development notes ~ 500 words		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Be able to use a high level language compiler.	1.1 Carry out file management activities. 1.2 Use editor for creating and editing source programs. 1.3 Interpret compilation and run time error messages to take corrective action.
2. Be able to implement simple programs.	2.1 Declare and use meaningful variables and constants. 2.2 Declare appropriate simple data types. 2.3 Use meaningful identifiers. 2.4 Write programs including: • arithmetic • simple input • formatted output statements. 2.5 Make program easier to read and understand by using: spaces blank lines indentation conditional statements. Conditional statements could include: IF – THEN – ELSE – ENDIF

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
3. Be able to use program control structures.	3.1 Select appropriate relational operators. 3.2 Use two select statements comments. 3.3 Use three iteration statements.
4 Be able to create program documentation.	4.1 Design a program supported by appropriate documentation. Documentation could include pseudocode, data flowcharts, debug and use of test data 4.2 Implement and test program supported by appropriate documentation

Access to HE Diploma Unit

Unit Code:	QU026125		
Title:	Mathematics for Computing		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Graded		
Grade descriptors:	• GD3-Application of skills • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Controlled assessment ~ 2 hours open book		

This unit has 3 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Know how to represent denary integers in different formats.	1.1 Convert denary numbers into Binary Coded Decimal format and vice versa. 1.2 Convert denary numbers into hexadecimal and vice versa. 1.3 Convert integer into Sign and Magnitude format and store them as 8-bit or 16-bit numbers. 1.4 Convert integers into One's Complement and Two's Complement format. 1.5 Determine whether an overflow occurs for a given format.
2 Know how to perform arithmetic on integers in binary.	2.1 Perform simple arithmetic operations using: (a) binary addition of unsigned integers (b) binary subtraction of unsigned integers (c) binary multiplication of unsigned integers (d) binary division of unsigned integers (e) binary addition of signed integers (f) binary subtraction of signed integers.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	2.2. Explain the effect of word length on the allowable numbers on unsigned and signed formats. 2.3 Explain what the ASCII representation of data is. 2.4 Explain how to convert Hex to ASCII code.
3 Know how to represent integers and numbers with fractional parts in different formats.	3.1 Convert into binary and vice versa: • simple fractions • decimals. 3.2 Use floating point notation to store a decimal number as a 16-bit number. 3.3 Calculate the degree of accuracy given: • a 1-bit sign • 10-bit mantissa • a 5-bit exponent. 3.4 Describe the limitations of representing real numbers in a computer system and how errors occur.

Graded Research Units

Access to HE Diploma Unit

Unit Code:	QU026380		
Title:	Research Project for IT – Methodology		
Unit Level:	Level 3	**Unit Credit:**	6
Grading type:	Graded		
Grade descriptors:	• GD2-Application of knowledge • GD3-Application of skills • GD4-Use of information • GD5-Communication and Presentation • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 5 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Be able to plan a research project.	1.1 Identify and agree a research topic located within a knowledge domain relevant to the named diploma. 1.2 Produce and explain the aims of the research. 1.3 Develop, test, evaluate and refine appropriate research methodology. 1.4 Identify any ethical, practical or safety issues and how these will be managed/overcome.
2. Be able to conduct research.	2.1 Use a valid and appropriate method of investigation. 2.2 Identify and conduct detailed research from a wide range of sources. 2.3 Review research and relevant theory.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
3. Be able to interpret research findings.	3.1 Interpret findings and draw appropriate conclusions.
4. Know how to present research findings.	4.1 Produce a research report. 4.2 Select and use the most appropriate format to present results. 4.3 Summarise information coherently in a conventional style, appropriate to the knowledge domain. 4.4 Reference all findings using a recommended style of referencing.
5. Be able to evaluate own research project.	5.1 Reflect on the project design and methodologies. 5.2 Evaluate findings in relation to aims, previous research and relevant theory. 5.3 Identify recommendations for the future.

Access to HE Diploma Unit

Unit Code:	QU026131		
Title:	Research: Practical Investigation Project for Computing		
Unit Level:	Level 3	**Unit Credit:**	6
Grading type:	Graded		
Grade descriptors:	• GD2-Application of knowledge • GD3-Application of skills • GD4-Use of information • GD6-Autonomy/Independence • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Be able to plan a practical investigation project.	1.1 Identify and agree a practical investigation project, located within a knowledge domain relevant to the named Diploma. 1.2 Produce a hypothesis and clear aims for the investigation project. 1.3 Identify any ethical, practical or safety issues and how these will be managed/overcome. 1.4 Produce a risk assessment. 1.5 Maintain a record of project progress through all stages of research, development and completion.
2 Be able to undertake a practical investigation.	2.1 Carry out research from a wide range of sources. 2.2 Develop an appropriate investigation. 2.3 Identify the variables and explain how they can be controlled, where necessary. 2.4 Carry out the investigation safely, using appropriate practical skills and techniques.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	2.5 Analyse the results of the investigation with reference to relevant theory.
3 Know how to present the project.	3.1 Present the body of work in a style appropriate to the knowledge domain with clear conclusions. 3.2 Use appropriate technical terminology fluently. 3.3 Reference all findings using a recommended style of referencing.
4 Be able to evaluate own research project.	4.1 Reflect on the design and methodology of the project. 4.2 Evaluate the body of work in relation to aims and hypothesis. 4.3 Identify recommendations for the future.

Access to HE Diploma Unit

Title:	Research: Practical Investigation Project for Digital Technology		
Unit Code:	QU033677		
Unit Level:	Level 3	**Unit Credit:**	6
Grading type:	Graded		
Grade Descriptors:	• GD2-Application of knowledge • GD3-Application of skills • GD4-Use of information • GD6-Autonomy/Independence • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested Assessment details:	Refer to assessment grid.		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Be able to plan a practical investigation project.	1.1 Identify and agree a practical investigation project, located within a knowledge domain relevant to the named Diploma. 1.2 Produce a hypothesis and clear aims for the investigation project. 1.3 Identify any ethical, practical or safety issues and how these will be managed/overcome. 1.4 Produce a risk assessment. 1.5 Maintain a record of project progress through all stages of research, development and completion.
2 Be able to undertake a practical investigation.	2.1 Carry out research from a wide range of sources. 2.2 Develop an appropriate investigation. 2.3 Identify the variables and explain how they can be controlled, where necessary. 2.4 Carry out the investigation safely, using appropriate practical skills and techniques.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	2.5 Analyse the results of the investigation with reference to relevant theory.
3 Know how to present the project.	3.1 Present the body of work in a style appropriate to the knowledge domain with clear conclusions. 3.2 Use appropriate technical terminology fluently. 3.3 Reference all findings using a recommended style of referencing.
4 Be able to evaluate own research project.	4.1 Reflect on the design and methodology of the project. 4.2 Evaluate the body of work in relation to aims and hypothesis. 4.3 Identify recommendations for the future.

Optional Graded Units: Computing

Access to HE Diploma Unit

Unit Code:	QU019995		
Title:	Algebra and Trigonometry		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Graded		
Grade descriptors:	• GD1-Understanding the Subject • GD3-Application of skills • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Refer to assessment grid		

This unit has 3 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Understand algebraic expressions.	1.1 Distinguish the different roles played by letters, knowing what letter symbols represent in equations, formulae and identities. 1.2 Manipulate algebraic expressions by taking out common factors and factorising quadratic expressions This may include the difference of two squares, reciprocal functions and cancelling common factors in rational expressions. 1.3 Set up and solve simple equations by using inverse operations or by transforming both sides in the same way. 1.4 Solve linear equations. This includes: a. equations in one unknown, with integer or fractional coefficients, in which the unknown appears on either side or on both sides of the equation b. equations that require prior simplification of brackets, including

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	those that have negative signs occurring anywhere in the equation, and those with a negative solution
2 Understand trigonometric functions.	2.1 Solve problems using Pythagoras' theorem. 2.2 Solve problems involving sine, cosine and tangent. 2.3 Solve problems involving angles of elevation or depression. 2.4 Solve problems involving 3D shapes. 2.5 Solve problems involving the sine rule. 2.6 Solve problems involving the cosine rule. 2.7 Solve problems involving circular functions.
3 Understand trigonometric identities and equations.	3.1 Prove identities using basic identities. 3.2 Prove identities using complex identities. 3.3 Simplify an expression using trigonometric identities. 3.4 Solve a trigonometric equation.

Access to HE Diploma Unit

Unit Code:	QU026136		
Title:	Computer Networks		
Unit Level:	Level 3	**Unit Credit:**	6
Grading type:	Graded		
Grade descriptors:	• GD2-Application of knowledge • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Report ~ 200 words Individual presentation (presentation handout supported with notes) inc Q&A (tutor observation/recording) ~ 10 minutes		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Understand the use of computer networks.	1.1 Explain the applications of computer networks. 1.2 Analyse different types of computer networks. 1.3 Explain the importance of network security. For example: antivirus software, firewalls, access levels within the network system.
2. Understand local area networks (LAN).	2.1 Evaluate the concept of a LAN including its advantages and disadvantages over a collection of standalone microcomputers. 2.2 Explain the components of a LAN including their functions. 2.3 Analyse three basic network topologies, including: a) detailing the way they are interconnected b) advantages of each network topology c) disadvantages of each network topology.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
3. Understand wide area networks (WAN).	3.1 Analyse the concept of a WAN, including its advantages and disadvantages within a global communication perspective. 3.2 Justify the choice of a range of communication links for particular specifications. 3.3 Explain the way that the following handle data: • circuit-switching • message-switching • packet-switching.
4. Understand network communication.	4.1 Analyse why standard network protocols were developed. 4.2 Analyse the seven protocol levels of the Open Systems Inconnection (OSI) model, relating the levels to a specific application. 4.3 Explain the function of each of the layers in the OSI model, relating them to a specific application.

Access to HE Diploma Unit

Unit Code:	QU026451		
Title:	Creating Robots and Control Systems		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Graded		
Grade descriptors:	• GD2-Application of knowledge • GD3-Application of skills • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Project - plan, create, test and evaluate a robot and control system: 800 - 1000 words and working robot and control system		

This unit has 2 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Be able to design a robot and control system.	1.1 Analyse a given problem to identify a range of potential solutions using robotics and control. 1.2 Select one of these solutions, justifying the choice of hardware and software to solve the problem. 1.3 Design a clear specification for the chosen solution.
2 Be able to create, document and test a working model robot.	2.1 Use the design to create a simple working robot with a control system. 2.2 Design a test plan for the robot and control system. 2.3 Implement the test plan for the robot and control system. 2.4 Review the finished product.

Access to HE Diploma Unit

Unit Code:	QU011341		
Title:	IT Project		
Unit Level:	Level 3	**Unit Credit:**	6
Grading type:	Graded		
Grade descriptors:	• GD3-Application of skills • GD4-Use of information • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Understand a problem in ICT.	1.1 Explain the problem in summary 1.2 Explain the required results. 1.3 Analyse the data.
2 Understand how to design a solution to the problem.	2.1 Explain the input and output data. 2.2 Devise a data dictionary. 2.3 Produce a design for the solution. 2.4 Produce suitable design diagrams for the solution.
3 Understand how to test the solution.	3.1 Devise input data to test the solution. 3.2 Based on the original problem definition, define the results expected for the test data. 3.3 Check the design against the test data/results.
4 Understand how to produce a solution from the design.	4.1 Produce the solution using suitable techniques. 4.2 Test the solution using the test plan. 4.3 Document the solution in detail.

Access to HE Diploma Unit

Unit Code:	QU026138		
Title:	JavaScript		
Unit Level:	Level 3	**Unit Credit:**	6
Grading type:	Graded		
Grade descriptors:	• GD3-Application of skills • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Structured questions ~ 500 words Practical application of use of JavaScript in controlled assessments ~ 2 x 1.5 hours		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Understand JavaScript.	1.1 Evaluate how JavaScript is used. For example: GUI, Browser sniffing, client-side validation of input, shopping carts, mini-applications calculators, currency converters, animation. 1.2 Compare and contrast client-side version and server-side version of JavaScript.
2. Be able to use JavaScript in a HTML document.	2.1 Use JavaScript to prompt and validate inputs in HTML document. 2.2 Use document write to display messages in HTML document. 2.3 Alter, show, hide and move objects on web page 2.4 Use JavaScript to adjust an HTML page for special effects
3. Be able to use functions and variables.	3.1 Use functions and variables to customise web pages. 3.2 Use functions and variables for functional web pages.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
4. Be able to use event handlers to trigger JavaScript code.	4.1 Use event handlers to trigger JavaScript code. For example: onSelect, onSubmit, onClick, onMouseOver, onLoad, onUnload

Access to HE Diploma Unit

Unit Code:	QU007424		
Title:	Mathematics: Algebra, Exponentials and Logarithms		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Graded		
Grade descriptors:	• GD3-Application of skills • GD5-Communication and Presentation • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Worksheets – 1500 words		

This unit has 5 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Understand how to solve equations.	1.1 Solve simple linear equations involving brackets. 1.2 Solve quadratic equations using the formula.
2 Understand how to rearrange formulae.	2.1 Rearrange formulae involving sums, differences, products, quotients, brackets, powers and roots.
3 Understand how to use log laws.	3.1 Convert between exponential and logarithmic notation. 3.2 Use the product, quotient and power laws of logarithms and make calculations.
4 Understand how to transform to linear form.	4.1 Draw a straight line from data derived from a non-linear law, using logarithms where necessary.
5 Understand how to use exponential growth and decay.	5.1 Identify data which can be modelled by an exponential function. 5.2 Derive an exponential equation from given date and predict values.

Access to HE Diploma Unit

Unit Code:	QU007941		
Title:	Matrices		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Graded		
Grade descriptors:	• GD3-Application of skills • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 2 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Understand determinants.	1.1 Evaluate a linear set of equations using Cramer's Rule. 1.2 Test that a set of equations is consistent. 1.3 Solve a given problem involving consistency of a set of equations. 1.4 Evaluate a determinant by using the properties of determinants.
2 Understand matrix operations.	2.1 Perform matrix arithmetic. 2.2 Calculate the inverse of a matrix. 2.3 Solve a set of linear equations using the determinant and inverse. 2.4 Use the Gauss elimination method to solve a given problem. 2.5 Determine the eigenvalues of a matrix. 2.6 Determine the eigenvectors of a matrix.

Access to HE Diploma Unit

Unit Code:	QU016767		
Title:	Principles of keywords and optimisation		
Unit Level:	Level 3	**Unit Credit:**	6
Grading type:	Graded		
Grade descriptors:	• GD1-Understanding the subject • GD3-Application of skills • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Understand Search Engine Optimisation (SEO).	1.1 Analyse the importance of Search Engine Optimisation (SEO) to a business. 1.2 Compare Pay-per-Click and Pay-per-Impression. 1.3 Analyse factors to be considered as part of an SEO plan.
2 Be able to plan implementation of SEO techniques.	2.1 Create a list of keywords and/or keyword phrases for a business, justifying choices made. 2.2 Create an effective link building plan for the website for a business, justifying choices made. 2.3 Analyse factors that can positively and negatively affect how a search engine ranks a website.
3 Understand Social Media Optimisation (SMO).	3.1 Analyse the importance of SMO to a business. 3.2 Analyse how search engines include different tools and channels of Social Media in their results. 3.3 Analyse the impact of keywords and/or keyword phrases when engaging with a Social Media audience.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
4 Understand how to optimise a website for mobile devices.	4.1 Analyse the importance of mobile optimisation to a business. 4.2 Evaluate methods used to optimise websites for viewing on a mobile device.

Access to HE Diploma Unit

Unit Code:	QU014306		
Title:	Relational Database		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Graded		
Grade descriptors:	• GD3-Application of skills • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 3 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Be able to identify the data structure to hold information in a database.	1.1 Create tables and establish relationships between them. 1.2 Design a data entry form.
2. Be able to process information in a database.	2.1 Create queries to combine data from multiple tables. 2.2 Perform calculations based on information in queries. 2.3 Display information from tables on a form.
3. Be able to present database information in reports.	3.1 Create menu and sub-menu reports for a database and attach actions to them.

Access to HE Diploma Unit

Unit Code:	QU007957		
Title:	Series		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Graded		
Grade descriptors:	• GD2-Application of knowledge • GD3-Application of skills • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 3 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Understand arithmetic progressions.	1.1 Find the sum of an arithmetic progression given the first and last terms. 1.2 Find the sum of an arithmetic progression given the first term, the common difference and the number of items. 1.3 Solve problems involving arithmetic progressions. 1.4 Solve problems involving arithmetic mean.
2 Understand geometric progressions.	2.1 Find the sum of a geometric progression given the first term, the common ratio and the number of terms. 2.2 Find the sum to infinity of a geometric series. 2.3 Solve problems involving geometric progressions. 2.4 Solve problems involving geometric mean.
3 Understand series.	3.1 Determine whether a series is convergent or divergent. 3.2 Use Maclaurin series to approximate function. 3.3 Prove a series expression.

Access to HE Diploma Unit

Unit Code:	QU011300		
Title:	Software Fundamentals - Object Oriented Programming		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Graded		
Grade descriptors:	• GD3-Application of skills • GD6-Autonomy/Independence • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 3 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Know how to design an object-oriented program.	1.1 Explain the data members of super-class and inherited classes required for a specified application. 1.2 Explain the processing members (methods) for super class and inherited classes required for a specified application.
2. Know how to create and compile an object-oriented program.	2.1 Develop super class definitions and inherited classes containing both data and methods to documentation standards. 2.2 Explain objects appropriate to a specified applications. 2.3 Develop executable code which the computer can run using language translation software. 2.4 Analyse syntax error messages to edit and produce a successful compilation or runtime file.
3. Understand how to test object-oriented program.	3.1 Design a comprehensive test data plan and calculate expected results to test such program.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	3.2 Analyse the result of testing the program with expected results to determine whether program meets specification. 3.3 Explain appropriate action carried out to correct programs errors.

Access to HE Diploma Unit

Unit Code:	QU011302		
Title:	Systems Analysis		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Graded		
Grade descriptors:	• GD3-Application of skills • GD6-Autonomy/Independence • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 3 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Understand the Systems Development Life Cycle.	1.1 Critically compare and contrast 2 systems development life cycles. 1.2 Evaluate fact finding methods for a given model.
2. Understand and carry out investigation by using fact-finding techniques.	2.1 Produce a comprehensive context diagram. 2.2 Produce a comprehensive level 1 Data Flow Diagram (DFD) by expanding the context diagram. 2.3 Further decompose a level 1 DFD into a level 2 DFD.
3. Understand the requirements of a feasibility study.	3.1 Evaluate the features of a feasibility study. 3.2 Produce a comprehensive feasibility study for a given problem domain.

Access to HE Diploma Unit

Unit Code:	QU026152		
Title:	Understanding Robots and Control Systems		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Graded		
Grade descriptors:	• GD3- Application of Skills • GD4-Use of Information • GD5-Communication and Presentation • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Report ~ 1500 words		

This unit has 3 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Understand different types of robotic devices and their control systems	1.1 Compare and contrast different types of robotic devices, explaining their uses. 1.2 Explain how different sensors are used to control a robot. 1.3 Analyse the strengths and weaknesses of using a robot to complete routine tasks: • in the home • in manufacturing industry • in medical applications • agricultural environments.
2 Understand legal and ethical issues related to the use of robots.	2.1 Identify legislation and guidance which is relevant to the development and use of robots and control systems. 2.2 Discuss ethical issues which should be considered in the development and use of robots and control systems.
3 Understand how to design and create a robot and control system.	3.1 Describe equipment required to create a robot and control system.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	3.2 Evaluate design tools which can be used to design a robot and control system. 3.3 Explain the importance of creating a test plan for the robot and control system.

Access to HE Diploma Unit

Unit Code:	QU026454		
Title:	Website Design and Development		
Unit Level:	Level 3	**Unit Credit:**	6
Grading type:	Graded		
Grade descriptors:	• GD2-Application of knowledge • GD3-Application of skills • GD5-Communication and presentation • GD7-Quality		
Academic subject content/other:	Academic Subject Content		
Suggested assessment details:	Project - Plan, design and develop interactive website with a minimum of five pages including development diary ~ 400-500 words Report ~1500 words		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Know how to use HTML basic tags.	1.1 Explain HTML basics. 1.2 Format HTML document using paragraph, page break, centre, spaces and blinking, ordered lists and unordered list. This could also be achieved by formating the HTML document using paragraphs, headings, line breaks, divisions, images and, ordered and unordered lists, appropriate to the software that is being used. 1.3 Use HTML hyperlinks to navigate between webpages and external links 1.4 Use CSS in the website and analyse how the use of Cascading Style Sheets (CSS) can improve the look of a website.
2. Be able to design an interactive website.	2.1 Explain the specific purpose and requirements for a website.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	2.2 Design a multi-page website to meet stated requirements. 2.3 Evaluate two different designs created to meet a particular specification and justify the one chosen for implementation.
3. Be able to create and test an Interactive website using HTML and CSS.	3.1 Build a functional multi-pages interactive website comprising a complex set of linked web pages including dynamic web pages. 3.2 Review and test the website produced to assess how closely the site matches the original specification and whether it meets the requirements. 3.3 Improve the effectiveness of a website on the basis of the testing. 3.4 Explain the tools and techniques used in the creation of a website.
4. Understand the factors and constraints that related to production and performance of website.	4.1 Explain the various factors that influence the performance of a website. 4.2 Discuss the potential security issues and legal constraints involved in a particular website.

Mandatory Units: Ungraded

Access to HE Diploma Unit

Unit Code:	QU026150		
Title:	Computer Data Protection		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Ungraded		
Academic subject content/other:	Other		
Suggested assessment details:	Structured questions ~ 750 words Case study analysis ~ 750 words		

This unit has 2 learning outcomes.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
1 Understand current UK legislation relating to the use and protection of data.	1.1 Explain the purpose of legislation related to data protection. 1.2 Evaluate current legislation relating to the use and protection of data when using computers. 1.3 Analyse examples of the application of current data protection legislation.
2 Understand the need for control of data to ensure that it is accurate and secure.	2.1 Evaluate the need for control of data to ensure that it is accurate and secure. 2.2 Use examples to examine when data should or should not be controlled.

Access to HE Diploma Unit

Unit Code:	QU025532		
Title:	Preparation for Higher Education		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Ungraded		
Academic subject content/other:	Other		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Understand how to identify opportunities for Higher Education.	1.1 Use information sources to research Higher Education courses. 1.2 Analyse processes and procedures necessary to gain entry to Higher Education. 1.3 Analyse information on Higher Education courses and make appropriate realistic choices.
2 Understand the process of completing a Higher Education application form.	2.1 Complete an application form with excellent attention to detail, meeting a given deadline. 2.2 Summarise and evaluate personal experiences, achievement and goals, communicating these clearly in a personal statement.
3 Understand preparation required for the interview process.	3.1 Conduct further personal research into courses at relevant institutions in preparation for an interview. 3.2 Prepare provisional answers to anticipated questions, making excellent use of previous experience and recent study.
4 Understand the need to prepare for the transition to Higher Education.	4.1 Analyse the personal and academic qualities needed for successful study in Higher Education.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	4.2 Explain likely practical problems and barriers in moving to higher education and seek strategies for overcoming these. 4.3 Analyse the nature of study in Higher Education.

Access to HE Diploma Unit

Unit Code:	QU026155		
Title:	Writing reports		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Ungraded		
Academic subject content/other:	Other		
Suggested assessment details:	Report plan ~ Plan Presentation of report plan ~ 2-3 minutes Report ~ 1000 words		

This unit has 5 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Understand the significance of the report title in determining the content.	1.1 Analyse the requirements of the question or task. 1.2 Analyse the main points which must be covered, omitting irrelevant detail.
2 Be able to plan and present the plan for a report	2.1 Produce a plan for a report. 2.2 Present the plan for the report.
3 Be able to structure a report.	3.1 Produce an introduction which sets out how the subject will be dealt with in the report. 3.2 Use evidence and examples to strengthen information provided in the report. 3.3 Use linking sentences in paragraphs to produce a cohesive report. 3.4 Provide a conclusion which sums up the main findings of the report.
4 Be able to write in an appropriate style.	4.1 Write in a detached, balanced, and objective manner. 4.2 Write formal English avoiding emotive language and colloquialisms.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
5 Know the conventions for acknowledging sources.	5.1 Acknowledge the work of other authors both during the report and in a list of references. 5.2 Use recognised approaches for acknowledging sources.

Optional Units: Ungraded

Access to HE Diploma Unit

Unit Code:	QU007486		
Title:	Application of Number - Interpreting and Presenting Information		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Ungraded		
Academic subject content/other:	Other		
Suggested assessment details:	2 x controlled assessments ~ 2 x 1 hour assessments		

This unit has 2 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Know how to obtain and interpret mathematical and statistical information.	1.1 Within a complex task, identify and evaluate possible sources of data, e.g. rate of change, trends, probabilities. 1.2 Justify the choice of data collection procedures giving reasons for choosing a particular sample and methods used. 1.3 Evaluate actual or possible sources of error in collecting and recording data. 1.4 Choose and justify the chosen methods of recording data. 1.5 Interpret the main characteristics of the data in relation to the task.
2 Be able to present mathematical and statistical data.	2.1 Choose and use a range of appropriate and effective techniques to present accurately, e.g. the use of probability to describe situations, the presentation and interpretation of upper and lower boundaries of results; statistical diagrams. 2.2 Use correct axes, scales and conversions.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	2.3 Justify choice and use of presentation techniques and methods for the original purpose of the task.

Access to HE Diploma Unit

Unit Code:	QU025280		
Title:	Optimising Examination Performance		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Ungraded		
Academic subject content/other:	Other		
Suggested assessment details:	Examination preparation plan ~ 500 words Examination paper from another unit ~ 1-2 hours Reflective journal ~ 800 words		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Be able to effectively prepare for an examination.	1.1 Produce an effective and realistic preparation plan. 1.2 Identify priorities in the preparation plan. 1.3 Reflect on the plan's effectiveness to identify future improvements.
2 Be able to complete competent answers, which demonstrate subject knowledge.	2.1 Follow all instructions accurately to complete the correct number and combination of questions. 2.2 Include the salient aspects in answers, with the accuracy and detail required by the subject. 2.3 Show in answers an in-depth understanding of the issues / arguments/problems, as required by the subject. 2.4 Apply knowledge or learning coherently in support of arguments and/or to resolve problems.
3 Understand how to minimise common examination pitfalls.	3.1 Identify common pitfalls in examination performance. 3.2 Evaluate potential strategies to avoid examination pitfalls.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
4 Know how to minimise stress to enhance examination performance.	4.1 Recognise own stressors. 4.2 Develop strategies to minimise own stressors.

Access to HE Diploma Unit

Unit Code:	QU028487		
Title:	Promoting Wellbeing and Building Resilience		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Ungraded		
Academic subject content/other:	Other		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Understand the physical and psychological impact of pressure and stress on mental wellbeing.	1.1 Explain the physical and psychological impact of pressure and stress on mental wellbeing.
2. Understand the connection between mental wellbeing and resilience.	2.1 Analyse the connection between mental wellbeing and resilience.
3. Understand the factors that can improve wellbeing and build resilience.	3.1 Explain factors that can improve wellbeing. 3.2 Explain factors that can negatively affect wellbeing and how to avoid them. 3.3 Explain the behaviours associated with resilience. 3.4 Explain ways to build resilience.
4. Understand how to manage an individual's mental wellbeing and the support available to them.	4.1 Evaluate the methods for managing and maintaining mental wellbeing and building resilience. To include practical and theoretical methods such as breathing exercises to reduce stress, mindfulness techniques. 4.2 Analyse the types of support available from different sources.

Access to HE Diploma Unit

Unit Code:	QU011467		
Title:	Spreadsheets		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Ungraded		
Academic subject content/other:	Other		
Suggested assessment details:	Refer to Assessment Grid		

This unit has 6 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Know how to design and store a spreadsheet.	1.1 Design a spreadsheet appropriate to a user's requirements. 1.2 Create and store the spreadsheet. 1.3 Evaluate the spreadsheet in terms of meeting the user's needs.
2 Be able to retrieve and modify an existing spreadsheet.	2.1 Modify the spreadsheet design/content in response to user feedback.
3 Know how to print a spreadsheet.	3.1 Print or display whole or part spreadsheets/formulae with a variety of print layout options.
4 Be able to enhance user readability.	4.1 Use suitable formatting options for displaying text and numeric values. 4.2 Define and use conditional formatting to limit input error and give suitable messages to users.
5 Understand spreadsheet functions.	5.1 Develop a spreadsheet solution using a range of mathematical functions.
6 Understand graphical facilities.	6.1 Use an appropriate graph type.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
	6.2 Draw pie, bar, line graphs with appropriate labels attached.

Access to HE Diploma Unit

Unit Code:	QU018318		
Title:	Study Skills		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Ungraded		
Academic subject content/other:	Other		
Suggested assessment details:	Refer to assessment grid.		

This unit has 5 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Know how to manage and organise study time.	1.1 Produce, revise and evaluate a personal schedule of study that accommodates own time constrains. 1.2 Where necessary, prioritise and reschedule study plan explaining changes. 1.3 Prioritise and meet assignment deadlines, negotiating new deadlines if needed. 1.4 Devise a strategy for organising coursework.
2 Know how to participate in learning activities.	2.1 Prepare efficiently for tutorials and classroom activities. 2.2 Participate appropriately in classroom activities.
3 Understand assignment requirements.	3.1 Analyse assignment effectively identifying aims and objectives. 3.2 Determine suitable format for assignment, effectively explaining decisions made.
4 Understand learning preferences.	4.1 Analyse different methods of learning. 4.2 Analyse methods of identifying own learning preferences.

LEARNING OUTCOMES	ASSESSMENT CRITERIA
The learner will:	**The learner can:**
5 Be able to retrieve information from a range of sources.	5.1 Retrieve information from a range of written texts using a range of reading skills. 5.2 Scan source material, critically evaluating information, selecting accurate and detailed notes to suit purpose. 5.3 Demonstrate the use of a recognised referencing system for retrieved information.

Access to HE Diploma Unit

Title:	Sustainability Project		
Unit Code:	QU033854		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Ungraded		
Academic subject content/other:	Academic subject content		
Suggested Assessment details:	Report, including project plan and reflection – 1,000 words		

This unit has 3 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Be able to plan a project to promote sustainability within a specific sector.	1.1 Identify a project to promote sustainability within a chosen sector, justifying your choice. 1.2 Produce a project plan for own project including: • Aims and objectives • Time scales • Methods • Resources required • Any health and safety considerations.
2. Be able to carry out a sustainability project.	2.1 Carry out a sustainability project. 2.2 Produce a report on the findings of the sustainability project.
3. Be able to review the success of a sustainability project.	3.1 Evaluate the extent to which the project has met the aim and objectives. 3.2 Evaluate the extent to which the project has met the aim and objectives.

Access to HE Diploma Unit

Title:	The Fundamentals of Environmental Sustainability		
Unit Code:	QU033880		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Ungraded		
Academic subject content/other:	Academic subject content		
Suggested Assessment details:	Report – 1500 words		

This unit has 4 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1. Know the importance of sustainability within a specific sector.	1.1 Explain what is meant by sustainability. 1.2 Explain the importance of supporting environmental sustainability within a chosen sector.
2. Know how environmental sustainability can be supported within the chosen sector.	2.1 Describe environmental issues relevant to a chosen sector. 2.2 Describe the impact of the chosen sector on the environment. 2.3 Explain how these environmental issues could be minimised within a chosen sector. 2.4 Analyse factors to consider when working towards environmental sustainability in a chosen sector.
3. Know how the 3 Rs of sustainability can be applied within the chosen sector.	3.1 Explain the 3 Rs of sustainability. 3.2 Analyse ways that a chosen sector can implement the 3 Rs of sustainability.
4. Understand the importance of waste management within the chosen sector.	4.1 Explain the importance of having a waste management strategy within a chosen sector. 4.2 Explain environmental hazards or risks that could be caused by poor waste management within a chosen sector.

Access to HE Diploma Unit

Unit Code:	QU025609		
Title:	Work Placement		
Unit Level:	Level 3	**Unit Credit:**	3
Grading type:	Ungraded		
Academic subject content/other:	Other		
Suggested assessment details:	Report ~ 1500 words		

This unit has 3 learning outcomes.

LEARNING OUTCOMES	**ASSESSMENT CRITERIA**
The learner will:	**The learner can:**
1 Be able to analyse own work placement role within a work setting.	1.1 Evaluate own work placement role within the work setting.
2 Understand the structure of the wider organisation.	2.1 Analyse the structure of the wider organisation.
3 Be able to demonstrate how work experience relates to own course of study.	3.1 Evaluate how work experience relates to own course of study. 3.2 Reflect on self-development over the period of the placement.

7. What to do next

For existing centres please contact your named Development Manager or Development Officer.

For organisations, not yet registered as a Gateway Qualifications centre please contact:

Tel: 01206 911211

Email: enquiries@gatewayqualifications.org.uk

8. Gateway Qualifications

Gateway Qualifications, a not for profit registered charity, is an Awarding Organisation and authorised Access Validating Agency based in Colchester.
We work with learning providers and industry experts to design and develop qualifications that benefit the learner and the employer.

We support flexible, responsive and quality assured learning opportunities whether it's in the classroom, at work, in the community or through distance learning.

We are recognised by Ofqual, to design, develop and submit qualifications to the Regulated Qualifications Framework (RQF) and by the Quality Assurance Agency for the development and approval of Access to Higher Education Diplomas.

gateway qualifications

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