Pearson BTEC Level 4 Higher National Certificate in Electronic Systems Engineering for England

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1 INTRODUCTION

Welcome to Engineering course at Uxbridge College (West London Institute of technology). This handbook is designed to give you a general overview of the College and the School of Engineering.

We hope that you will enjoy your time of study with us and that the course will provide a stimulating experience – assisting both your personal development and future progression to higher levels of study and employment in one of the most exciting and vibrant areas of endeavour available.

We have designed Higher Education courses with employers to ensure the programmes meet the needs of the current and future job market. Students have opportunity to work in state-of-the-art laboratories with the latest industrial equipment in electronic, electrical, and mechanical engineering. The Higher Education programmes enrich students with engineering concepts, develop practical and problem-solving skills with excellent support from industry-experienced lecturers and technicians with specialism in a variety of subjects. Advanced laboratories have high specification computers with a variety of software packages to design and test products and systems.

We work closely with various employers in Engineering such as Martin Baker Aircraft Ltd., Heathrow, Mars, Surface Measurements. Students participate in employer webinars, skills development through F1 challenge, skills projects e.g. drones, robotics to enhance knowledge and skills beyond curriculum, mini projects from employers with judgements and awards. Students after completion of higher education courses progress to employment or top up degree. Our students have secured employment in various engineering companies such as TfL, Sky, BT, Schwing Stetter, Lufthansa Technik Landing Gear Services UK.

Muhammad Maruf Tungekar
Head of School, Engineering- Mechanical and Electronics

1.1 HE Team

Muhammad Maruf Tungekar has a Master's degree in Electronics with over 5 years of industrial experience in Electronics, Information Technology and Telecom sectors and over 22 years of experience in Further & Higher Education. His areas of expertise are Analogue and Digital Electronics, Information Technology, Mathematics, Programming, Communications Engineering, Design and Development and Leadership and Management.

Rakesh Thapar has a MBA (IT), BSc in Biochemistry and Microsoft Certified Professional (MCP). He has 14 years of industrial experience in Wind turbine (Vestas (A/S), Electronics and PC industries and over 8 years of experience in Further & Higher Education. His areas of expertise include Business Studies, Management of Projects, IT, Health, and Safety.

Dr Muhammad Khurram Shaikh has achieved a PhD in Face recognition, has 3 years of industrial experience in software development, data network infrastructure development and Electrical/Electronic consultancy and over 15 years of teaching experience in Further & Higher Education. He has extensive research experience in machine learning and image processing field and has published many papers and written a chapter of the book on Biometric Security and Privacy. His areas of expertise include Mathematics, Electrical and Power Engineering, Mechanical principles, Electrical, Electronic and Digital principles, Engineering Science, Further Mathematics, Analytical Methods, Data Communications for networks, Further Analytical Methods, Fuzzy Logic and Control systems and Electronic Design Automation.

Zeenat Pir has an MSc in Mechanical Engineering with over 13 years of teaching experience in Further and Higher Education. Her areas of expertise are Mechanical principles, Thermodynamics, Fluid Mechanics, Further mechanical principles, AutoCAD and Engineering Design.

Ahmed Ojo has an MSc in Electrical Engineering with 2 years of professional engineering experience in major academic institution and consulting engineering company in UK and over 6 years of teaching experience in Further & Higher Education. His areas of expertise are Microprocessors, Electronic and Electrical Principles and Digital Systems.

Mahdi H. Marashi has a MSc degree in Material Science Engineering. He has over 3 years of industrial experience as a material expert and design milling machine and over 14 years of teaching experience in Further and Higher Education. He has extensive research experience in Nano-technology field and has published many papers. He has a national patent on "High Energy and High Temperature Ball Mill" given by State Department for Registration of documents by Iran's government. His areas of expertise are Material Science Engineering, Further Mathematics.

Masood Ahmed Khawaja has a MSc degree in Electrical Engineering specialization in Telecommunication. He Has over all 5 years of industrial experience as Instrument Engineer, RF Engineer and Regional Project Manager South Region and over 12 years of teaching experience in University and Further Higher Education. He wrote research papers in different conferences. His areas of interest and research are Wireless Communication, Wireless sensor nodes and Mobile Communication.

Dr Ahmad Khanipour received his BSc degree (1989), MSc degree (1991), and Ph.D. (2008) in Mechanical Engineering from the University of Bradford, UK. He worked at the university as an associate professor in the Department of Mechanical Engineering from 1991 to 2021. With over 12 years of industrial experience, he served as the Managing Director of the National Automotive Industrial Plan in Iran from 1992 to 2004. Ahmad has supervised more than 60 industrial and student graduate theses since 1991, all in the field of mechanical and automotive engineering. He has published numerous journal papers in ISI and Scopus. His current research focuses on automotive engineering, hybrid and electric vehicles. Dr Khanipour's areas of expertise include Thermodynamics, Mathematics, Engineering Science, Fluid Mechanics, Advanced Mechanical Principles, and the Design of Internal Combustion Engines.

Sohail Shah is a highly accomplished professional with extensive industry and teaching experience. He holds a Master of Science (MSc) degree in Digital Systems, complemented by a first-degree in Electronic and Communications Engineering. With over 12 years of versatile expertise across diverse industries such as

engineering defence (MOD), financial banking, and media management, Mr Shah brings a wealth of practical knowledge to the table. His teaching proficiency is underpinned by a Postgraduate Certificate in Education (PGCE) from the Institute of Education, London. Specializing in electronics, embedded systems, and computer programming, Mr Shah is a recognized authority in his field. He has demonstrated his innovative approach by developing and publishing numerous applications tailored for the domain of embedded systems and mechatronics, showcasing his commitment to advancing technology and education.

2 Course Information

2.1 College Calendar – 2024/25

HE Induction Day – Friday 27th September 2024
HE programmes start week commencing Monday 30th September 2024

To view the College calendar for the academic year 24/25 please go to: www.hruc.ac.uk/calendar

The calendar is fixed and all students are reminded that holidays cannot be booked within the term dates.

Location: Uxbridge Campus, Park Road, Uxbridge, UB8 1NQ.

2.2 Programme Specifications

1.	**Awarding Institution / Body**	Pearson
2.	**Teaching Institution**	HRUC (Uxbridge Campus)
3.	**Final Award**	Pearson BTEC Level 4 Higher National Certificate in Electronic Systems Engineering for England
4.	**Course Title**	Pearson BTEC Level 4 Higher National Certificate in Electronic Systems Engineering for England
5.	**Course Code**	H4EU2F
6.	**Language of Instruction**	English
7.	**Language of Assessment**	English
8.	**Mode**	Full-time
9.	**Duration**	32 Teaching weeks
10.	**Number of Hours / Week**	15
11.	**Number of Days / Week**	3-4
12.	**Total Qualification Time per year**	1200 hours per year
13.	**Guided Learning**	480 hours per year
14.	**Independent Study College and Home**	720 hours per year

Aims of the Programme

The course provides a broad based education enabling successful students to enter careers in design and building operations in the Electronic Systems Engineering industry. In particular, the course aims to:

- Deliver Specialist Engineering units which are made up of 75% theory and 25% practical session in workshops/labs
- Develop a range of skills and techniques, personal qualities and attributes essential for successful performance in working life and thereby enable learners to make an immediate contribution to employment at the appropriate professional level
- Prepare for a range of technical and management careers in Electronic Systems Engineering
- Equip individuals with the knowledge, understanding and skills for success in employment in the Electronic Systems Engineering-based industry
- Provide specialist studies relevant to individual vocations and professions in which learners are working or intend to seek employment in Electronic Systems Engineering and its related industries
- Enable progression onto (or count towards) an HND (Higher National Diploma) or further professional qualification in Electronic and Electrical Systems Engineering or related area
- Provide a significant educational base for progression to Incorporated Engineer level

The course provides opportunities for students to:

- Achieve a nationally recognised Level 4 vocationally specific qualification.
- To gain a nationally recognized vocational qualification.
- Achieve a qualification to enter employment as an engineer/technician or progress to higher education vocational qualifications such as a full or part-time Electronic and Electrical Systems Engineering or related area.
- Focus on the development of higher-level skills in a technological and management context.
- Develop a range of skills and techniques and attributes essential for successful performance in working life.

Skills & Other Attributes

Learners studying for Pearson BTEC Higher Nationals in Electronic Systems Engineering will be expected to develop the following skills during the programme of study:

- analyse, synthesise and summarise information critically
- read and use appropriate literature with a full and critical understanding
- think independently, solve problems and devise innovative solutions
- take responsibility for their own learning and recognise their own learning style
- apply subject knowledge and understanding to address familiar and unfamiliar problems
- design, plan, conduct and report on investigations
- use their knowledge, understanding and skills to evaluate and formulate evidence-based arguments critically and identify solutions to clearly defined problems of a general routine nature
- communicate the results of their study and other work accurately and reliably using a range of specialist techniques
- identify and address their own major learning needs within defined contexts and to undertake guided further learning in new areas
- apply their subject-related and transferable skills in contexts where the scope of the task and the criteria for decisions are generally well-defined but where some personal responsibility and initiative is required.

Assessment, Learning and Teaching

A variety of teaching and learning methods will be used according to the needs of participants. The range may include formal lectures, tutor led presentations, participant led seminars, group discussions, individual and group experimental work, personal development exercises, role plays and counselling and interpersonal skills practice.

The total guided learning hours for this one-year course is 480 over year. This comprises 75% of formal lectures, 20% of practical, 3% of seminars and 2% of trips. The intention is to facilitate participants to become increasingly independent in their learning and develop their personal and professional identity so that they become more confident. The break-down of independent study consists of 70% of e-learning, researching and completing assignments at home and in the LRC and 30% of utilising lab-facilities outside timetabled hours. Apart from these formal guided learning hours, Pearson recommends approximately 720 hours over the year of independent study to reinforce their learning in the college.

Achievement is evidenced through following assessment methods:

- Coursework Assignment and Pearson set assignments including structured tasks and reports (85%)
- Written Test (10%)
- Practical tasks including workshops, presentations and oral exams (5%)

Professional body recognition

In developing the Pearson BTEC Higher National Certificate in Electronic Systems Engineering for England, Pearson have liaised with:

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

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

Progression Routes

Learners can progress after completing Level-4 HNC in Electronic Systems Engineering to Level-5 HND in Electronic and Electrical Systems Engineering. After completion of the HNC learners can choose to enter the employment in the following roles: design engineer, project engineer, installation and commissioning, maintenance engineer, technical sales, technical trainer, technician, lecturer, quality control, etc.

2.3 Unit Specifications

The following list of modules will be offered:

Pearson BTEC Level 4 HNC in Electronic Systems Engineering for England				
Unit number	**Unit Name**	**Unit Level**	**Unit Credit**	**Unit Type**
4002	Engineering Maths	4	15	Core Unit Mandatory
4003	Engineering Science	4	15	Core Unit Mandatory
4061	Programming for Engineers	4	15	Core Unit Mandatory
4062	Professional Engineering Practice (This is a Pearson-set)	4	15	Core Unit Mandatory
4063	Engineering Mechanics and Materials	4	15	Core Unit Mandatory
4022	Electronic Circuits and Devices	4	15	Specialist Mandatory
4033	Programmable Logic Controllers (PLCs)	4	15	Specialist Mandatory
4067	Digital Devices and Systems	4	15	Specialist Mandatory

Note: Each 15-credit unit approximates to a TQT of 150 hours and 60 hours of Guided Learning. Students pass their HNC Level-4 units before progressing HND level-5.

The students wishing to progress from Level-4 HNC in Electronic Systems Engineering to Level 5 HND in Electronic and Electrical Systems Engineering must have completed a minimum of 120 credits and achieved at least a pass grade in 105 credits.

The assessment of Pearson BTEC Higher National qualifications is criterion-referenced and centres are required to assess learners' evidence against published learning outcomes and assessment criteria.

All units will be individually graded as 'pass', 'merit' or 'distinction'. To achieve a pass grade for the unit learners must meet the assessment criteria set out in the specifications.

Unit 4002: Engineering Maths (Core Mandatory)

Unit code:	M/615/1476	**Aim:** The aim of this unit is to develop students' skills in the mathematical principles and theories that underpin the engineering curriculum. Students will be introduced to mathematical methods and statistical techniques in order to analyse and solve problems within an engineering and manufacturing context. On successful completion of this unit, students will be able to employ mathematical methods within a variety of contextualised examples, interpret data using statistical techniques, and use analytical and computational methods to evaluate and solve engineering and manufacturing sector problems.
Unit level:	4	
Credit value:	15	

Unit abstract:

The LO1 requires students to study the Mathematical concepts: Dimensional analysis Arithmetic and geometric progressions Complex Numbers. Matrices Functions: Exponential, logarithmic, trigonometric, and hyperbolic functions. Engineering and manufacturing sector examples: Case studies with vocational scenarios, occupation/sector specific applications, modern industrial trends, needs and goals (e.g., sustainability, digitalisation).

The LO2 focus on data collection methods Presentation of data – histograms; bar charts; line diagrams; cumulative frequency diagrams; scatter plots Grouped and ungrouped data Mean, mode, median, and standard deviation of data Pearson's and Spearman's correlation coefficient Linear regression, Classification methods, linear correlation coefficient and product moment correlation Coordinate systems and reference frames Effective data communication and representation methods/formats for stakeholder groups; accessible, inclusive, and diversity considerations and implications, Hypothesis Testing: Null hypothesis Alternate hypothesis Probability theory: Conditional and unconditional probability Binomial, Poisson, and normal distribution Confidence intervals Estimation of reliability and quality of engineering components and systems.

The LO3 looks into sinusoidal waves: Sine waves and their applications Trigonometric and hyperbolic identities. Vector functions: Vector notation and properties Representing engineering quantities in vector form Vectors in three dimensions. Mathematical software for engineering and manufacturing sector: Use of mathematical software packages (e.g. Mathcad, Microsoft Excel) Confirmation of analytical results.

The LO4 explore the concepts Definition of a function and a derivative, graphical representation of a function, notation of derivatives, limits and continuity, derivatives; rates of change, increasing and decreasing functions and turning points Differentiation of functions Differentiation of functions including: • standard functions/results • using the chain, product, and quotient rules • second order and higher derivatives Types of function: polynomial, logarithmic, exponential, and trigonometric (sine, cosine, and tangent), inverse trigonometric and hyperbolic functions. Integral calculus: Definite and indefinite integration Integrating to determine the area Integration of functions including: • common/standard functions • using substitution • by parts Exponential growth and decay Types of function: algebraic including partial fractions and trigonometric (sine, cosine, and tangent) functions Engineering and manufacturing sector problems involving calculus: Including: stress and strain, torsion, tolerancing, torque settings, motion, dynamic systems, oscillating systems, force systems, heat energy and thermodynamic systems, fluid flow, AC theory, electrical signals, information systems, transmission systems, electrical machines, electronics Efficient problem-solving competencies in the chosen occupation/sector and effective written/verbal communication of solutions.

Learning outcomes:

On successful completion of this unit a learner will:

LO1 Apply a variety of mathematical methods to a range of engineering and manufacturing sector problems

LO2 Investigate applications of statistical and probability techniques to interpret, organise, and present data

LO3 Use analytical and computational methods for solving engineering and manufacturing sector problems by relating sinusoidal wave and vector functions to their respective applications

LO4 Examine how differential and integral calculus can be used to solve engineering and manufacturing sector problems.

Unit 4003: Engineering Science (Core Mandatory)

Unit code:	T/615/1477	**Aim:** This unit introduces students to the fundamental laws and applications of the physical sciences within engineering and how to apply this knowledge to find solutions to a variety of engineering problems. Among the topics included in this unit are: international system of units, interpreting data, static and dynamic fundamentals, fluid mechanics and thermodynamics, material properties and failure, A.C./D.C. circuit theories, and electromagnetic principles and properties. On successful completion of this unit, students will be able to interpret and present qualitative and quantitative data using computer software, calculate unknown parameters within mechanical and electrical systems, explain a variety of material properties, and use electromagnetic theory in an applied context.
Unit level:	4	
Credit value:	15	

Unit abstract:

The LO1 focus on Quantitative research methodologies and methods: Descriptive Research Survey Research Correlational Research Quasi-experimental Research Design Experimental Research Relevant methodologies and methods. Qualitative research methodologies and methods: Grounded theory Ethnographic Narrative research Historical Case studies Phenomenology Relevant methodologies and methods. The scientific method: Question Research Hypothesis Experiment Data Analysis Conclusion and Communication. Interpreting data: Investigation using the scientific method to gather appropriate data Test procedures for physical (destructive and non-destructive) tests and statistical tests that might be used in gathering information Summarising quantitative and qualitative data with appropriate graphical representations and appropriate use of an international system of units Exploring the usage of quantitative and qualitative data in engineering applications specific to occupation/sector (e.g., manufacturing, operations, space systems, aeronautical engineering, etc.) Using software to analyse data Using presentation software to present data to an audience.

The LO2 requires a student to study Static and dynamic fundamentals: Units, scalars and vectors, two-dimensional force systems, and moment (torque) and couple Representing loaded components with space and free-body diagrams Equilibrium in two dimensions, distributed forces, the centre of mass, and centroids Calculating support reactions of beams subjected to concentrated and distributed loads Newton's laws of motion, one-dimensional particle kinematics, one-dimensional particle kinetics, D'Alembert's principle, and the principle of conservation of energy Application of fundamentals and industrial case studies. Fluid mechanics and thermodynamics: Fluid definition and properties Definition of pressure, hydrostatic pressure, and basic equations, manometry, application and calculations, Archimedes' principle Flow characteristics and definitions, introduction to ideal fluid flow Continuity of volume and mass flow for an incompressible fluid Bernoulli's equation Thermodynamic properties, temperature, the zeroth law of thermodynamic and pressure, system and control volume, processes, and cycles Energy and energy transfer, and heat and work transfer: definitions, units, and sign convention Ideal gas and equation of state, internal energy, enthalpy, and specific heats of ideal gas The first law of thermodynamics.

The LO3 focus on Engineering materials: Material properties, classifications, and testing Atomic structure of materials and the structure of metals, polymers, and composites Phase diagrams and analysis Mechanical and electromagnetic properties of materials. Material failure: Destructive and non-destructive testing of materials The effects of static, dynamic, and impact loading on a material Degradation of materials and hysteresis. Material selection: Desired application Working conditions Manufacturability and assembly considerations Cost and availability Environmental impact and sustainability Chemical and Physical properties.

The LO4 D.C. circuit theory: Ohm law, Kirchhoff's voltage and current laws Voltage, current, resistance, power, and energy in D.C. networks composed of resistors, capacitors, and inductors. Exploring circuit theorems (Thevenin, Norton, Mesh, Superposition, Maximum power transfer). A.C. circuit theory: Waveform characteristics in a single-phase A.C. circuit Odd and even harmonics V_{max} Sinωt ± α) AC circuit analysis using Kirchhoff's laws RLC circuits; Impedance, reactance, admittance, phasors, Q factor, bandwidth, and resonance in RLC circuits. Magnetism: Characteristics of magnetic fields and electromagnetic force The principles and applications of electromagnetic induction, self and mutual induction, solenoid, relay, transformer, motors, and generators Single and three-phase power, AC and DC motor and control.

Learning outcomes:

By the end of this unit students will be able to:

LO1 Examine scientific data using both quantitative and qualitative methods

LO2 Apply the fundamentals of mechanical engineering systems

LO3 Explore the characteristics and properties of engineering materials

LO4 Analyse applications of A.C./D.C. circuit theorems, electromagnetic principles, and properties.

Unit 4061: Programming for Engineers (Core Mandatory)

Unit code:	A/650/2923	**Aim:** This unit provides engineering students with a comprehensive introduction to programming. Students will be able to investigate different software development platforms, programming paradigms, programming languages (e.g. Python, C or C++), and their engineering applications. They will gain the experience of going through a standard development process; from setting requirements through to design, implementation, testing and maintenance. The unit also covers program design, structure, and syntax through project activities. Students will be assessed on creating programs that are efficient, functional, reliable, and maintainable. On completion of this unit, students will have acquired essential knowledge and skills in programming using a popular language that can be utilised in Level 5 units such as Machine Learning and Embedded Systems.
Unit level:	4	
Credit value:	15	

Unit abstract:

The LO1 requires students to study evolution of programming concepts; paradigms (e.g. object-oriented, eventdriven, procedural, functional); development platforms including IDEs; current/future trends Processes/components of programming environment (i.e. microcomputer hardware: CPU, arithmetic logic unit (ALU), registers, memory; fetch-execute cycles) Devices/systems that can be programmed (e.g. computers, mobile phones, tablets, industrial controllers, field-programmable gate arrays (FPGAs)) Programming languages and platforms with which to program devices/systems (e.g. Python, C, C++, C#, ADA, Java and MATLAB); comparisons (e.g. compiled versus interpreted languages). Engineering applications and practical skills: Project-based learning (PBL) approach for understanding planning, development and delivery of small/medium-sized engineering applications Software engineering principles, software development life cycle, methodologies (e.g. agile, waterfall), roles and responsibilities of a development team (e.g. analyst, programmer, tester, Scrum master, product owner), modelling and prototyping. Overview of Engineering project management techniques for programmers (e.g. SWOT, stakeholder matrices, risk mapping, radar chart and summary risk profiles). Edit, execute and test example engineering applications Developer attributes: responsibility towards planning and prioritisation of development activities in meeting business needs, ability to work independently, pro-active, initiative, communicative, keen to analyse root cause of problems, contextual knowledge and skills for practice, solve and develop efficient and ethical solutions Programming case studies: Embedded systems, automation, Industry 4.0, machine learning (AI), networking, Internet of Things (e.g. smart factories), cloud computing, cybersecurity; concepts, purpose and application Industry relevance (e.g. manufacturing, defence, medical, automotive, aeronautics, space technologies, utilities, consumer goods). Occupation-centric: programming tools for diagnostics (e.g. web-based diagnostics for network devices and other software tools such as PROFITrace), interconnected occupational competencies (e.g. network engineers to bring together programming skills and network installation and management skills to solve problems). Best practices: Coding standards, secure programming, green coding, programmer ethics, accessibility.

The LO2 is focus on program design, structure and maintenance: Requirements analysis and specification, flow and function charts, pseudocode, selection and application of design methodology, design for testing and maintenance, occupational role and relevance in designing maintainable software solutions (e.g. use of software tools/techniques for troubleshooting network issues, securely isolate and debug faults, automate different aspects of network maintenance) Documentation of design (e.g. project name, description, version control such as Git and commentary); reading, extracting and interpreting technical, business related and other relevant documentation. Programming features: Data types and operators (i.e. integers, floating point, strings, characters, Boolean, arithmetic, relational, logical, bitwise, assignment) Data type qualifiers (e.g. mutable and immutable) Classes and object-oriented programming (OOP) concepts (i.e. abstraction, polymorphism, encapsulation, inheritance) Data structures (i.e. arrays, lists, sets) Control structures (i.e. decision, selection, and iterative statements) Input/output (i.e. file reading and writing, standard I/O, databases) Libraries (i.e. GUI, networking, logging) Data management: cleaning data, producing statistical analysis of data. Algorithmic design and development: Example algorithms for engineering problems (e.g., path finding) Design algorithms for a range of small engineering applications Complexity analysis, Big-O notation.

The LO3 explore the benefits of modular design: Development efficiency, maintainability, testability, reusability and debugging. Declaring, defining and calling functions: Naming, return type and arguments (parameters), function body Passing data to and receiving data from functions, call functions by value, and call by reference Life cycle of variables in functions (e.g. global versus local, class versus instance) Recursive functions. Preprocessor directives: Include, import statements, C header files, macro definitions, sharing between multiple source files, #define, #ifndef statements Python packages. Program development and implementation: Develop and implement small engineering applications using a suitable programming language; develop documentation to industry standards and style guides Explore team approach to program development and delivery Consider possible user-experience concerns and how these could be solved.

The LO4 focus on software testing frameworks and methodologies including functional (e.g. unit testing, integration, system, acceptance) and non-functional (e.g. usability, performance, security, compatibility) methods; tools and techniques to monitor and enhance performance against requirements Test environments Continuous integration/continuous development (CI/CD) pipeline and continuous testing. Unit Descriptors for the Pearson BTEC Higher Nationals Engineering Suite Issue 2 – January 2024 © Pearson Education Limited 2024 468 Approach to testing: Relationship between test activities and program development activities; identify elements that need to be tested; consider data that should be used to fully test the program; match tests against the defined requirements (e.g. user, system); use of test harnesses Use of relevant test procedures: test plans, test techniques (e.g. open-box, closed-box); testing documentation (e.g. reports, plans, checklists) Overview of alpha and beta testing. Debugging: Use of debugger tools; documentation of the debugging process with reference to watch lists, breakpoints, and tracing Debugging the process to fix vulnerabilities, defects and bugs in code Understand coding standards and their benefits when writing program code in a team as well as for the individual.

Learning outcomes:

By the end of this unit students will be able to:

LO1 Discuss key aspects of software evolution and development in the context of engineering applications

LO2 Design a programming solution for an engineering problem

LO3 Implement a programming solution for an engineering problem

LO4 Perform testing of the programming solution to meet defined requirements and to ensure high-quality outputs.

Unit 4062: Professional Engineering Practice (Core Mandatory)

Unit code:	J/650/2927	**Aim:** This unit outlines the background to the legislation, professional codes of practice and operational competencies that underpin the development of the professional engineer. It also considers the roles of problem-solving, communication, team working and professional responsibility. Elements of personal and professional development, reflective thinking, career planning and leadership are considered as well. The increasing necessity for a holistic approach to sustainability in design, manufacture, and reuse and recycling are emphasised. On successful completion of this unit, the student will be well prepared for further study at levels 5 and 6, working towards membership of an appropriate professional institution at Incorporated Engineer level.
Unit level:	4	
Credit value:	15	

Unit abstract:

The LO1 focus on transforming ideas and materials into products and services: design, build, test and improve; consideration of the whole life cycle of the output of the engineer's work, including sustainability and end-of-life provision of recycling and reuse. Responsibilities: The importance of proper risk identification, assessment and mitigation; appropriate safety factors; examples of discipline-specific failures due to poor engineering/lack of proper 'what if' procedures Understanding that human factors affect engineering processes Adherence to codes of conduct; acting with due care, skill and diligence by recognising appropriate behaviours and possible limitations; preventing avoidable dangers/adverse impact on the environment; enhancing operational competence The importance of considering the effects of certain behaviours and values: attitude, persuasion, coercion, rapport, authority Effects of external influences: stress, time pressure, fatigue, memory, capability, motivation, knowledge, experience, health, alcohol, drugs and criminal behaviour Personal and corporate privacy and security. Competences: Digital skills and industrial digitalisation technologies (IDTs); research skills – find, extract, organise, analyse, evaluate and use or present relevant information; project planning and management (i.e., change management, compliance in delivering outputs, responsible planning and work prioritisation, predictive maintenance); financial literacy (e.g. financial planning, data, reporting); individual and team approaches to solving problems and risk management through use of methods such as Fishbone, practical problem solving (PPS), root cause analysis (RCA), advanced Product Quality Planning (APQP) and process failure mode effects analysis (PFMEA); project management techniques (e.g. SWOT, stakeholder matrices, risk mapping, radar chart and summary risk profiles), time management, organisation and record-keeping; sketching, drawing, use and interpretation of computer-aided design (CAD), Professional engineering capabilities: installation, commissioning, shut-down, start-up and maintenance/service/support of a wide range of systems and devices; use of relevant manufacturing and production methods; ability to follow and apply latest trends in engineering and manufacturing (e.g., lean methods and tools used in manufacturing and engineering such as Kaizen, Six Sigma, 8 wastes, 5S's and Poka-Yoke), commitment to upskilling/reskilling, and continued professional development. Reflective practice: cycle of reflection in action and on action, refining ongoing professional practice (future behaviour), setting goals, reviewing again to achieve sustainable performance; evaluation of own and others' work Avoidance of generalisation; focus on personal development in a critical and objective way.

The LO2 requires a student to study Global, European and national regulatory influences on engineering and the role/occupation of the engineer (e.g. the Royal Academy of Engineering and the Engineering Council in the UK); role and responsibilities of the Engineering Council and professional engineering institutions (PEIs), UK Standard for Professional Engineering Competence (UKSPEC), or international equivalents Relevant health and safety standards, codes and regulations; principles of functional machinery and/or

process safety, including SIL (safety integrated level) and PL (performance level) terminology; appropriate sector legislation for quality control/assurance and management (e.g. electrical safety system legislation and directives, emissions, construction and use, environmental legislation, UN Sustainable Development Goals, British Standards Institution (BSI) and International Organization for Standardization (ISO) standards e.g. ISO 14090: 2019 Adaptation to climate change) Responsibilities at various levels of engineering (e.g. Engineering Council Technical, Incorporated and Chartered Engineer professional registration levels, or international equivalent) including secure operations and application of appropriate processes, policies and legislation in the context of business goals, vision and values; responsible selection of tools/techniques in upgrading and maintaining systems; resilience in undertaking tasks and working securely within the business. Ethical frameworks: The Engineering Council and The Royal Academy of Engineering's Statement of Ethical Principles; The National Society for Professional Engineers' Code of Ethics.

The LO3 explore on listening, non-verbal communication, clarity and brevity, friendliness, role of humour; confidence, empathy, open-mindedness, respect, feedback and picking the right medium for presentations Presentation skills, use of presentation software, summaries and presentation notes. Team working: Group expectations, dealing with reactions and disagreements, allowing and encouraging participation, acting on agreed outcomes; the negative effects of communication without cause; disillusioned colleagues, persuasion and negotiation Rewarding and motivating; peer assessment of work, mentoring at regular intervals to ensure correct working practices, getting and receiving feedback Ensuring inclusivity and equality of opportunity; respecting and encouraging diversity; avoiding stereotyping. Leadership: The role of the leader; vision, responsibility and accountability Decision-making, creative problem-solving, adaptability, delegation, trust and confidentiality Setting expectations and goals; effective stakeholder engagement and managing job roles and responsibilities; developing accessible, inclusive and diverse products and workplace culture; strategic resource allocation and prioritisation; managing performance and encouraging development.

The LO4 requires student to study overview of manufacturing methods for design of products, Design for Manufacture (DFM), Design for Assembly (DFA) and Design for Disassembly (DFD) as more holistic optimisations of product design to reduce complexity; simplification of assembly and finishing processes by design; quality assurance by design to ensure operation, consistency and quantification of enhancement of manufacturing and process applications Concepts of the perfect design cycle, product stewardship, dematerialisation, modularity, longevity and design for disassembly Recyclability, repairability, reusability, re-manufacture; efficiency of active products (e.g. light bulbs, washing machines or vehicles) Advancements in design for Industry 4.0. Environmental legislation: Response to legislative change (e.g. termination of petrol and diesel vehicle production); consideration of diminishing supply of essential raw materials (e.g. oil, aluminium ore and rare earth elements) and development of man-made substitutes, to include cost, supply and political considerations.

Learning outcomes:

By the end of this unit the student will be able to:

LO1 Determine the roles, responsibilities and competences of the professional engineer

LO2 Describe the regulatory, legislative and ethical frameworks that govern the work of the professional engineer

LO3 Review the roles of communication, team working and leadership in the development of professional engineers

LO4 Discuss how professional engineers can develop holistic approaches to the sustainability of manufacturing processes.

Unit 4063: Engineering Mechanics and Materials (Core Mandatory)

Unit code:	F/650/2943	**Aim:** This unit explores the fundamental structure of common engineering materials, their principal mechanical, chemical and electrical properties, and how these properties affect manufacture, application, service life and end-of-life management and recycling. Systems for categorising and ranking materials are also covered. Finally, the service life performance of these materials is studied through calculations that measure their performance in static and dynamic applications, building on the work started in the associated level 4 unit, Engineering Science. On successful completion of this unit, students will be able to identify the underlying structural properties of engineering materials and how these properties relate to their application and performance. They will also be confident in completing calculations relating to the static performance of these materials when in service.
Unit level:	4	
Credit value:	15	

Unit abstract:

The LO1 requires students to study Metals, polymers, ceramics, composites, semiconductors, biomaterials, smart and nano materials; sub-classification of important materials, for example, ferrous and non-ferrous metals, alloys, thermoplastic and thermosetting polymers. Structure of materials: Atomic and molecular bonding; bonding forces; primary atomic bonding; ionic, covalent, hybridisation and metallic bonding Secondary bonding, van der Waals forces, dipole bonds; mixed bonding and bonding energies Crystallography of materials, unit cells, crystal systems, cubic and hexagonal; single crystal and polycrystalline materials; defects, dislocations, slip planes and impurities; polymorphism and allotropy, introduction to phase diagrams; non-crystalline (amorphous) materials Structure and application of specific common materials, including metals, polymers and ceramics; changes to structure and properties due to alloying, doping, heat treatment and processing.

The LO2 focus on Mechanical, electrical, chemical, thermal, magnetic, optical and deteriorative (decay); examples of the importance of listed properties and common values; reasons for variation in a material's properties, for example, processing, heat treatment, operating environment The importance of these properties in design and operation. Properties of engineering materials: Definitions, units, applicability and expected values for common material, for example, density, modulus of elasticity, Poisson's ratio, yield and tensile strength, percentage elongation, strength and fracture toughness, coefficient of thermal expansion and thermal conductivity, specific heat capacity and electrical resistivity; appreciation of quantitative and qualitative aspects of the properties of engineering materials Unit Descriptors for the Pearson BTEC Higher Nationals Engineering Suite Issue 2 – January 2024 © Pearson Education Limited 2024 486 Examples of the importance of listed properties and common values; use of commercial material properties databases to find these values.

The LO3 focus on design constraints; operating conditions – temperature, loading and environment; cost, availability, processability, appearance and environmental constraints. Materials selection and the design process: Analysing the requirements, converting customer's request into a list of constraints for materials selection, creating materials specification parameters; forms of supply of common materials, stock items and special order; research using databases and online sources (e.g. Ansys Granta Selector, Matmatch, Cambridge Engineering Selector, suppliers' catalogues); suggest possible solutions; market analysis (availability, cost and type of supply form); impact on manufacturing/production methods (e.g. single, batch, flow and mass), test and evaluate selection against specification parameters using simulation software; sustainability, end of life and recycling considerations Report preparation, presentation, feedback, evaluation and modification.

The LO4 explores revision of basics, Newton's second law, static equilibrium, types of beams and supports, shear force and bending moment calculations; bending in beams, engineers' theory of bending; selection of appropriate beams and columns to meet given specifications. Torsion: Revision of shear stress and strain; theory of torsion in solid and hollow circular shafts, engineers' theory of torsion, power transmitted by a shaft; composite shafts. Introduction to dynamics: Revision of conservation of energy and work-energy transfer in engineering systems; linear velocity, angular velocity and acceleration; velocity and acceleration diagrams of planar mechanisms; introduction to gyroscopic motion.

Learning outcomes:

By the end of this unit a student will be able to:

LO1 Describe the fundamental structures of common engineering materials

LO2 Determine the most important properties of engineering materials

LO3 Assess the performance of engineering materials using key indicators, including materials constraints and established database resources

LO4 Calculate solutions to problems within static and dynamic mechanical systems, with consideration of constraints on performance.

Unit 4022: Electronic Circuits and Devices (Specialist Mandatory)

Unit code:	F/615/1496	**Aim:** This unit introduces students the operational characteristics of amplifier circuits, the types, and effects of feedback on a circuit performance, and the operation, application of oscillators. They will also be introduced to semiconductor devices and circuits, the use of electronics manufacturers' data to analyse the performance of circuits and devices, the application of testing procedures, and use the findings of the tests to evaluate their operation. Among the topics included in this unit are: power amplifiers, class A, B and AB; operational amplifiers, inverting, non-inverting, differential, summing, integrator, differentiator; types such as open, closed, positive and negative feedback; frequency, stability, frequency drift, distortion, amplitude, wave shapes and testing procedures. On successful completion of this unit students will be able to learn about the operational characteristics of amplifier circuits, the types and effects of feedback on an amplifier's performance, the operation and application of oscillators and application of testing procedures to electronic devices and circuits
Unit level:	4	
Credit value:	15	

Unit abstract:

The LO1 requires students to study power amplifiers: class A, B and AB Operational amplifiers: inverting, non-inverting, differential, summing, integrator, differentiator, comparator, instrumentation, Schmitt trigger, active filters Gain, bandwidth, frequency response, input, and output impedance Distortion and noise. Electronic circuits and semiconductors: Integrated use of semiconductors and electronic circuits; diodes and transistors, diode applications, Zener diode; operational characteristics.

The LO2 focus on types including open, closed, positive and negative feedback Effect of feedback on gain, bandwidth, distortion, noise, stability, input, and output impedance The concept of virtual ground.

The LO3 explores types of oscillators such as Wien bridge, Twin-T, R-C ladder, L-C coupled, transistor, operational amplifier, crystal Frequency, stability, frequency drift, distortion, amplitude, and wave shapes.

The LO4 focus on measuring performance, using practical results and computer simulations Voltage gain, current, bandwidth, frequency response, output power, input, and output impedance Distortion and noise. Devices to test: Introduction of concepts, device usage and testing Semiconductors Integrated circuits Amplifiers Oscillators Filters Power supplies Integrated circuit (IC) voltage

regulators Combined analogue and digital IC's. Component manufacturer's data: Specifications, manuals, and circuit diagrams. Use of testing equipment: Meters, probes, and oscilloscopes Signal generators and signal analysers, logic analysers Virtual test equipment (simulation software) Effective use of tools and techniques when securely operating and testing systems and components (e.g., networks and devices).

Learning outcomes:

By the end of this unit students will be able to:

LO1 Determine the operational characteristics of amplifier circuits

LO2 Investigate the types and effects of feedback on an amplifier's performance

LO3 Examine the operation and application of oscillators

LO4 Apply testing procedures to electronic devices and circuits

Unit 4033: Programmable Logic Controllers (PLCs) (Specialist Mandatory)

Unit code:	Y/617/3942	**Aim:** The aim of this unit is to enable students to understand the rationale behind the use of programmable logic controllers and their applications in industry. The unit combines practical skills and knowledge in developing PLC applications from real scenarios with theoretical principles, such as communication and networking protocols. On successful completion of this unit students will have developed an understanding of the evolution, types and applications of PLCs. They will know how to select and develop a PLC system, integrate features of functional safety based on their understanding of risk management, and evaluate the wide range of communication technologies available on modern PLCs.
Unit level:	4	
Credit value:	15	

Unit abstract:

The LO1 focus on PLC architecture and operation: central processing unit (CPU), data memory, program memory, speed, scan time, power supply, output current rating Input/output (I/O) interface: digital, analogue, relay, transistors, TRIACs, opto-coupling. PLC types and selection: Compact, modular and rack-mounted Distributed control systems and programmable automated controllers PLC manufacturers Latest PLC case studies.

The LO2 requires students to study evolution of Safety and Risk management IEC61508 (Electrical, Electronic and Programmable Equipment) IEC61131 (PLCs), IEC61131-3 (Languages) IEC61511 (Process Control) IEC62061 (Machinery) Hazard and risk assessment Hazard and operability analysis (HAZOP) Failure modes and effects analysis (FMEA) Fault tree analysis (FTA) Safety integrity levels, redundancy (back-up or failsafe).

The LO3 explores AND, OR, NAND, NOR, XOR, combinational logic, latching circuits. Number systems: Binary, decimal, hexadecimal, octal number representation and conversion Memory: bits, bytes, nibbles, word, long/double Signed and unsigned values. PLC programming: Industrial Standard IEC61131; PLC software tools Ladder logic operation: rungs, input, process, output Variables: Boolean, integer, floating point Inputs, outputs, delay functions, timers, counters, latches, registers, comparison blocks, math operators, function blocks, simulation, debugging, hardware testing, fault finding Peer review of programming activities (e.g., design, code, test plan), program demonstration and profession discussion including good practice. Documentation: Requirements and specification, flow chart, functional chart, sequence table, input/output or allocation list, wiring diagram, test data.

The LO4 focus on digital versus analogue communication: analogue to digital conversion (ADC), digital to analogue conversion (DAC) Sampling rate, resolution, errors Noise: decoding, encoding, pulse code modulation (PCM) Elements of a digital communication system; digital communication medium. PLC communication and networking: Fieldbus, profibus, modbus, ethernet, profinet OSI model, RS232, RS485, USB, parallel, serial Controlled area network (CAN) Supervisory control and data acquisition (SCADA) Remote terminal unit (RTU) Human–machine interface (HMI).

Learning outcomes:

By the end of this unit students will be able to:

LO1 Describe the design, operation and selection of PLC systems

LO2 Explore Functional Safety within PLC systems

LO3 Develop a PLC program for an automated process system

LO4 Review how PLCs exchange information and process signals with other devices.

Unit 4067: Digital Devices and Systems (Specialist Mandatory)

Unit code:	L/650/2947	**Aim:** This unit introduces the fundamental principles of digital systems by way of simple functional building blocks using combinational and sequential logic. Using these blocks, it then looks at design techniques for building more complex functions. Most modern digital designs are now implemented with programmable technologies such as microcontrollers and/or programmable logic (e.g. field-programmable gate arrays (FPGAs), application-specific integrated circuits (ASICs), etc.) rather than using smallscale integrated circuits (SSIs) and medium-scale integrated circuits (MSIs). This unit focuses on the design of digital circuits in a hardware description language (HDL) environment, and physical implementation using a FPGA development board. Prior to studying this unit, students are expected to have knowledge of the binary number system. On successful completion of this unit, students will understand the concepts of digital systems and be able to identify the most common combinational and sequential digital building blocks. They will be able to use these blocks and traditional design techniques to build more complex digital functions. Students will be able to use an HDL and programmable logic to design and implement combinational and sequential circuits on a FPGA. This will provide students with the knowledge, understanding and skills to progress to further study in the use of this technology; to design and implement complex digital systems or to fulfil a technician role in industry
Unit level:	4	
Credit value:	15	

Unit abstract:

The LO1 focus on analogue (continuous) signals, digital representation, and the requirement for conversion between these forms; examples of analogue and digital data (e.g. temperature, digital music player, digital photography) Need for processing, storing and communication of digital data (e.g. computers, mobile phones). Combinational logic gates: Symbols, truth tables, Boolean equations, and function of logic gates: AND, OR, NOT, XOR, NAND, and NOR Application of relevant numerical skills (Binary, dotted decimal notation) required to meet the defined specifications. Techniques used in combinational logic circuit design: Boolean algebra, De Morgan's theorems, Karnaugh mapping Combinational logic circuits involving up to 4 inputs and a maximum of 10 gates before minimisation Optimisation of combinational logic circuits using the techniques listed above; circuits using basic logic gates to achieve more complex functions (e.g. adders, decoders, encoders, multiplexing and demultiplexing (MUX/DEMUX), parity checking, simple logic controls). Introduction to digital technologies: Use of complementary metal–oxide–semiconductor (CMOS) and transistor–transistor logic (TTL): speed, voltages, fan-out, power consumption, speed–power product, packing density Recent silicon technologies Concept of propagation delay and its implications; timing analysis of combinational circuits. Simple testing methodologies: Instrumentation (e.g. logic probe, oscilloscope, etc.) Simulation software (e.g. NI Multisim).

The LO2 requires student to study Analogue (continuous) signals, digital representation, and the requirement for conversion between these forms; examples of analogue and digital data (e.g. temperature, digital music player, digital photography) Need for processing, storing and communication of digital data (e.g. computers, mobile phones). Combinational logic gates: Symbols, truth tables, Boolean equations, and function of logic gates: AND, OR, NOT, XOR, NAND, and NOR Application of relevant numerical skills (Binary, dotted decimal notation) required to meet the defined specifications. Techniques used in combinational logic circuit design: Boolean algebra, De Morgan's theorems, Karnaugh mapping Combinational logic circuits involving up to 4 inputs and a maximum of 10 gates before minimisation Optimisation of combinational logic circuits using the techniques listed above; circuits using basic logic gates to achieve more complex functions (e.g. adders, decoders, encoders, multiplexing and demultiplexing (MUX/DEMUX), parity checking, simple logic controls). Introduction to digital technologies: Use of complementary metal–oxide–semiconductor (CMOS) and transistor– transistor logic (TTL): speed, voltages, fan-out, power consumption, speed–power product, packing density Recent silicon technologies Concept of propagation delay and its implications; timing analysis of combinational circuits. Simple testing methodologies: Instrumentation (e.g. logic probe, oscilloscope, etc.) Simulation software (e.g. NI Multisim).

The LO3 focus on Languages (VHDL and Verilog) – choose one to use Structures: entity and architecture, and key words associated with the chosen language Behavioural architecture. Implementing combinational logic in HDL: Entry of schematic and HDL (e.g. VHDL, Verilog) into HDL development software (e.g. Quartus (Intel), ISE Design Suite (Xilinx)) Compilation and debugging techniques Suitable combinational logic circuits (e.g. adders, decoders, comparators, encoders, seven-segment display encoding, MUX/DEMUX, parity checking, simple logic controls). Implementing sequential logic in HDL: Suitable sequential logic circuits (e.g. shift registers, counters and sequence generators) written in HDL using dataflow and/or behavioural architecture.

The LO4 focus on Field-programmable gate array (FPGA) technology: Introduction to structure and complexity of current FPGA technology. Simulation: Use of HDL development tools to simulate combinational and sequential designs. FPGA development boards: Structure of a typical development board Pin assignment, downloading, simulation, testing and verifying combinational and sequential designs Ensure use of tools and techniques for secure operations and in testing network designs.

Learning outcomes:

By the end of this unit, students will be able to:

LO1 Design combinational logic circuits for suitable applications

LO2 Design sequential logic circuits for suitable applications

LO3 Implement combinatiothsnal and sequential logic circuits using a hardware description language (HDL) software package

LO4 Test combinational and sequential logic designs using a field-programmable gate array (FPGA) development board.

2.4 Assessment Plan

Pearson BTEC Level 4 Higher National Certificate in Electronic Systems Engineering for England			
	Unit Name	Submission Date	
		Assignment 1	Assignment 2
Yearly	Engineering Maths	January 2025 February 2025	May 2025 June 2025
	Engineering Science	January 2025 February 2025	May 2025 June 2025
	Programming for Engineers	January 2025 February 2025	May 2025 June 2025
	Engineering Mechanics and Materials	January 2025 February 2025	May 2025 June 2025
	Electronic Circuits and Devices	January 2025 February 2025	May 2025 June 2025
	Programmable Logic Controllers (PLCs)	January 2025 February 2025	May 2025 June 2025
	Digital Devices and Systems	January 2025 February 2025	May 2025 June 2025
	Professional Engineering Practice	May 2025 (Pearson Set)	

Assessment and delivery plans are subject to change. Your tutors will tell you of any changes to your course as soon as they occur.

2.5 HN Global

Pearson have created an online platform for all students studying their Higher National qualifications. It's called HN Global, is free for students to use and contains 4 key sections:

1) Textbooks for core units – containing selections from textbooks chosen to cover the learning outcomes of the core units

2) Study skills modules – resources and exercises to help develop your skills in areas like essay and report writing, giving presentations and critical thinking.

3) Career Development – access to online career services, including guidelines on CV writing, interview skills and a jobs board

4) Forum – for you to discuss your subject with or ask questions of students and tutors from around the world.

To sign up, go to https://hnglobal.highernationals.com and complete your registration.

3. ASSESSMENT

A) Course Structure

It is important you know the structure of your course as this affects the units that you will study and how your grade is calculated.

The course you are on is a Regulated Qualifications Framework (RQF) qualification. It is made up of units, each at a set level and with a certain number of credits.

RQF Levels

There are 9 Levels ranging from Entry (the lowest) the 8 (the highest). The table below shows some qualifications and their levels:

Level 8	Doctorates (e.g. PhD / DPhil)
Level 7	Master's degrees (e.g. MA, MSc, MEng) Postgraduate Certificates Postgraduate Certificate in Education (PGCE)
Level 6	Bachelor's degrees (e.g. BA, BSc, BEng) Professional Graduate Certificate in Education Graduate certificates and Certificates
Level 5	Pearson BTEC HND Foundation Degrees (e.g. FdA, FdSc) Certificates of Higher Education (Dip HE)
Level 4	Pearson BTEC HNC Certificates of Higher Education (Cert HE)
Level 3	BTEC Nationals (e.g. Level 3 Foundation Diplomas, Diplomas, Extended Diplomas) Access to HE Diploma A Levels / T levels / Level 3 NVQs
Level 2	BTEC Firsts (e.g. Level 2 Extended Certificates, Diplomas) GCSEs (Grades 9 to 5 or A* to C) Level 2 NVQs
Level 1	BTEC Level 1 Awards, Certificates, Diplomas GCSEs (Grades 4 to 1 or D to G)
Entry Level	Entry Level (1, 2 and 3): Pearson BTEC Entry Level Awards, Certificates, Diplomas

'Higher Education' refers to the courses that are on this list at levels 4 to 8.

RQF Units – credits and time

Each RQF qualifications is made up of units. On BTEC HNCs and HNDs most units are 15 credits in size – some are larger and are a multiple of 15 (e.g. 30, 45) credits in size.

These units have been designed from a learning time perspective and are expressed in terms of Unit Learning Hours (ULH). ULH represent the total hours that a student needs to achieve the required learning outcomes, for a given Unit.

The ULH for a 15-credit unit is 150 – which includes 60 hours of Guided Learning and 90 hours of independent study.

Guided Learning

This is when a tutor is with you, giving you specific guidance towards learning aims. This includes:

- lessons, lectures and tutorials in class, workshops or the LRC with a teacher
- live webinars or telephone tutorials led by a teacher
- E-learning supervised by a teacher
- work based learning supervised by a tutor
- Any supervised assessment activity (for instance exams with invigilators, or observation of you making a presentation etc).

Guided Learning Hours are usually on your timetable and you are expected to attend 100% of them.

Independent Study

For a 15 credit unit there are **90** unit learning hours that are not guided learning. This is the time you are expected to spend on independent study - working on your own. This could be reading up on the subject, conducting research, e-learning, watching podcasts / webinars, work based learning etc. It also includes the time you spend completing work set by your teachers.

You can complete independent study anywhere – inside the college (e.g. in the LRC) or outside. If you need to access specialist equipment, please talk to your teacher to help arrange it. Please note that there may be some rooms or equipment that you are not permitted to use without supervision (e.g. engineering workshops).

You can still communicate with teachers and other students during your independent study time, but you will have to arrange this yourself. You should find out from your teachers when you can see them in their office, or how best communicate with them outside timetabled classes (e.g. on Microsoft Teams).

An important part of Higher Education is being organised. You need to attend all of your guided learning and spend enough time on independent study to succeed.

Total Qualification Time

If you add up all of the ULH on your qualification you get the Total Qualification Time (TQT). This is an estimate of the amount expected to be required for a student to achieve the qualification. Remember that this includes both guided learning and independent study.

The Total Qualification Time (TQT) for an HNC is 1,200 hours.
The total Guided Learning Hours are 480 hours - so you should be doing 720 hours of independent study while working on your HNC.

If you progress onto an HND, that has another 1,200 hours TQT, made up of 480 GLH and 720 independent study.

B) RQF Pearson Higher National Qualifications (HNs)

Pearson publish specifications which give the details of the units available and the rules of how they must be combined to make a valid qualification.

The Pearson BTEC Level 4 HNC is a Level 4 qualification made up of 120 credits.

- This is usually made up of 8 level 4 units, each worth 15 credits.
- There may be fewer units if some are worth more credit.

The Pearson BTEC Level 5 HND is a Level 5 qualification made up of 240 credits. This is made up of the HNC (120 credits at level 4) and then 120 credits at level 5.

- The level 5 credits are usually spread over 7 units – 6 of 15 credits and one larger project unit of 30 credits

C) Your qualification at HRUC

Your qualification has been designed by selecting units from the Pearson specification. Your programme will include all the mandatory core and specialist units, and then a selection of optional units. The optional units selected may have been chosen because:

- They match the strengths of HRUC (e.g. staff expertise, resources)
- To ensure you have a good range of knowledge to allow progression to a range of employment or further study
- To enable you to apply for specific job roles once completed
- To meet entry requirements for university top-up degree programmes
- To meet the requirements of employers / sponsors of students

The combination of units chosen will provide you with the correct amount of credit and TQT, at the correct level(s) to mean that successfully completing them will earn you the qualification.

Your tutors' choice of units is outlined in section 1 and 2 of this handbook. If you think that different optional units should be delivered, or a particular pathway, please talk to your tutor as soon as possible. They may not be able to offer everything you want but we have changed programmes before to include units requested by students – especially where these are required for progression to employment or University.

D) Learning & Assessment

Information in the following pages includes extracts from HRUC policies on Assessment, Internal Verification, Student Submission of Internally Assessed Work and Academic Malpractice. Full copies of these policies are available if you require further information.

<u>Units</u>

Each unit on your qualification has a specification written by the awarding body. These are available from the Pearson website and your tutors may make them available to you. Every unit specification includes:

- The unit title and code number
- Unit type (e.g. core), level and credit value
- Introduction – a summary of the purpose, aims and focus of the unit, as well as highlighting the key knowledge, skills and understanding gained while studying.
- Learning outcomes - this is a list of all you need to know, understand or be able to do to pass the unit
- Essential content – identifies the key phrases or concepts for each learning outcome. Your tutors use this to plan the teaching on your course and they will deliver all of this content to you as part of your course.

- Assessment Criteria – these are statements of the evidence you need to produce. Each learning outcome will have several criteria linked to it. Your tutors use criteria to create assignments.
- Any additional evidence requirements that students will have to complete
- Recommended resources – suggested reading (including journals and websites) and links to other related units.

This information cannot be changed by HRUC staff or students.

Your tutors use these unit specifications to complete a Scheme of Work, showing the topics you will cover in every week of your programme. The Scheme of Work will closely match the unit content and may indicate how it is to be delivered (e.g. classroom teaching, distance learning, lectures, seminars, practical sessions, work experience etc).

Assessment of Units

Assessment checks that effective learning of the unit content has taken place.
Assessment on HN qualifications is mainly through the completion of assignments, designed by your teachers.

Pearson may offer example assignments, which your teachers can adapt and use instead of writing their own.

For one Core project unit of the HND, Pearson set a different theme each year. **This does not mean you will have to sit an exam.** You will still be completing assignments - either written by your teachers or suggested by Pearson.

Assignments

Assignment briefs for each unit will be issued to you while you are studying those units. This allows you to get guidance on how to complete the assignments from your tutors while you are working on the unit content they refer to.

Assignment briefs:

- Set you particular tasks or activities to do (e.g. an essay, presentation, project or experiment) and tell you what evidence you need to produce (e.g. a written report, a presentation to group, a completed product). These tasks or activities will be representative of those undertaken in the vocational sector relevant to your programme. If you complete the task or activity as required, you will have provided evidence that you have met one or more assessment criteria.
- State the assessment criteria they are designed to assess. There are usually one, two or three assignment briefs for each unit, with each assignment covering one or more assessment criteria.
- May be broken down into separate Tasks requiring you to produce various different forms of evidence
- Will cover all of the assessment criteria for one or more learning outcomes (i.e. you won't get separate assignment briefs for Pass, Merit and Distinction criteria – though there could be different tasks).

It is important that you understand what evidence assignments are asking you to produce. To help use the glossary of terms and evidence at the back of this handbook (Appendix 3).

Submission of Assignments

Assignment briefs will have a deadline for submission of the work. You must submit all of your assignments by the submission dates given. Your teachers may have additional rules regarding submission of assignments – for example a particular place where they must be by the deadline.

Make sure you know these rules. Failure to do so will affect your grades and possibly your completion of the qualification.

Your tutors will give you further information and guidance on completing assignments during timetabled sessions and often provide you with resources (e.g. through Teams, links to videos on YouTube, reading lists etc) that will help you to do so.

Draft submission and feedback

To help you achieve the highest grade you can, your teachers will give you feedback on draft assignments before the deadline.

Teachers will tell you when to bring in your drafts and when you will get feedback on them. For every assignment you will get one opportunity to have your draft work looked at – for some longer assignments you may be given a second opportunity.

The feedback on draft assignments will include general advice on how to progress your studies. Feedback cannot give you advice on what you directly need to do to improve your assignment, or state what grade your draft work would achieve.

For example comments might be that 'your analysis of the research is not clear, you need to look at it more critically' and will not be "you need to write this to get a Merit…."

Please note that the deadline on the assignment brief does not change – you must complete any actions identified by your tutor before the submission date.

NB: This is your only opportunity to use your teacher's feedback to improve your work. Make sure that you read it carefully and if you don't understand it, ask.

If you do not bring in drafts when asked, teachers do not have to give you another opportunity to do so, or provide you with any feedback before you submit the work.

Feedback is usually written so that you can refer back to it throughout the year, and use it to help you improve any assignments that you are working on.

Turnitin

All written work that you submit must first have been uploaded to Turnitin – a piece of software that has been developed to check student submissions for accurate referencing of sources. Work uploaded to Turnitin will generate an 'originality report'. This report will highlight occurrences of other people's work that has been used or quoted in your assignments and will give you an overall 'originality' percentage.

Although you must not plagiarise other people's work, when writing assignments, it is good academic practice to correctly use referenced sources to support your ideas. Referencing is expected and necessary at this level of study. (See 'Appendix 1 – Study Guide' for more information.)

An originality report should show that you have correctly referenced all the sources used in your work. It is recommended that you use Turnitin reports to check your assignments before they are

submitted for marking. If you check and find you have not correctly referenced all the sources used in your work, you should update it and check again before submitting it for marking.

Any assignments submitted for marking that contains incorrect referencing or suspected cheating will be dealt with under the College Academic Malpractice Policy (see section K for more details)

Turnitin can also indicate where work may have been generated by AI. Unacknowledged use of AI is also malpractice.

When you submit work through MS Teams, it may be automatically checked by Turnitin.

Authentication

When you submit finished work for marking you must sign it to confirm that it is your own work and has been completed according to the rules of the qualification.

If you submit work electronically (e.g. in Teams) when logged in to your college account, that is the same as you signing a paper copy.

If you sign work which is not your own then you have committed academic malpractice, which HRUC treats very seriously (see section K for more details).

E) Marking and Grading

Once your assignment has been submitted it will be marked and returned to you within 3 (working) weeks. Marked assignments show you which assessment criteria you have met, which you haven't met, and why.

Marking and feedback will show where in your work, or how, you have met criteria. If not all criteria have been met, feedback will state why you did not meet them.

This is because you may be able to submit the assignment again – see Resubmissions (below). Feedback may give you advice on how you could improve future assignments.

Feedback must not tell you how you can improve your evidence to meet any criteria you haven't achieved.

When you have completed all the assignments for a unit and they have been marked you will receive a unit grade. This reflects the highest level at which you have met all the assessment criteria in the unit.

- **To achieve a Pass you must have met all of the Pass criteria for the unit**
- **To achieve a Merit you must have met all of the Pass and all of the Merit criteria**
- **To achieve a Distinction you must have met all of the Pass, Merit and Distinction criteria**

Units are provisionally graded Unclassified, Pass, Merit or Distinction. Grades are only confirmed at the end of the academic year by the Assessment Board.

Just completing your assignments doesn't mean you will get a Pass (or better) for the unit.

You have to meet all of the Pass criteria to achieve a Pass – if you complete all assignments for a unit but do not meet all the Pass criteria the unit will be graded as Unclassified.

If you do not complete all the assignments for a unit then you do not automatically get an unclassified grade. You will instead have failed the unit (refer to Section H) for more detail.

If you don't pass a unit, then you do not earn the credits associated with it and so may not achieve the minimum amount of credit at the level required to achieve the HNC or HNC qualification.

Resubmission

If your work met all the Pass criteria contained in the assignment brief, you may not resubmit it to get higher grades. You have only one opportunity to achieve Merit and Distinction grades.

If your work was submitted on time but did not meet all the Pass criteria contained in the assignment brief, you will be expected to re-submit it.

You will be asked to re-do the assignment wherever possible, but you may have to complete a new one – for example if the original assignment was an exam.

Resubmissions usually must be completed within 15 working days of getting feedback on your first submission.

No further guidance or support can be given to you while you complete a resubmission and only one resubmission per assignment is permitted.

If you need to resubmit any assignments for a unit, then your unit grade will be capped at a Pass.

If your resubmission still does not meet all Pass criteria, then the unit grade is Unclassified.

If your assignment was submitted late, you cannot resubmit it (See section F).

F) Late Submission of Work

Extensions to deadlines

If you know that you are going to be unable to meet the submission date, you must speak to your teacher at least 3 working days before the deadline.

If you are unable to meet an assessment deadline due to accident, illness or severe emotional or mental stress you should complete an extenuating circumstances application (see Appendix 2) and submit it with supporting evidence (e.g. a Doctor's letter).

Only the Head of School and Section Manager may give extensions to deadlines. These will only be granted on an individual basis depending on the specific circumstances.

If you are given an extension to the deadline you have until this date to complete the assignment. If your work is submitted by this date, it will be marked and graded as described in section E.

Missing deadlines

If you submit an assignment after the submission date without an agreed extension or an accepted extenuating circumstances application, it will still be marked but:

- late work may not be marked at the same time as other students, and may take longer than usual to come back to you

- feedback on late work may also be reduced
- **no re-submission is permitted. If you don't achieve a Pass (or higher) you have failed the unit and possibly the whole course.**
- **may be capped at a Pass. This is so that students can't achieve higher grades by taking longer than others and submitting work late.**

Note that if you submit work late you may not be able to achieve Merit or Distinction grades, depending on the requirements of the assignment.

G) Assessment Boards

Assessment Boards take the final decisions on unit grades. This is to ensure that assessment is conducted with rigour, probity and fairness across all HE programmes and is a requirement of Pearson.

At Assessment Boards the team that delivered your qualification present the grades they have awarded for every unit for every student to an independent panel. Students do not attend. The panel examines the grades awarded in the light of internal and external monitoring reports. They will then either ratify the grades awarded or, if there are doubts about the quality of assessment, ask for further internal verification (IV) to confirm them. This means that unit grades could change following assessment boards. If there are any changes you will be informed about them.

Where students do not have a Pass grade or better for one or more units the panel will ask for more details. If there are valid extenuating circumstances (see section F), the panel could decide to give students more time to complete their work or a resubmission opportunity. The panel will also decide what conditions apply (e.g. new deadlines).

In exceptional circumstances, the panel can recommend that students repeat units they have not passed the following year. The student would have to attend all lessons for repeated units and complete all of the assignments again, and the grade is limited to a Pass. There would be additional fees to pay for any repeated units and these will depend on the unit size and content.

The panel's decisions on any further opportunities will depend on feedback from tutors on students' ability, commitment to the course, timeliness of submitting assignments, and if they made use of feedback opportunities.

If students do not have pass grades for one or more units and there are no valid extenuating circumstances then the panel will confirm the student has not passed the unit(s).

Assessment Boards take place at least once a year, at the end of the academic year. Some courses may have interim assessment boards to review progress during the academic year (e.g. at the end of a semester).

Assessment Boards also decide on progression – for example from Semester 1 to Semester 2, from HNC to HND or from the first year of a part-time course to the second year. Students will normally only be able to progress if they have achieved at least a pass grade in all units due by the board meeting.

If you know that you will not have achieved at least a Pass grade in all units by the Assessment Board, you should write to your tutor explaining why, so that the board can consider this.

If you wish to progress but have not achieved at least a Pass grade in all units by the Assessment Board, you should write to your tutor explaining why, so that the board can consider this.

Appeals against the decisions made by assessment boards can be made using the procedure for appeals against assessment decisions. See Section J for more detail.

H) Overall Grade Calculation

Unit Grades confirmed by Assessment Boards are reported to Pearson. This may happen throughout the year, as units are completed. Once all unit grades are reported to Pearson, they will then produce a certificate and send it to the Examinations Department at HRUC. The certificate will be posted to you as soon as possible. Qualifications have an overall grade of Pass, Merit or Distinction.

HNC

To achieve an HNC you need to have:

- Completed units with 120 credits at level 4
- Achieved at least a Pass grade in units with a total of **105** credits or more at Level 4

This means that you can still gain the overall qualification if you have:

- an Unclassified grade in one level 4, 15 credit unit
- at least a Pass grade in all the others.

HND

To achieve an HND you need to have:

- Completed units with 120 credits at level 4 (i.e. the HNC)
- Achieved at least a Pass grade in units with a total of **105** credits or more at Level 4
- Completed units with 120 credits at level 5
- Achieved at least a Pass grade in units with a total of **105** credits or more at Level 5

This means that you can still gain the overall qualification if you have:

- an Unclassified grade in one level 4, 15 credit unit
- an Unclassified grade in one level 5, 15 credit unit
- at least a Pass grade in all the others.

Unit and Qualification Points

If you have failed any unit (i.e. not got at least an unclassified grade), then you have not completed it and will not have earned enough credits to complete the qualification.

Completed units are allocated points per credit - **For the HND, only level 5 units earn points.**

- Unclassified 0 points
- Pass 4 points
- Merit 6 points
- Distinction 8 points

So a 15 credit unit will total 0 points for U, 60 for P, 90 for M and 120 for D.

Points are totalled and the overall qualification grade awarded based on the following boundaries:

Pass	**420-599 points**
Merit	**600-839 points**
Distinction	**840 points or more**

Please note that Universities and Employers may have entry requirements that require you to achieve high grades in specific units or even across all of your units.

I) Internal & External Monitoring

HRUC engages in numerous activities to maintain the standard of assessment on your qualifications and to ensure that they meet national standards.

Internal Verification (IV) of Assignment Briefs

Before assignment briefs are issued to students they will be internally verified. An Internal Verifier (a member of staff with specialist subject knowledge) will examine the assignment briefs to ensure that:

- they enable students to achieve Awarding Body criteria
- they are fit for purpose
- the context is relevant to the students
- the guidelines and instructions are clear
- they do not discriminate against students as a result of gender, race, disability, sexuality, age or faith group.

You may see a stamp, signature or date on assignment briefs to confirm they have been IVd.

IV of Assessment Decisions

A proportion of assessed work from your qualification will be internally verified. The internal verifier (IV) – who must not be the person who assessed the work – will check that the assessment decisions made are justifiable and that the written feedback and guidance given to you is appropriate. Work must be internally verified from every assignment, every unit, and every assessor on the qualification and from every grade (including unclassified and fail) The IV gives feedback to the assessor about their assessment decisions – they do not communicate directly with students. This process should be completed within the three-week turnaround for marking assignments and should not delay the return of your marked work.

You may see a stamp, signature or date on marked work to confirm it has been IVd.

Standardisation

If different teachers mark work for the same unit (e.g. if there are two or more groups studying the same unit with different teachers), they meet and complete marking exercises to ensure that they all apply assessment criteria consistently and that their marking agrees with awarding organisation requirements.

Standardisation meetings for teachers take place even where assessments or units are marked entirely by one teacher, to ensure assessment is consistent across all units and qualifications.

External Examination

External Examiners are subject specialists, employed by the awarding organisation to make sure that HRUC is running qualifications correctly. External Examiners visit the College annually to:

- ensure that the national standard of the qualifications is maintained
- check the accuracy and consistency of assessment decisions by sampling those made by your tutors
- evaluate the effectiveness of the delivery of the qualification and of the assignment briefs
- examine HRUC's commitment to maintaining and improving quality.

When they visit External Examiners will want to talk to students. You should be asked if you would like to meet with them - although you are not required to. External Examiners will want to check your understanding of the assessment and grading requirements and to ask you about the assessment and resources on your qualification. External Examiners complete a report sent to both the College and the awarding organisation which will contain any actions that we are required to take. Copies of external examiner reports will be made available to students.

Academic Standards

The Academic Standards section of HRUC monitors the quality of the qualifications being delivered and the effectiveness of strategies in place to raise standards and improve quality. It does this by inspecting each department within the College every year and then making and monitoring recommendations. Academic Standards are also responsible for managing the External Examination process and monitoring the College's work in meeting any action plans.

Higher Education Quality and Development Committee (HEQDC)

The HE Quality and Development Committee is part of HRUC's Academic Board, which oversees the development and quality monitoring of all programmes. Chaired by the Vice Principal of HRUC – Uxbridge College, HEQDC meets at least once a term where it monitors all HE provision in the college. Key duties include:

- reviewing and assessing key performance indicators such as achievement, attendance and punctuality on HE qualifications
- receiving reports (from Unit Review questionnaires, student surveys, External Examiners, Academic Standards and Pearson) and monitoring the actions taken to address any issues raised
- working to identify and address any common themes running across all HE qualifications.

Staff representatives from every higher education course attend HEDQC, as do Academic Standards staff, the Head of Guidance & Information Services, the Head of Marketing and the HE student year representatives. See the section on student representation and engagement for more information.

J) Academic Appeals (Against Assessment Decisions)

We take great care to ensure that work is marked fairly and within the national standard.

If you are unhappy about your marks please see your Tutor first – they will explain your grading decision further. Remember, you are only awarded marks for results, not effort, and you must ensure you have met all the assessment rules in this handbook.

If you are still unhappy about your grade, HRUC has a formal Appeals Against Assessment Decisions Procedure. In simple terms it means that if you disagree with any of the assessment decisions that have been made on your course (including those by the assessment board), you can appeal for the

decision to be changed. This does not necessarily mean that the assessment decision will be changed but that someone will investigate for you and tell you the decision.

Appeals must be based on one or more of these reasons:

- the assessment procedures were not conducted in accordance with the requirements of the Awarding Body, the College's Higher Education Assessment Policy or in accordance with College requirements
- the assessment was based on inadequate, incorrect or biased information
- your performance was adversely affected by illness or other circumstances which was for good reasons unable to be made known to the assessor at the time of assessment against which appeal is being made
- the assessment decision may seriously hinder full accreditation or progression.

If you are going to make a formal appeal you must do so as soon as possible after you get your result and **not more than 30 calendar days** after you do so.

Appeals Procedure

Informal Procedure

I have an appeal. What can I do?

Talk to my course tutor, Course Team Leader / Section Manager / Assistant Head of School or Head of School

Formal Procedure

If you are not satisfied with the decisions that were made in the informal stage

Write formally to the Assistant Principal for your course, stating your name, the name of the assessor and course tutor, details of the assessment decision and why you think it is wrong.

Exceptions

There are certain circumstances under which the College Appeals Against Assessment Decisions Procedure is superseded. Details of this are contained within the full policy (available on the policies page of the HRUC website www.hruc.ac.uk/policies).

The Office of the Independent Adjudicator

If you are still not satisfied after the formal appeal has been completed, you can complain to the Office of the Independent Adjudicator – we will give you the details of how to do this. The OIA is an independent body that runs the student complaints scheme for all organisations in England and Wales delivering Higher Education. The OIA cannot re-mark the work or change the grade, but they can make sure that College assessment and appeal procedures were carried out correctly and fairly.

K) Academic Malpractice

The College has an Academic Malpractice Policy which deals with all forms of cheating in assessment (the full policy is available on request). Types of cheating include:

- directly copying or paraphrasing the work of others and presenting it as your own (plagiarism)
- getting someone to produce all or part of your work (personation)

- working together with other students to produce work and submitting it as your own individual work (collusion)
- copying another student's work with or without permission
- knowingly allowing a student to copy your work
- resubmitting previously graded work
- using forbidden notes or books in producing work or tests
- presenting work downloaded from the internet/online sources as your own
- fabrication of results (including experiments, research, interviews, observations)
- deliberate destruction of another student's work
- giving your work to another student so that they can copy from it.
- Using AI to produce research, reports, assignments etc

By signing work submitted for marking you are confirming that it has been completed according to the rules of the qualification. It is important that you ask your tutor if you are not sure about any of the rules as anyone caught cheating will face penalties as described in the College Academic Malpractice Policy.

HRUC may use Turnitin and other software to look for evidence of academic malpractice in any of your assignments.

Possible penalties include disqualification from units or even the entire qualification. This could affect your ability to successfully complete your programme of study and could lead to exclusion from the College.

4. HE STUDENT REPRESENTATION & ENGAGEMENT

HRUC believes that the best way of constantly improving our higher education courses is by collecting and acting on student feedback. Student views are given the highest priority and so we want to hear from you. There are several ways that you can get involved:

A. Student Representatives

Being a student representative is a great way to help improve the quality of higher education at HRUC (and to improve your CV and UCAS personal statement).

i) Tutor Group Reps

Every HE group is asked to elect a Rep. The role of Tutor Group Reps is to collect the views (both good and bad) of everyone in their group, discuss these with College staff and to feedback responses to the group.

Tutor Group Reps' contact details are supplied to Student Support so that they are included in whole college (i.e. including FE students) activities - such as tutor group rep training events and student council meetings.

Tutor Group Reps will be invited to meetings with the Head of School (with the Reps from all other courses in the school)

After these meetings the Tutor Group Reps should share with their group the details of what was said and any information they may have been given.

ii) HE Year Reps

The role of HE Year Reps is to collect the views of the HE Tutor Group Reps and to report them formally at the HE Quality & Development Committee (held three times a year) to senior College staff. They will then feedback to the HE Tutor Group Reps what was said at HEQDC.

For the summer term HE class rep meeting, the HE Year Reps prepare an annual report for discussion and ratification.

HRUC recognises that this is a significant role and therefore formally recruits (and rewards) HE Year Reps from the new first year students each October. HE Year Reps will usually continue in the role in their second year.

NB: HE Year Reps do not have to be HE Tutor Group Reps too.

B. HE Student Representation Co-ordinator

The HE Co-ordinator is a member of staff who helps the HE Tutor Group and Year Reps in their roles. The Co-ordinator can suggest discussion topics, provide an agenda and help arrange HE Rep meetings, record student views, suggest formats for Reps' reports, proofread the annual report and help with presenting views at HEQDC.

The co-ordinator may also send important or interesting information out to HE Reps for them to share with their group.

C. Student Surveys

Students will be invited to share their views and opinions of their course, tutors and the college regularly. This includes:

i) Unit Reviews

Twice a year students will be asked to complete a review questionnaire. You will be asked to evaluate the teaching and learning, assessment and feedback, resources and environment and the content of the units you are studying. These results are presented at HEASC where your tutors will be asked to comment and state what they are going to do to improve the course.

ii) Surveys

The HE Co-ordinator will send out surveys throughout the academic year – usually once per term – asking for students to rate various aspects of the course and the college. To complete the survey students need to be logged in to their college account.

iii) Graduate Outcomes

This is an external survey run on behalf of the government about 15 months after you finish any HE qualification, to find out what have gone on to do. Results are published so prospective students can see what they can go on to do.

The survey uses the contact detail you give to the college while you are here. Please ensure you keep these details up to date.

iv) Pearson Annual Student Survey

Each year Pearson will ask all students around the world who are studying BTEC Higher National Qualifications to complete a survey about their student experience. Results will help Pearson to continue to develop these qualifications.

D. Tutorials

Your timetable may include tutorial and / or study skills sessions. These are to support and guide you through your studies. This will include identifying and developing the higher-level skills needed on your course and to succeed in employment or further study.

E. Complaints

At HRUC, we try to get things right every time but on occasion things may go wrong. If this happens, we want to hear from you so that we can improve things.

If you have a complaint or concern you should first speak to your tutor. If you feel unable to do this or are not satisfied with their response, you can make a formal complaint. To do so email your tutor, feedback@harrow.ac.uk, feedback@richmond.ac.uk or feedback@uxbridge.ac.uk .

If you need help with writing a complaint, please contact one of the Student Support Officers who will be able to explain the process to you and help you complete it.

On receipt of your complaint, we will:

- acknowledge your complaint within five working days
- investigate your complaint and provide a written response by an appropriate manager.

When you complain please supply as much information as possible to help us investigate (e.g. date, time, location, names / descriptions of people involved, what the problem was, what anyone present said / did).

You can submit complaints anonymously, or as part of a group.

If you feel able to provide your contact details though we will be able to respond to you or ask for more detail if required.

F. Office of the Independent Adjudicator

If you are not satisfied with our response to a complaint you can complain to the Office of the Independent Adjudicator – we will give you the details of how to do this. The OIA is an independent body that runs the student complaints scheme for all organisations in England and Wales delivering Higher Education.

5. RULES & RESPONSIBILITIES

A) Code of Conduct
This Student Code of Conduct applies to all students of the College.
Students are required to abide by the Code of Conduct and College Rules and Regulations

HRUC expects all students to:

- Help to maintain a pleasant environment for everyone.
- Show respect for others and uphold the Equality & Diversity Policy.
- Devote time on the College premises to the purposes of learning and activities which promote learning or personal development.
- Be polite and behave in a manner which will not cause offence to others.
- Show respect for property and possessions and equipment. Students will be liable for any damage for which they are responsible.
- Uphold the good reputation of the College, either on site or off site.
- Follow health & safety and evacuation procedures, this includes any rules around Social Distancing, washing your hands, using sanitiser and/or wearing face coverings
- Wear and display a College ID card and colour coded lanyard at all times, and never lend an ID to anyone else. Staff are authorised to examine identity cards on request. Any visitors to the College Campuses must be approved by a member of staff, must sign in and out at Reception and be escorted by a member of staff.
- Observe the College no smoking rule which applies indoors and outdoors in all areas of the College (except designated outdoor places).
- Conform to the College's policy on the use of Information Technology Facilities.
- Dress appropriately for undertaking College activities and observe the no hats and hoods rule. The College cannot accept liability for loss or damage to personal clothing or property, which occurs on College premises or during any organised College activity.
- Commit to attending all classes. The College reserves the right to terminate a student's enrolment if attendance falls below 80% or they do not attend for a period of 4 weeks or more without good reason. Any action taken against a student will be in accordance with the College's Student Disciplinary Policy and Procedure.
- To provide accurate personal information. Students must notify the College if they change address. Employed students sponsored by their employer must notify any change of employer. Students under 19 years of age must notify the College of the name, address and telephone number of parents/guardians.
- Use of college digital facilities, wifi, PCs etc and use of personal devices while on campus must meet expected behaviour standards as must student engagement with other students while online e.g. on social media.

The College will not tolerate:

- Acts of vandalism, spitting and dropping litter.
- Bullying, threatening or abusive behaviour, whether verbal or physical or via electronic means such as text messaging, e-mails or online forums.
- Harassment in any shape or form.
- Swearing or language that is offensive to others.
- Fighting or any form of loud or aggressive behaviour.
- Any form of criminal activity.
- Attempts to convert individuals to religious faiths or political causes.
- Use of the premises to promote a political or religious cause.
- Use, intent to supply, possession, or being under the influence of drugs and illegal substances.

- Possession and / or misuse of alcohol during the College day.
- Possession of a knife or dangerous weapon.
- Use of mobile telephones, personal music systems or other electronic equipment in class, unless approved by the teacher.
- Eating or drinking in non-designated areas of the College.
- Unauthorised use of hardware, software, student email or data belonging to or used by the College.
- Rudeness or aggressive behaviour to any member of the College, or persistent failure to comply with reasonable staff requests.
- Action which is likely to promote or increase the potential for disruption to the College, its students, staff or property.
- Any activity which is likely to bring the College's name into disrepute.

The College takes its responsibility within the local community very seriously and therefore all the above apply both inside and outside of the College grounds.

The College will exercise random searches on its grounds to prevent harmful or illegal items from entering the college buildings, for example but not limited to, using metal detectors.

Those found in breach of this code will be subject to disciplinary action, which may lead to exclusion from the College.

The Code of Conduct is designed to be cross-referenced to other College policies and procedures, in particular the Equality and Diversity Policy, Student Attendance and Punctuality Policy, College Complaints Procedure, Student Rules and Regulations and Student Disciplinary Policy & Procedure.

B) Attendance & Punctuality

HRUC expects every student to attend every timetabled session of their course and to be ready to begin work at the scheduled start of each timetabled class, in order to benefit from the prompt start time and the maximum learning time, as well as to prepare the student for the world of work, or higher-level studies. The expectation is 100% punctuality and attendance.

As part of the same process, there will be an undertaking on the part of HRUC to ensure all learning activities start promptly, run for their scheduled learning time and alternative arrangements are put in place when a lecturer has an absence (planned or unplanned).

All students are required to arrive on time for all classes and other scheduled activities including those arranged remotely. Persistent lateness and absenteeism are unacceptable.

Only in certain exceptional circumstances, where prior agreement has been made with the Head of School, students may be granted absence. In the case of illness, students must report their absence before the commencement of their scheduled class to the Attendance Coordinator/Department.

Please note that holidays may not be taken during timetabled study periods, as this is highly disruptive to student achievement.

Attendance Coordinators/Tutors are responsible for the general welfare of all students within the school. They will contact students, and parents/guardians when appropriate, whenever they are

absent and students may request to see them with any general problems or queries that they may have.

The Attendance Coordinators/Tutors are there to assist students, they will act as a focal point for contact when students have difficulties, where possible we will assist students or attempt to put you in contact with someone who can help.

The Attendance Coordinators/Tutors are responsible with the rest of the teaching team for student attendance and achievement, and these will be monitored as an ongoing process.

Poor attendance could ultimately lead to withdrawal from the College

It is the students' responsibility to make sure they understand their timetable and they know where and when their classes will take place. Students who miss a significant number of lectures normally obtain poor end of year results. Picking up a set of notes after the lecture or copying somebody else's lecture notes is a poor substitute for actually attending a lecture and absorbing its content.

If you are absent for periods of longer than three days please notify your tutor, and in the case of illness you should obtain a medical certificate where appropriate, particularly if you wish the illness to be considered as an extenuating circumstance in respect of coursework or examinations.

C) Equal Opportunity – a Simple Guide

You will hear the phrase 'equal opportunities' many times at College, and throughout your life. It's an important phrase for us and for you, so please take a moment to read this section.

HRUC has a written 'Equality and Diversity policy' about equal opportunities, which is available on the policies page of the HRUC Internet site (www.hruc.ac.uk/policies**). Its message is that:**

- All learners are equally important to us
- All learners need different sorts of help
- We will give whatever help we can to ensure that everyone has an equal opportunity to achieve their qualifications and reach their goals.

We encourage and expect respect between all students, staff and visitors to the College. We refuse to allow discrimination (unfair treatment) against anyone because of their age, gender, ethnic origin, disability, sexuality, gender reassignment, or faith. We welcome and celebrate the diversity of students and staff in the College.

Please help us make sure everyone at HRUC feels valued, and no-one is discriminated against. Treat staff, students, visitors and neighbours with respect. Do not allow yourself to get involved in any form of bullying or harassment, including name calling and insults. If you feel that you are not being treated fairly and with respect, or if you think that discrimination is taking place, please let a tutor, someone in Student Support or any other member of staff know.

D) Religious Observance

Our Statement on Religious Diversity states:

HRUC:

1. Promotes itself as a secular college and respects equally different religions, faiths, and cultures.
2. Expects everyone to adhere to the Equality & Diversity policy.
3. Expects regular course attendance from all its students as outlined in the Attendance & Punctuality Policy.
4. Recognises a variety of religious festivals throughout the year.
5. As curriculum planning and student success take priority in HRUC, HRUC asks that requests for exceptional leave for essential religious obligations are made by students, in writing to their Head of School, at least one week in advance. Two days authorised absence is allocated for each academic year.
6. Delegates authority to Assistant Principals to grant permission to students to take exceptional leave.
7. Requires Assistant Principals to ensure that the student's exceptional leave is recorded and logged in their office.
8. Provides a variety of meals in Refectories, including vegetarian options, in order to reflect cultural diversity.
9. Endeavours to arrange refectory opening times which are sensitive to the religious obligations of users.
10. Provides where possible facilities for faith observance and ensures that a variety of means are used to publicise this provision (see quiet/prayer room below).
11. Expects all users to respect College resources where they are used for faith observance.
12. Provides the facility for staff to take annual leave, the exigencies of the service permitting, in order to fulfil their religious obligations.

<u>Quiet/Prayer room</u>

A Quiet/Prayer room is made available at certain times of the day when timetabling and room utilisation allow. The primary purpose of HRUC is education and therefore HRUC cannot guarantee this availability. This room can be used as a 'quiet' space by people of all faith groups, beliefs, genders and for those whom religion has no particular significance in their lives. The room may equally be used as a quiet space for people to sit and contemplate, to pray or to take a few moments to de-stress from a busy day.

HRUC will publicise the regular times and days of this room. If a student wishes to use a room outside of these times then he/she can request a room from the main reception.

The management of this quiet/prayer room will be through an oversight committee existing of the Head of Security and Assistant Principal. The oversight committee will be responsible for managing the appropriate use of this facility and for dealing with any issues arising.

The room should be a safe space for all users. This means that everyone has a duty to respect other users and to ensure the environment remains welcoming to people of all faiths, beliefs, genders, and for those whom religion has no particular significance in their lives.

The oversight committee reserves the right to refuse entry or cease any activity if it believes there is likelihood of a breach of this respect or HRUC's code of conduct.

E) Learning Support for HE Students

The College welcomes students with disabilities and / or learning difficulties. Students may be able to get support with their studies if they have a:

- long-term health condition
- mental health condition
- specific learning difficulty, e.g. dyslexia, dyspraxia

To get this support you must apply for and be granted Disabled Students Allowance (DSA). DSA is a grant that covers the additional study related costs that you will incur because of your disability or specific learning difficulty. DSA is not means tested and doesn't have to be repaid.

Applications for DSA can take several weeks so if you have not already applied, you must do as soon as possible. However, you can apply for DSA even if you have already started your course.
You can get information about DSA - and an application form - from the DSA website. Use the links below:

DSA Website - *www.gov.uk/disabled-students-allowances-dsas*
DSA Application Form - *www.gov.uk/disabled-students-allowances-dsas/how-to-claim*

Please read this information carefully as it gives details of the evidence of your disability or specific learning difficulty that you will need to supply when you apply.

Please speak to the Information Centre for further information about applying for DSA.

When you are granted DSA you will receive a Notification of Entitlement, stating the support they will pay for. DSA may help with the costs of:

- specialist equipment, e.g. a computer if you need one because of your disability
- non-medical helpers, e.g. Note Taker, Communication Support Worker, Proof Reader
- extra travel because of your disability
- 1:1 specialist study skills support
- other disability-related costs of studying.

If you haven't already, please discuss your needs with your tutor as soon as possible. Your tutor may need time to put arrangements in place for you.

For information about Learning Support please contact the Learning Support Team.

F) Health & Safety
The full policy is available on the policies page of the HRUC website (www.hruc.ac.uk/policies) . It states that:

Students will receive health & safety induction training when they start their course.
Students will ensure that:
• They follow reasonable instructions given in the interests of health & safety.
• They take reasonable care for their own health & safety when undertaking college activities, as well as the health & safety of others who may be affected by what they do.
• They follow the health & safety rules which apply to their attendance at the college and the safety measures of any other company whose premises they may visit as part of their education / work experience.
• They do not misuse anything that has been provided in the interests of health & safety (for

example, propping open a fire door with a fire extinguisher, sounding the fire alarm system for malicious purposed, removing guards from machines, or blocking a fire escape route with rubbish or equipment etc).
• That they report anything that might present a danger to either themselves or anybody else.
• Avoid placing other people at risk, either by what they do or do not do.

If a student fails to discharge their health & safety responsibilities, disciplinary action may be taken.

G) Safeguarding

We want all students at College to feel safe.
Please speak with your tutor or a member of the College's Safeguarding Team if you are worried about issues such as:

- Physical, Mental or Sexual abuse
- Self-harm
- Bullying (including online)
- Domestic violence
- Forced marriage
- Sexual harrassment
- Extremism/ Radicalisation / Terrorism.

You can contact a member of the Student Support Team:
At Uxbridge Campus Room A011 (situated off the Mall) or telephone 01895 853380
At Hayes Campus the Student Lounge (situated off the Refectory) or telephone 01895 853643
At Harrow on the Hill Campus Student Services are just between Reception and the Refectory
At Harrow Weald Campus, Student Services are by Reception
At Richmond Campus Student Services are in G32.

Please report any hate crimes or concerns you may have about another student displaying extremist views.

Confidentiality
All information about you and your personal life is treated with complete confidence at all times.
If exceptional circumstances arise that give us good grounds for believing that you will cause harm to yourself or others, then it is possible we may need to share information with someone else. In such circumstances we would talk to you first.

Safeguarding…… Everyone's Responsibility

6. HRUC STUDENT PORTAL, APP AND LEARNING RESOURCE CENTRES

Once you have enrolled as a student you will be able to access the HRUC Student Portal and be able to use the HRUC Student App.

The student portal is where you can find your timetable, access Microsoft Teams, your OneDrive and your College email account, view your grades and attendance.

Everyone in the College will have an Office 365 Account.
This gives you access to One Drive to store your files.
You can also access to Word, Excel, PowerPoint, Teams, Outlook for your email and more.
You will have access to your work 24/7 - at College or at Home.

You can download Office at home too from your College Office Account.

The Portal is also where you can find out about College facilities. We have a Learning & Resource Centre (library) on each site and this is where you can look up their opening times, events and resources available to you – including databases and journals – for your course.

Open access areas are available for students to use so that you are able to access a PC outside of timetabled lessons.

The opening times for the areas are generally the same as the College opening times.

By using PCs at the College you are agreeing to our acceptable use policy. This explains how we expect you to use college systems and also how to behave when in the open access areas.

If you do not follow these rules, warnings will be issued which can result in a ban from the open access areas for a period of time.

We advise all students to take regular breaks when working at a PC for health and safety reasons. As a result, students can only use a PC for a maximum of 3 hours at which point they will be required to take a 15-minute break.

7. STUDENT SUPPORT

A) The Student Support Team

The Student Support Team are here to help with any problem or difficulty that might have an effect on your learning or success at College. The problem does not have to be directly linked to your studies to have an effect on your happiness or success at College. This could include any safeguarding issues, mental health, drugs & alcohol issues, general & sexual health, domestic violence, housing or benefit issues plus many more.

Whatever the issue, the Student Support team will do their best to help you and, where appropriate, find the best professional help available e.g. we can refer to counselling services or specialist agencies.

There is a Student Support team available on every College campus.

B) Careers Guidance
HRUC is committed to helping individuals achieve their full potential.
We provide student-centred and impartial information, advice and guidance (IAG) to all learners at the College who want to find out more about their career options or continuing education.

There is an Information Centre on every College campus.

8. DISCIPLINARY PROCEDURE

The full policy is available is on the policies page of the HRUC internet (www.hruc.ac.uk/policies).
This states how breaches of the College's academic rules or Code of Conduct will be dealt with.

Note that failure to follow College rules may result in suspension or even exclusion from the college.

2.6 **APPENDIX 1 – STUDY GUIDE**

A) How to Write Essays

Writing an essay is important for you for a number of reasons:
1. It gives you the chance to research a project in depth
2. It helps you to focus your thinking on a topic.

The plan

A plan is essential for good essay writing. The type of plan and the amount of detail you include is your personal choice. The plan is important because:

- your ideas and resources are brought together and displayed before you
- your plan gives an outline and shape to your essay
- you can establish a line of argument in the plan
- your plan can prevent errors, repetition and unnecessary waffle
- using a plan enables you to produce your essay much quicker
- with a plan, you can concentrate on expressing ideas and writing with confidence, before committing yourself to the final details.

Points to consider in the plan:
1. use plenty of space - it will be easier to read follow and add to
2. plan in pencil with a rubber - you can then rearrange and correct
3. leave a margin - still more notes can be added
4. analyse the questions - this leads to a line of argument
5. state the line of argument - this gives a direction to the essay and helps with the introduction
6. separate out the main idea or areas of knowledge and make them subheadings - they may provide paragraphs
7. fill in any facts, figures, quotations, comments, ideas which fit subheadings - these form main body of essay
8. keep your notes at hand - you need them to look up details
9. use text books - to check notes and to get extra information.

The introduction

The introduction introduces the essay or argument. It should be a statement of intent, wherein you say how you are going to proceed. It is important to you, the writer, because it gives direction. It is also important to the reader and for the impression it first gives.
The introduction should give the following information:
1. an assessment of the topic – to show that you are aware of what you are going to discuss
2. a line of argument, theme or idea – outline how you intend to proceed
3. a transition to the start of the argument – smoothly linked to the first paragraph.

- Do not use your best or most important points in the introduction
- Do not start with an answer to the question.

You might also consider writing your introduction to a pattern, for example, about two sentences for each of the three points suggested above.

Structuring the essay

To begin with you must think in paragraphs. Some people suggest the six paragraph rule – that you should be able to find six areas to discuss (this can be expanded to seven, eight etc depending on required length of the essay).

Selecting information

You should have at your disposal more facts and knowledge than you need to answer any particular essay. It is important to be selective, and to use only relevant information. A few things can help:

1. reading/lots of research
2. discussing ideas and points with others
3. thinking and note-taking as ideas come to you.

For each piece of information, you choose to use, you must be sure why you are using it.

Logical argument

Information must be used in a logical way. Every idea, comment and observation must be supported by evidence (facts or reasons). Giving reasons and evidence leads to building up a logical argument. Where there are opposing pieces of information or a conflict of view, express them both. It is your duty to do justice to all sides of the argument.

B) General Presentation

All work must be submitted with a cover sheet. If submitting assignments on paper ensure they at are in a transparent protective cover. Do not insert each page of the essay in a plastic pocket.

Typing - all essays should be word-processed. Always prepare two copies – keeping one for yourself in hard copy as well as electronically.

Sequence - the essay should have a cover sheet, main body of writing which should include an introduction, argument/discussion, conclusion, appendices (extra things and illustrations) and a reference list/ bibliography.

Pagination - page numbers should begin on the first page (not cover sheet) of the text, following the preface (if used) and continue to the end of the work. They should be placed at the bottom of the page.

Headings - section and chapter headings (in bold text) should always begin on a new page – you can use subheadings to introduce new topics and these should also be identified in bold text. Subsections should be differentiated from the main text by using extra spacing.

Illustrations - must be captioned and numbered. They may be placed throughout the text or placed at the end of the essay. They must be good quality and they should be preferably scanned in to your essay, but if that is not possible then they must be good photocopies, neatly trimmed and spray mounted. A list of illustrations must be included with your work with references to source.

C) Referencing Your Reading – Reference Lists & Bibliographies:

What's the difference between a reference list and a bibliography?

The reference list is used to cite all the items you have made direct reference to in your text (by the author's name and year of publication). The list is organised alphabetically by the names of the authors (or originators) of the work.

During the course of your reading you may have used material for extending your knowledge of the subject, but from which you do not make specific reference.
A bibliography lists all these items, again alphabetically by author. This is generally included after the reference list. Both may also contain research evidence taken from electronic material such as the Internet.
(the above paragraph is taken from: Bucks and Chilterns University handbook (2006) who acknowledge Learning Resources Services, University of Northampton).

Where do you put it?
The reference list and bibliography should come at the very end of the essay. Essays without references and bibliographies will be considered incomplete, and in some cases will not be marked. The reason for the harsh stance is because of the danger of PLAGIARISM (see section 4 Part K) Academic malpractice.

All essays must include a bibliography as well as a reference list.

How do you compile them?
Keep a list of the full bibliographical details of every work consulted during your research. Prepare a notebook in alphabetical order so that you can add new items without any trouble. Make a note of which you have directly used in your text and those you have not so that you can separate them later.

The Harvard Method
The preferred system for referencing is the Harvard Method which is thought to be more student friendly. The Harvard Method is sometimes known as the "author/date" system. In it a work is referred to by its author's name, year of publication and page number in the text in brackets, while its full reference appears only once in a reference list or bibliography at the end of the essay. The need for footnotes is therefore not necessary.

EXAMPLE
Bayley, S, (1991) *Taste*, London, Faber and Faber
Note: Book or journal titles should be underlined or italicised.
The order is: Author, surname/first name, date, title, place, publisher.

Periodical entry:
Periodical entries must give exact references to journal issue numbers and page numbers.

Jones, Lynn (1987) "Literature Review" in British Journal of Occupational Therapy, 50, 9 September, 308

If more than one book by an author appears in the bibliography these should be listed in order of publication (earliest first).

Citation of electronic sources – the Internet
The most important thing to remember when using any electronic source is that it is ephemeral by nature. That means that the source may not be there when a revisit is made. The date is therefore necessary at the end of the citation. These can be placed alongside your book lists.

EXAMPLE

References:

Bayley, S, (1991) *Taste*, London, Faber and Faber

Lifelong Learning Uk. (2008) New Overarching Professional Standards for Teachers, Tutors and Trainers in the Lifelong Learning Sector. [Online]
Available from:<http://www.standardsverificationuk.org/documents/professional_standards_for_itts_020107.pdf> [accessed 4th October 2008].

Bibliography:

Keeley-Browne, L (2007) *Training to Teach in the Learning and Skills Sector*, Harlow, Essex, Pearson Education Ltd.

APPENDIX 2 – EXTENUATING CIRCUMSTANCES APPLICATION

*To apply for an extension to an assignment deadline, you must make a request in writing (e.g. email) to your tutor. Your application should be made as soon as you know you will need an extension and no later than **5 working days** after the deadline date.*

Applications made after this will only be considered at the discretion of the Head of School under exceptional circumstances.

When you apply you must make sure you include all of the following information

Student Name:…… Student ID: ……..
Programme of Study: …… Year: ……

Assignment/assessment (s) affected by claimed extenuating circumstances

Unit Number	Unit Title	Tutor	Assignment / Assessment Title	Deadline

Reason for the claimed extenuating circumstances
(Please give a brief overview of the reasons)
……
……
……

Additional evidence supplied
(e.g.: medical certificate, solicitor's letter, copy of death certificate, police report)
……
……
……

Please note: It is the responsibility of the student to ensure that all documentation to support their claim is attached to their application.

APPENDIX 3 – GLOSSARY

Glossary of terms used for assignments. This is a summary of the key terms used to define the requirements within units.

Analyse	Present the outcome of methodical and detailed examination either: ● breaking down a theme, topic or situation in order to interpret and study the interrelationships between the parts and/or ● of information or data to interpret and study key trends and interrelationships. Analysis can be through activity, practice, written or verbal presentation
Apply	Put into operation or use. Use relevant skills/knowledge/understanding appropriate to context
Arrange	Organise or make plans
Assess	Offer a reasoned judgement of the standard/quality of a situation or a skill informed by relevant facts
Calculate	Generate a numerical answer with workings shown
Compare	Identify the main factors relating to two or more items/situations or aspects of a subject that is extended to explain the similarities, differences, advantages and disadvantages. This is used to show depth of knowledge through selection of characteristics
Compose	Create or make up or form
Communicate	Convey ideas or information to others
Create/construct	Skills to make or do something, for example, a display or set of accounts
Critically analyse	Separate information into components and identify characteristics with depth to the justification
Critically evaluate	Make a judgement taking into account different factors and using available knowledge/experience/evidence where the judgement is supported in depth
Define	State the nature, scope or meaning
Describe	Give an account, including all the relevant characteristics, qualities and events
Discuss	Consider different aspects of a theme or topic, how they interrelate, and the extent to which they are important
Demonstrate	Show knowledge and understanding
Design	Plan and present ideas to show the layout/function/workings/object/system/process
Develop	Grow or progress a plan, ideas, skills and understanding
Differentiate	Recognise or determine what makes something different
Discuss	Give an account that addresses a range of ideas and arguments
Evaluate	Work draws on varied information, themes or concepts to consider aspects, such as:

	● strengths or weaknesses ● advantages or disadvantages ● alternative actions ● relevance or significance. Students' inquiries should lead to a supported judgement showing relationship to its context. This will often be in a conclusion. Evidence will often be written but could be through presentation or activity
Explain	To give an account of the purposes or reasons
Explore	Skills and/or knowledge involving practical research or testing
Identify	Indicate the main features or purpose of something by recognising it and/or being able to discern and understand facts or qualities
Illustrate	Make clear by using examples or provide diagrams
Indicate	Point out, show
Interpret	State the meaning, purpose or qualities of something through the use of images, words or other expression
Investigate	Conduct an inquiry or study into something to discover and examine facts and information
Justify	Learners give reasons or evidence to: ● support an opinion ● prove something is right or reasonable
Outline	Set out the main points/characteristics
Plan	Consider, set out and communicate what is to be done
Produce	To bring into existence
Reconstruct	To assemble again/reorganise/form an impression
Report	Adhere to protocols, codes and conventions where findings or judgements are set down in an objective way
Review	Make a formal assessment of work produced. The assessment allows learners to: ● appraise existing information or prior events ● reconsider information with the intention of making changes, if necessary.
Show how	Demonstrate the application of certain methods/theories/concepts
Stage and manage	Organisation and management skills, for example, running an event or a business pitch
State	Express
Suggest	Give possible alternatives, produce an idea, put forward, for example, an idea or plan, for consideration
Undertake/carry out	Use a range of skills to perform a task, research or activity. This is the summary of the type of evidence you may be asked to produce
Case study	A specific example to which all students must select and apply knowledge
Project	A large scale activity requiring self-direction of selection of outcome, planning, research, exploration, outcome and review
Independent research	An analysis of substantive research organised by the student from secondary sources and, if applicable, primary sources

Written task or report	Individual completion of a task in a work-related format, for example, a report, marketing communication, set of instructions, giving information
Simulated activity/role play	A multi-faceted activity mimicking realistic work situations
Team task	Students work together to show skills in defining and structuring activity as a team
Presentation	Oral or through demonstration
Production of plan/business plan	Students produce a plan as an outcome related to a given or limited task
Reflective journal	Completion of a journal from work experience, detailing skills acquired for employability
Poster/leaflet	Documents providing well-presented information for a given purpose