Solihull College & University Centre

Stratford-upon-Avon College

Programme Specification

Higher National Certificate in Applied Sciences.

Awarded by

Pearson

Programme Specification

Title of Programme:
Higher National Certificate in Applied Sciences.

This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided.

1.	**Awarding Body**	Pearson.
2.	**Teaching location**	Solihull College and University Centre, Blossomfield Campus, Solihull B91 1SB.
3.	**Accreditation details**	N/A.
4.	**Final award**	Higher National Certificate in Applied Sciences.
5.	**Name of award**	Higher National Certificate in Applied Sciences.
6.	**Codes**	
	a. UCAS code	Course Code AS01; Institution Code S26.
	b. Solihull Qualification Code	SCBAF021BCF001.
	c. Pearson Programme Code (& approval dates)	Level 4 Higher National Certificate in Applied Sciences: 603/4570/6.
7.	**QAA Subject Benchmark or other external reference such as published by Pearson if the course is a Higher National**	Published by Pearson.
8.	**Date this specification applies from**	31/03/2025.
	Approved	Head of School: Laura Read. Head of HE: Claudine Barnes.

RECORD OF UPDATES

Date amended*	Nature of amendment**	Reason for amendment**
N/A.	N/A.	N/A.

1. Educational Aims of the Programme

Level 4 Higher National Certificate

The purpose of this qualification is to develop students as professional, self-reflecting individuals able to meet the demands of employers in the Applied Sciences sector and to adapt to a constantly changing world. The qualification aims to widen access to higher education and enhance the career prospects of those who undertake them.

The objectives of the Pearson BTEC Higher Nationals in Applied Sciences are as follows:

- to equip students with the Applied Sciences skills, knowledge and the understanding necessary to achieve high performance in the global Applied Sciences environment;
- to provide education and training for a range of careers in Applied Sciences, including Laboratory Technician, Research Technician, Technical Support Chemist / Biologist, Quality Support Technician, Manufacturing Technician, Science Technician, Technologist, Instrumentation Technician and Product Development Technician;
- to provide insight and understanding into the diversity of roles within the Applied Sciences sector, recognising the importance of collaboration at all levels;
- to equip students with knowledge and understanding of culturally diverse organisations, cross-cultural issues, diversity and values;
- to provide opportunities for students to enter or progress in employment in the Applied Sciences, or progress to higher education qualifications such as an Honours degree in Biology, Chemistry, Environmental Sciences, Polymers or a related area;
- to provide opportunities for students to develop the skills, techniques and personal attributes essential for successful working lives;
- to support students to understand the local, regional and global context of the Applied Sciences sector and, for those students with a global outlook, to aspire to international career pathways;
- to provide students with opportunities to address contemporary Applied Science issues facing the sector, and society at large, with particular emphasis on environmental sustainability, food and nutrition and polymer recyclability
- to provide opportunities for students to achieve a nationally recognised professional qualification within their chosen area of specialisation;
- to offer students the chance of career progression in their chosen field, with particular emphasis on achieving management-level positions, professional recognition and beyond;
- to allow flexibility of study and to meet local or specialist needs;
- to offer a balance between employability skills and the knowledge essential for students with entrepreneurial, employment or academic aspirations;
- to provide students with opportunities to engage in an industry-recognised higher apprenticeship scheme that aligns with their employer's needs and their own career aspirations;
- to provide students with the context in which to consider professional ethics and their relation to personal, professional and statutory responsibilities within the industry.

We aim to meet these objectives by:

- providing a thorough grounding in Applied Sciences principles and a degree of specialism at Level 4 that leads the student to a range of specialist progression pathways at Level 5 relating to individual professions within the Applied Sciences sector;
- equipping individuals with sector-relevant acumen, understanding and Applied Sciences skills for success in a range of supervisory or lower management roles in Applied Sciences;

- enabling progression to a university degree by supporting the development of appropriate academic study skills.

The Level 4 units lay the foundation of learning by providing a broad introduction to Applied Sciences. This develops and strengthens core skills while preparing students for specialist subjects at Level 5 or to enter employment with the qualities necessary for job roles that require some personal responsibility. Students will gain a wide range of Applied Sciences knowledge linked to practical skills obtained through research, independent study, directed study and workplace scenarios. Students are involved in vocational activities that help them to develop behaviours (the attitudes and approaches required for a competence) and transferable skills. Transferable skills are those such as communication, teamwork, research and analysis, which are highly valued in higher education and in the workplace. By the end of Level 4 study, students will have sound knowledge of the basic concepts of Applied Sciences. They will be competent in a range of subject-specific skills as well as in general skills and qualities relevant to these key areas of Applied Sciences.

2. Programme structure

The Higher National Certificate in Applied Sciences is a Level 4 qualification made up of 120 credits. Students study full-time over one year. A full-time mode of study requires students to attend college three days per week to study eight units with the intention to complete the programme in a single year.

There are eight modules each worth fifteen credits. Units are designed around the amount of time it will take for a student to complete them and receive a qualification. This is known as the total qualification time (TQT). TQT includes guided learning activities, directed learning activities and assessment. Each 15-credit unit has a TQT of 150 hours – 60 guided learning hours (GLH) and 90 hours of independent learning hours (ILH).

Guided learning hours:

These are the hours where a tutor is present to give specific guidance towards the learning aim being studied. Guided learning hours include lectures, tutorials and supervised study in, for example, open learning centres and learning workshops. They also include supervised assessment activities such as invigilated exams, observed assessments and observed work-based practice.

The units are:

Unit number	Module Title	Credits	Level
Unit 1	Fundamentals of Laboratory Techniques.	15	4
Unit 2	Scientific Data Handling Approaches and Techniques.	15	4
Unit 3	Regulation and Quality in the Applied Sciences (Pearson-set).	15	4
Unit 4	Cell Biology.	15	4
Unit 5	Fundamentals of Chemistry.	15	4
Unit 6	Anatomy and Human Physiology.	15	4
Unit 17	Fundamentals of Biochemistry.	15	4
Unit 18	Microbiological Techniques.	15	4

Calculation of the final qualification grade

To achieve a Pearson BTEC Level 4 Higher National Certificate qualification, a student must have:

- completed units equivalent to 120 credits at Level 4, and
- achieved at least a Pass in 105 credits at Level 4.

Learners will be awarded a pass, merit or distinction qualification grade by the aggregation of points gained through the successful achievement of individual units. Students must have attempted all units in a valid combination for each qualification. The conditions of award and compensation arrangements will apply as explained above (i.e. if one 15-credit unit has been attempted but not achieved, a HNC can still be awarded). If a student has been granted compensation for a unit attempted but not achieved, that unit will appear as unclassified (a 'U' grade) on the notification of performance provided with their certificate.

Units that have been attempted but not achieved, and subsequently granted compensation, will appear as 'Unclassified'; i.e. a 'U' grade, on the student's Notification of Performance, that is issued with the student certificate.

Points available per credit at specified unit grades

Points per Credit		
Pass	Merit	Distinction
4	6	8

Qualification grades Pearson BTEC Level 4

Points Range	Grade	
420-599	Pass	P
600-839	Merit	M
840+	Distinction	D

3. Intended Learning Outcomes of the Level 4 Programme

The units studied are:

Unit 1. Fundamentals of Laboratory Techniques.

- Learning outcome 1. Carry out qualitative and quantitative analysis.
- Learning outcome 2. Carry out synthetic chemistry techniques.
- Learning outcome 3. Demonstrate use of microscopy and aseptic technique.
- Learning outcome 4. Demonstrate good practice with respect to reporting, health and safety and laboratory organisation.

Unit 2. Scientific Data Handling Approaches and Techniques.

- Learning outcome 1. Demonstrate handling of data and information to scientific standards.
- Learning outcome 2. Identify the relevance of mathematical methods to a variety of conceptualised scientific examples.
- Learning outcome 3. Explore raw scientific data using statistical methods.
- Learning outcome 4. Solve problems using differential and integral calculus.

Unit 3. Regulation and Quality in the Applied Sciences (Pearson-set).

- Learning outcome 1. Review health, safety, environmental and other legislation relevant to a particular sector or pathway.
- Learning outcome 2. Analyse how a specific sector is externally regulated.
- Learning outcome 3. Illustrate the links between quality standards, continuous improvement cycles and quality systems.
- Learning outcome 4. Explore internal regulation and relevant responsibilities of individuals in relation to a particular sector or pathway.

Unit 4. Cell Biology.

- Learning outcome 1. Describe the structural and functional features of eukaryotic cells.
- Learning outcome 2. Describe the organisation of DNA and RNA in eukaryotic cells.
- Learning outcome 3. Explain the events of the cell cycle, mitosis and meiosis.
- Learning outcome 4. Explain how cleavage and gastrulation result in germ layer formation.

Unit 5. Fundamentals of Chemistry.

- Learning outcome 1. Explain the structure and properties of matter.
- Learning outcome 2. Explain theoretical and practical aspects of titrations.
- Learning outcome 3. Describe how thermodynamic quantities affect chemical reactions.
- Learning outcome 4. Explore the reactions and synthesis of the homologous series of organic compounds.

Unit 6. Anatomy and Human Physiology.

- Learning outcome 1. Describe how the muscular and skeletal systems interact with one another to provide support and create movement.
- Learning outcome 2. Explain the control systems of the human body.

Learning outcome 3. Describe the structure, function and interrelationship between the systems that obtain raw materials for metabolism, absorb and transport nutrients and rid the body of wastes.
Learning outcome 4. Explain the process and management of human reproduction.

Unit 17. Fundamentals of Biochemistry.
Learning outcome 1. Describe the chemical principles that apply to the structures of biological building block molecules.
Learning outcome 2. Explain the structures of biological macromolecules.
Learning outcome 3. Explain the structure, catalytic function and characteristics of enzymes.
Learning outcome 4. Outline the stages involved in cellular respiration.

Unit 18. Microbiological Techniques.
Learning outcome 1. Identify the molecular structures and functions found in different microorganisms.
Learning outcome 2. Carry out aseptic techniques to culture a range of microorganisms and use biochemical tests to identify different bacterial species.
Learning outcome 3. Explore the factors that affect the growth of microorganisms.
Learning outcome 4. Evaluate the economic importance of bacteria.

4. Teaching and Assessment

Teaching methods are varied and informed by contemporary practice in teaching in higher education.

Delivery of all elements of the course use the College Virtual Learning Environment (typically for locating course and module resources, but also for discussion forums, collaborative information gathering, journal logs and coursework submissions and feedback). This allows for inclusive learning and digital inclusion.

Other teaching methods include seminar discussions or debates, one-to-one or small group tutorials and problem-solving workshops. Reflective learning is encouraged through use of self, peer and staff formative feedback on assignments, group work and project work, and reflective diaries. All these activities develop academic literacy, critical self-awareness, and personal literacy.

The integration of contemporary technologies (digital inclusion) and practical facilities allow Learners to develop their academic and vocational skills to industry standards (employability learning).

Research literacy is taught and practised throughout the course.

Development of active citizenship attributes will form a part of the core ethos of the programme and will be considered in detail in discussions and debates around ethical and welfare topics in today's world. Active citizenship is encouraged and nurtured in the programme through the use in teaching of international textbooks and journals that expose UK students to non-UK perspectives; guest speakers and conferences expose students to diverse cultural perspectives.

Summative assessments for modules are vocationally contextualised. Coursework assignments are diverse and develop research literacy and digital and information literacy. Indicative assignments include essays, work diaries, practical reports, poster presentations and problem-solving exercises. Within some assessments students can tailor their submission to their own vocational area of interest.

Staff ensure that the content of their teaching remains up to date by integrating, where appropriate, the latest research findings in their lectures. In addition, staff undertake annual CPD within the industry to keep abreast with current and contemporary practices.

5. Support for Students and Their Learning

Solihull College and University Centre operates a proactive approach to personal tutoring. It recognises that students need to make various adjustments as they move into higher education, whether from school or employment.

Firstly, an induction process is conducted where initial course expectations, rules, and regulations (via handbooks), enrolment and team building activities are undertaken in the week prior to commencing the course. This helps students gain an understanding of what the course involves and allows them to interact with their peers. Late enrollers have a shorter but none the less comprehensive induction.

Secondly, Tutors monitor student progress regularly in 1:1 tutorial to check that they are maximising their potential. Students have access to an academic skills tutor, where they can join group sessions or book one-to-one support with aspects of HE study, such as Harvard referencing or critical thinking. Close links between specific learning difficulty co-ordinators and tutors is used on a regular basis for tracking students with additional learning needs. If students are faced with challenges that affect their ability to study, such as illness, bereavement, depression, financial difficulties, or accommodation issues, we will collaborate with them in finding a way forward.

Thirdly, careers advice (academic and employment) is available through-out the course and within the programme which enables inclusivity as well as employability skills (Curriculum Vitae building, application forms, interview techniques)

There are also support services both that the students will have access to, including learning and personal support services. These range from programme liaison managers, advisers, support co-ordinators, mental health team to specialist subject librarians, career advisers and other learning support staff all designed to ensure that students get the best out of their studies.

6. Assessment Methods

Summative assessment methods include:

- Written work required in various formats such as reports and essays.
- Oral presentations to a group audience using teaching aids such as PowerPoint, poster, Electronic Whiteboard, Practical Models.
- Project work.

- Small scale research studies.
- Work-based learning.

Assessment is enhanced by encouraging the students to use technology to augment their presentational work.

As far as possible all assignment work is connected to a vocational relevant scenario. Students receive individual written and oral feedback within 3 weeks of submission date.

Formative assessment for learning and feedback may include:

- Group activities involve students actively contributing to, leading and participating in discussions and debates on a wide range of subject areas, undertaking group activities allowing immediate assessment and feedback.
- Subject related tutorials are led by the subject tutor and aim to address a particular module or assignment. These tutorials are linked to workshop sessions where necessary.
- Workshops are for students to develop skills in self-directed study with the support of tutors. These sessions will be supported by staff but not staff led. There will also be self-directed time for students to further develop these skills and spend time reading around topics using a variety of recommended sources.
- Extension activities/quizzes/discussion forums on Moodle.
- Presentations are used to support research skills, organisation, time-management skill and are also a confidence-building tool.
- The need for IT support in general will be identified and where necessary, IT support will be organised.
- Diagnostic testing identifying Maths and English support where necessary.

Note:
For further details on assessments, grading criteria, submissions, and resubmissions of assignments, please refer to the BTEC Higher Nationals Centre Guide to Enhanced Quality Assurance and Assessment by BTEC Higher Nationals Centre Guide to Quality Assurance and Assessment (2025-2026)

7. Admission to the Programme

Applicants should normally possess a Level 3 Extended Diploma in Applied Science (minimum grade: MMP), or a minimum of two A-levels (minimum grade: D), or an appropriate T-level, or other equivalent qualifications.

Applicants should also possess five passes at GCSE or equivalent (grades A–C / 9-4), or O-level (grades A–C / 9-4) normally including Mathematics, English Language and Science.

The above requirements are minimum requirements. Gaining a place on the course will also be subject to a successful interview, with an appropriate reference.

Other qualifications and combinations of qualifications will be considered and may be also acceptable (For any enquiry, please contact HE.Admissions@solihull.ac.uk).

Applicants with a minimum of two years' relevant work experience and a current role in an appropriate workplace setting, proven by a Line Manager's letter of support and recommendation, will also be considered.

Mature students with no formal qualifications may be considered if they have excellent communication skills and relevant work experience. This will be subject to a written assessment and interview to assess suitability for the course.

Some candidates are required to attend a personal interview.

Candidates are required to provide a suitable reference.

To encourage widening participation, we will consider offering contextualised admissions to applicants who have experienced barriers to their educational progress. Contextual admissions is a university admissions process that takes into consideration an applicant's individual circumstances and background when reviewing their application, rather than solely focusing on their academic achievements.

8. Programme Resources

- Dedicated Higher Education teaching area.
- Dedicated Higher Education computing area.
- Vocationally relevant equipment.
- Student resource facility for the loan of specialist equipment (e.g. lap top computers, digital cameras, video cameras).
- Well stocked library with frequent review and update of books.
- E-library resources.
- A wide range of external links with industry for student trips or external specialist speakers.

9. Preparation for Employment

Students need both relevant qualifications and employability skills to enhance their career prospects and contribute to their personal development. A range of employability skills are embedded throughout the programme in preparation for employment:

This qualification has been developed by Pearson in conjunction with several stakeholders. Pearson has worked with employers, students, professional bodies, education providers and other experts to design qualifications with the future workforce in mind. Higher National qualifications blend employability skills with academic, business and technical knowledge. They support trainees and apprentices in their Higher Apprenticeships and other technical education programmes, as well as students working towards a degree. Pearson programmes are regularly updated to maintain their high quality and meet the changing needs of the workforce.

Employers contribute to develop of Pearson Higher Nationals in several ways:

- They are involved in every stage of designing the qualifications, from developing the structure and pathways to selecting subjects, developing content and Authorised Assignment Briefs (AABs) and approving qualifications
- They help with delivery of qualifications, for example through vendor accreditation, letters of support and co-badging. Pearson qualifications actively encourage training providers

to work with employers. Work placements and work through learning are key features of BTEC Higher Nationals

- They help us review and update our qualifications to meet Occupational Standards and provide supporting material such as case studies to reflect the world of work.

The Solihull College and University Centre commitment to student employability

This programme is part of Solihull College's commitment to meeting the needs of local, national, and international employers by delivering a diverse range of educational models including parttime and work-based study for learners drawn from non-traditional backgrounds in addition to internal progressions from FE vocational programmes.

As part of this commitment, Solihull College and University Centre will:

- Support students by providing professional, impartial advice and guidance to enable students to make considered career decisions before and during their studies to enable them to be prepared for their future employment and development by:
- Identifying the skills needed for progression into employment,
- enhancing their existing employment prospects.
- Provide subject-related resources and information on local, national, and international labour markets.
- Be responsive to the needs of employers to maximise students' employability and career progression prospects.
- Include study skills which will improve students' academic writing and research capabilities to enable further study and facilitate career progression.
- Support equality and diversity, and minimise barriers to learning, as described in the college's Equality Policy which can be found on the website under Mission and Policies.
- Ensure that employers play a key part in module content, course design and assessment criteria by formally seeking their views through employer forums, staff liaison visits, work experience coordinators, meetings with industry groups, and the use of a specialist employer service researcher to help to ensure that the course content meets industry expectations and requirements.

10.Evaluation of Teaching & Learning

Evaluation of the Standards of Teaching and Learning is undertaken using the results of the following documents.

- Student feedback questionnaires, both initial impressions and the spring survey
- Module review forms completed by students at the end of every module and summarised by the course leader.
- Student input to the Programme Quality Board held twice a year.
- Student representations made through the HE Student Council.
- Action areas fed by the above to the course based Annual Monitoring report.
- Findings of the peer teaching observation scheme and recommendations for improvement that are made.
- External Verifiers report and audit of assessed work.
- Students can submit module evaluation questionnaires which are shared in team meetings and relevant actions raised are included in the Annual Monitoring Review.

- Student Representatives volunteer from each group to bring forward the views of their colleagues informally and within bi-annual programme quality boards (PQB).
- Annual module review in the form of student evaluations which are discussed in a team meeting.
- Periodic programmes review to identify best practice and invite employers to contribute to the design of the programmes.
- Invitation to attend Programme Quality Boards to all students and create a transparent discussion to share ideas, best practice, and areas for improvement.

11. Regulation of Assessment

- The programme is the subject of an Annual Monitoring Review (AMR) the last section of which is a Quality Improvement Plan (QIP), written by the course leader with help and input from the teaching and tutoring team this is passed to the Head of School for audit and from them to the quality unit for further audit and acceptance as part of the College plan.
- Assessment rules and regulations and quality standards are those that are laid down in the Quality standards requirements of the College Academic Board.
- Assessment and assessment vehicles are regulated by the internal verification system for each programme which is itself audited by the quality unit within the College and by the External Verifier appointed by Pearson.
- External verification of assessment and of the provision and standards of teaching are regulated by Pearson and their quality unit, the programme must seek approval for continuance every 5 years. Their requirements are monitored annually by the visit and report of their appointed external verifier (Standards Verifier)
- Also, the programme must comply with the conditions of registration (notably the B conditions surrounding the quality) as set out by the Office for Students (OfS).

Pearson appoints Standards Verifiers (External Examiners).

The role of Standards Verifier is that of moderator. To do this they check and review:

- Action points from previous reports
- Centre assessment policy and boards effectiveness of assignments and internal verification maintenance and audit of assessment records student registration and certification claims
- student support and review
- areas of good practice

Note:
For further details on regulation of assessments, grading criteria, submissions, and resubmissions of assignments, please refer to the BTEC Higher Nationals Centre Guide to Enhanced Quality Assurance and Assessment by clicking online.

12. Progression Opportunities

The Level 4 Higher National Certificate provides a solid grounding in Applied Sciences on which students can build should they decide to continue their studies beyond the Certificate stage.

On successful completion of the Level 4 Higher National Certificate, students can develop their careers in the Applied Sciences sector through:

- Progressing to the Level 5 Higher National Diploma qualifications in Applied Sciences.
- Entering employment.
- Continuing existing employment.
- Linking with the appropriate professional body.
- Committing to Continuing Professional Development (CPD).
- Progressing to university.

Students should always check the entry requirements for Level 5 and Level 6 programmes at specific further education and higher education providers. The skills offered as part of the Pearson BTEC Higher National Certificate can provide graduates with the opportunity to work in many different areas of Applied Sciences.