

Programme Specification:

## Higher National Diploma in Computing for England (Cyber Security)

Awarding Institution:	Pearson Education Ltd.
Teaching Institution:	West Herts College
Teaching department:	Computing
Key contact:	Aria Mirzataraj: <a href="mailto:aria.mirzataraj@westherts.ac.uk">aria.mirzataraj@westherts.ac.uk</a>
Programme accredited by:	Pearson Education Ltd.
Final award:	Pearson BTEC Higher National Diploma in Computing for England
UCAS code:	I160
Campus:	Watford
Ofqual Regulated Qualification Framework (RQF)	
Qualification numbers:	HNC: 610/0580/0 & HND: 610/0581/2
Mode of delivery:	Full-Time 2 Years
Framework for Higher Education Qualification (FHEQ) level of the award:	HNC Level 4 / HND Level 5
Date of last QAA Review:	November 2019

### Educational Aims of the Programme

- The Pearson BTEC Level 4 Higher National Certificate in Computing for England offers students a broad introduction to the subject area via a mandatory core of learning, a unit specialism which is pathway dependent and an optional unit of study; allowing for the acquisition of skills and experience across a range of occupational sectors at Level 4.
- This effectively builds underpinning core skills while preparing the student for subject specialisation at Level 5. Students will gain a wide range of sector knowledge tied to practical skills gained in research, independent and directed study, and workplace scenarios.

Students will be expected to develop the following skills during the programme:

- Core IT skills such as Programming and Networking
- Deeper networking skills such as Cloud Computing and Security
- Deeper security skills such as Cryptography and Forensics
- Applying subject knowledge and understanding to address familiar and unfamiliar problems.

## Criteria for Admission to Programme

Entry requirements - Learners would typically have at least one of the following:

- A BTEC Level 3 qualification in Information Technology or relevant subject
- A GCE Advanced Level profile that demonstrates strong performance in a relevant subject or adequate performance in more than one GCE subject. This profile is likely to be supported by GCSE grades at A\* to D/9 to 3 (or equivalent) for English and maths.
- Other related Level 3 qualifications.
- Related work experience.
- An international equivalent of the above.

## Regulation of Standards

- Assessment conforms to Pearson regulations.
- Internal Verification of assignment briefs and assessment standards
- External moderation of samples of work by External Examiner
- Annual Lead Standards Visit (LSV)
- Annual Examination Boards
- Meets QAA UK standards
- The College's Appeals Policy and Procedure is provided in Appendix A of the Student Handbook which includes the student's rights to appeal to the Office of the Independent Adjudicator.

## Programme Objectives:

- To equip students with computing skills, knowledge and the understanding necessary to achieve high performance in the global computing environment.
- To provide education and training for a range of careers in computing, including network engineering, software engineering, data analytics, security, intelligent systems, and applications development.
- To provide insight and understanding into international computing operations and the opportunities and challenges presented by a globalised market place.

**Practical Skills** - the ability to:

- Create solutions to Networking and Security based problems using IT skills
- Develop practical skills that can be applied by individuals within the workplace.
- Develop organisational skills to respond creatively to assignment briefs, meet dead-lines, and prepare presentations, document research undertaken.
- Display their work confidently and well, using different methods of presentation.
- Use IT as a method of research and a tools to solve problems

**Intellectual Skills** - the ability to:

- Develop visual literacy through 'reading' and understanding a range of visual work.
- Communicate research/ findings effectively and appropriately
- Use research skills obtain and integrate subject specific evidence to formulate test hypothesis
- Use academic protocols to understand and enhance academic writing.
- Give a clear and accurate account of a subject, marshal argument in a mature way and engage in debate and dialogue both with peers and specialists
- Apply and extend communication skills in order to accommodate their own continuing professional development.

**Common / Transferable Skills** - the ability to:

- Manage and develop self
- Work with autonomy while also being capable of relating to and with working efficiently with others
- Communicate effectively orally and in writing
- Communicate effectively with a range of ages, abilities, peers and professionals
- Improved confidence and self esteem
- Apply numeracy
- Apply technology
- Analyse, deconstruct and manage tasks and solve problems
- Apply creativity

## Teaching, Learning and Assessment

### *Teaching and learning*

- Analytic thinking skills are developed through academic protocols, discussion in classroom, assignment work and tutorial sessions.
- Practical skills are an essential component of the programme and are developed through classroom activity, external/ expert demonstration, and independent work and peer/ tutor feedback.
- Common skills such as oral and written communication are developed in group and tutorial sessions, through assignments and practical work.
- All staff have relevant industry experience.

### *Assessment*

Each unit is assessed by individual research and coursework assignments.

- Assessment activities provide major opportunities for learning, including:
  - Peer feedback
  - Creation of IT Solutions
  - Essay, evaluations and assignments

All assessments are delivered through a standard system, which makes the context and the assessment criteria clear. There are regular assessment weeks. Grades accumulate over the year. The External Examiner samples student work and grades. An annual Exam Board considers External Examiner's remarks and finalises all student grades.

## Support for Learning

- Student progression is supported both by subject tutors and also by central college services
- A comprehensive induction introducing new students to the subject, to the course, teaching staff and to the college facilities and support services including Learning Resource Services, Student Support and Additional Learning Support
- College and Course Handbooks available in print and electronic format
- Personal and academic support integrated into teaching provided by approachable lecturers and a programme leader who monitors performance
- Study and research skills integrated into the programme
- Written electronic assignment feedback, within three weeks of assignment submission
- Up-to-date computing facilities and a modern, well-equipped learning spaces

- Highly effective Virtual Learning Environment (CANVAS)
- Access to higher education specific academic support sessions
- Access to Student Support for students with welfare, financial or counselling needs
- Access to Learning Support for students with educational needs
- Access to careers advice and support
- Regular one-to-one tutorials and target setting

## Progression

The Level 4 Higher National Certificate provides a solid foundation in Computing, which students can build on if they decide to continue their studies. The Level 5 Higher National Diploma allows students to further focus on specific career paths and progression routes to degree-level study. On successful completion of the Level 5 Higher National Diploma, students can develop their career in the Cyber Security sector by:

- Entering employment
- Continuing existing employment with the potential for promotion
- Linking with the appropriate Professional Body
- Committing to Continuing Professional Development (CPD)
- Progressing to university. The Level 5 Higher National Diploma is recognised by The University of Hertfordshire

Details of entry requirements for BTEC Higher National graduates into degree programmes at institutions in the UK and internationally can be found on the 'Pearson Degree Course Finder' website. Students should always check the entry requirements for degree programmes at specific Higher Education providers. After completing a Pearson BTEC Level 4 Higher National Certificate or Level 5 Higher National Diploma, students can also progress directly into employment.

## Evaluating & Improving the Quality & Standards of Teaching & Learning

- Regular College student questionnaires in addition to the National Student Survey (NSS)
- Capturing student voice throughout the academic year and at Student Rep meetings
- Annual lesson observation scheme
- Annual Monitoring and Evaluation Report (AMER)
- Good practice in teaching and learning is developed through regular staff development workshops and through staff assisting with internal verification of students' work

- Staff development activities are discussed at annual appraisal interviews and staff are actively encouraged to develop their professional practice through scholarly activity.
- External Examiners reports

Further information about this course can be accessed via the Pearson Programme Specification available at: <https://qualifications.pearson.com/en/qualifications/btec-higher-nationals/computing-for-england-2022.html>

### Programme structure: HND in Computing for England (Cyber Security)

<b>Level 4: HNC in Computing for England (Cyber Security)</b>			
<b>Pearson BTEC Level 4 Higher National Certificate in Computing for England</b>			
<b>Core units</b>	<b>Unit</b>	<b>Level</b>	<b>credits</b>
1	Programming (Core Mandatory)	4	15
2	Networking (Core Mandatory)	4	15
3	Professional Practice (Core Mandatory)	4	15
4	Database Design and Development (Core Mandatory)	4	15
5	Security (Core Mandatory)	4	15
6	Planning a Computing Project (Core Mandatory, Pearson set)	4	15
10	Cyber Security (Specialist Unit Mandatory)	4	15
11	Strategic Information Systems (Optional Unit)	4	<b>15</b>
		<b>Total</b>	<b>120 credits</b>

Qualification credit value: a minimum of 120 credits. This is made up of eight units, each with a value of 15 credits. There is a required mix of Core (mandatory), Specialist and Optional units totalling 120 credits. All units are at Level 4.

Pearson would expect that a HND student would have achieved at least 90 credits at Level 4 before progressing to Level 5 units. This allows for the students to submit the remaining 30 credits at Level 4 while undertaking their Level 5 study.

<b>Level 5: HND in Computing for England (Cyber Security)</b>			
<b>Pearson BTEC Level 5 Higher National Diploma in Computing for England</b>			
<b>Core units</b>	<b>Unit</b>	<b>Level</b>	<b>Credit</b>
<b>16</b>	Computing Research Project (Core Mandatory, Pearson set)	5	30
<b>17</b>	Business Process Support (Core Mandatory)	5	15
<b>29</b>	Network Security (Optional Unit)	5	15
<b>30</b>	Applied Cryptography in the Cloud (Specialist Mandatory)	5	15
<b>31</b>	Forensics (Specialist Mandatory)	5	15
<b>32</b>	Information Security Management (Specialist Mandatory)	5	15
<b>50</b>	Operating Systems (optional Unit)	5	15
		<b>Total</b>	<b>120 credits</b>

The Level 5 Higher National Diploma consists of the Level 4 Higher National Certificate (above) **plus** an additional 120 credits at Level 5.

Qualification credit value: a minimum of 240 credits, of which 120 credits are at Level 5, and 120 credits are at Level 4 and usually attained via the HNC. There is a required mix of Core, Specialist and Optional units totalling 240 credits.

Mapping of HND in Computing for England (Cyber Security) FHEQ Level 5:

Key	
KU	Knowledge and Understanding
CS	Cognitive Skills
AS	Applied Skills
TS	Transferable Skills

The qualification will be awarded to students who have demonstrated:

FHEQ Level 5 descriptor		Computing HND Programme Outcome
Knowledge and critical understanding of the well-established principles of their area(s) of study, and of the way in which those principles have developed	KU1	Knowledge and understanding of the fundamental principles and practices of the contemporary global computing environment.
	KU2	Understanding and insight into different organisations, their diverse nature, purposes, structures and operations and their influence upon the external environment.
	KU3	A critical understanding of the evolving concepts, theories and models within the study of computing across a range of practical and hypothetical scenarios.
	KU4	An ability to evaluate and analyse a range of concepts, theories and models to make appropriate decisions.
	KU5	An appreciation of the concepts and principles of CPD, staff development, leadership and reflective practice as methods and strategies for personal and people development.
	KU6	Knowledge and understanding of vital concepts, principles and theories relating to computing and computer applications, software development, networking and media systems.

FHEQ Level 5 descriptor		Computing HND Programme Outcome
	KU7	Critical understanding of how computer-based technologies interrelate and communicate with one another, support processes and lead to a computerised solution to a problem.
	KU8	Understanding of the application of appropriate mathematical techniques in the design and development of software and computer systems.
	KU9	Critical understanding of the use of industry-standard technical documentation and practices.
	KU10	Develop a range of multi-disciplined programming and coding skills.
	KU11	Deploy appropriate tools, theories, principles and methodologies to analyse, specify, construct, test and evaluate a computer-based system in an appropriate context.
	KU12	An ability to apply industry-standard methods in human-computer interaction to inform the development of usable interfaces.
Ability to apply underlying concepts and principles outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context	AS1	Evidence the ability to show client relationship management and develop appropriate policies and strategies to meet stakeholder expectations.
	AS2	Apply innovative ideas to develop and create new systems or services that respond to the changing nature of organisations.
	AS3	Integrate theory and practice through the investigation and examination of practices in the workplace.
	AS4	Develop outcomes for clients using appropriate practices and data to make justified recommendations.

FHEQ Level 5 descriptor		Computing HND Programme Outcome
	AS5	Apply IT concepts and principles to critically evaluate and analyse complex practical problems and provide IT-based solutions.
	AS6	Apply appropriate computer- based technologies to analyse, develop and maintain reliable software.
	CS1	Deploy appropriate theory, practices and tools in order to analyse, specify, design and implement computing systems and software applications.
	CS2	Recognise and critically evaluate the professional, economic, social, environmental, moral and ethical issues that influence the sustainable exploitation of computer-based technologies.
	AS7	Employ a range of analytical techniques and design tools in the development of secure software.
Knowledge of the main methods of enquiry in the subject(s) relevant to the named award, and ability to evaluate critically the appropriateness of different approaches to solving problems in the field of study.	CS3	Critique a range of systems and operations and their application to maximise and successfully meet strategic objectives.
	KU13	An understanding of the appropriate techniques and methodologies used to resolve real-life problems in the workplace.
	TS1	Develop a skill set to enable the evaluation of appropriate actions taken for solving problems in a specific organisational context.
An understanding of the limits of their knowledge, and how this influences analysis and interpretations based on that knowledge.	TS2	Self-reflection, including self-awareness; the ability to become an effective self-student and appreciate the value of the self-reflection process.
	TS3	Undertake independent learning to expand on own skills and delivered content.

Typically, holders of the qualification will be able to:

FHEQ Level 5 descriptor		Computing HND Programme Outcomes
Use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis.	TS4	Competently use digital literacy to access a broad range of research sources, data and information.
	CS4	Interpret, analyse and evaluate a range of data, sources and information to inform evidence-based decision making.
	CS5	Synthesise knowledge and critically evaluate strategies and plans to understand the relationship between theory and real-world scenarios.
Effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively.	TS5	Communicate confidently and effectively, both orally and in writing, both internally and externally with organisations and other stakeholders.
	TS6	Communicate ideas and arguments in an innovative manner using a range of digital media.
	AS8	Locate, receive and respond to a variety of information sources (e.g. textual, numerical, graphical and computer-based) in defined contexts.
	TS7	Communicate effectively, verbally and in writing and articulate well-defined issues, for a variety of purposes, taking into account the audience viewpoint.
	TS8	Demonstrate strong interpersonal skills, including effective listening and oral communication skills, as well as the associated ability to persuade, present, pitch and negotiate.
Undertake further training, develop existing skills and acquire new competences that will enable them to assume significant responsibility within organisations	TS9	Identify personal and professional goals for continuing professional development in order to enhance competence to practise within a chosen computing field.
	TS10	Take advantage of available pathways for continuing professional development through higher education, Professional Body Qualifications and Vendor Accredited Certifications.

Holders will also have:

FHEQ Level 5 descriptor	Computing HND Programme Outcomes	
The qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making.	TS11	Develop a range of skills to ensure effective team working, independent initiatives, organisational competence and problem-solving strategies.
	TS12	Show an ability to work as a member of a development team, recognising the different roles within a team and the different ways of organising teams.
	TS13	Reflect adaptability and flexibility in approach to work; showing resilience under pressure and meeting challenging targets within given deadlines.
	TS14	Use quantitative skills to manipulate data, evaluate and verify existing theory.
	TS15	Show awareness of current developments within the computing industry and their impact on employability and CPD.
	TS16	Manage small to medium scale projects using appropriate planning and time management techniques.
	CS6	Evaluate the changing needs of the business environment and have confidence to self-evaluate and undertake additional CPD as necessary.
	TS17	Display emotional intelligence and sensitivity to diversity in relation to people and cultures.



Unit	Knowledge and Understanding													Cognitive skills						Applied skills								Transferable skills																
	1	2	3	4	5	6	7	8	9	10	11	12	13	1	2	3	4	5	6	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
24	X	X	X	X		X			X		X							X			X	X	X				X	X	X	X	X	X	X		X		X		X		X	X		
25	X	X	X	X		X			X		X			X	X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X		X		X	X	X
26	X		X			X	X		X	X	X			X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
27	X		X			X			X		X			X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X	X	
28	X		X	X		X	X		X	X	X	X		X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
29	X		X			X			X		X			X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
30	X	X	X	X		X	X		X	X	X	X		X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X		X	X		
31	X		X	X		X	X		X		X			X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
32	X		X	X		X	X		X	X	X	X		X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X	X	
33				X	X		X	X																		X	X	X	X					X	X	X		X	X	X				
34	X	X	X	X	X	X			X		X		X	X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
35	X	X	X	X		X			X		X			X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
36	X		X			X	X		X	X	X			X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
37	X		X			X			X		X			X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
38	X	X	X	X		X	X		X	X	X	X		X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
39	X	X	X	X	X	X			X					X		X	X				X	X	X				X	X	X	X	X	X	X		X		X		X		X	X		
40	X	X	X	X		X	X		X	X	X	X		X		X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X		X	X	X	
41	X		X			X		X	X	X	X			X		X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
42	X	X	X	X		X			X		X		X	X	X	X	X				X	X	X	X			X	X	X	X	X	X	X		X		X	X	X	X	X		X	X
43	X	X	X			X			X	X	X			X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
44	X		X	X		X	X		X	X	X			X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
45	X	X	X		X	X			X		X			X	X	X	X	X									X	X	X	X	X	X	X		X		X		X		X	X		
46	X		X	X		X	X		X	X	X	X		X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
47	X		X	X		X	X		X	X	X	X		X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		
48	X	X	X			X			X		X			X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X	X	X	X	X		X	X		
49	X		X			X	X		X	X	X			X		X	X		X	X	X	X	X	X			X	X	X	X	X	X	X		X		X	X	X		X	X		



## Transferable skills mapping

### Level 5 Higher National Diploma in Computing for England (Cyber Security): mapping of transferable employability and academic study skills

Skill Set	Cognitive skills							Intra-personal Skills				Interpersonal Skills		
	Problem Solving	Critical Thinking/Analysis	Decision Making	Effective Communication	Digital Literacy	Numeracy	Creativity	Plan/Prioritise	Self-Management	Independent Learning	Self-Reflection	Team Work	Leadership	Cultural Awareness
1	X	X	X		X		X	X	X		X			
2	X	X	X		X		X	X	X	X	X			X
3		X	X	X			X	X	X	X	X	X	X	X
4	X	X	X		X	X	X	X	X	X	X			
5	X	X	X		X			X	X	X	X			
6	X	X	X	X	X		X	X	X	X	X	X	X	X
7	X	X	X		X	X		X	X	X	X			
8	X	X	X	X	X	X	X	X	X	X	X			
9	X	X	X	X	X	X	X	X	X	X	X	X	X	
10	X	X	X	X	X		X	X	X	X	X		X	
11	X	X	X			X		X	X	X				
12	X	X	X		X	X		X	X	X	X			
13	X	X	X	X	X		X	X	X	X	X		X	
14		X	X	X	X		X	X		X	X			X
15	X	X	X	X	X	X	X	X	X	X	X			
16	X	X	X	X	X	X	X	X	X	X	X			
17	X	X	X	X	X			X	X	X	X		X	X

Skill Set	Cognitive skills							Intra-personal Skills				Interpersonal Skills		
	Problem Solving	Critical Thinking/Analysis	Decision Making	Effective Communication	Digital Literacy	Numeracy	Creativity	Plan/Prioritise	Self-Management	Independent Learning	Self-Reflection	Team Work	Leadership	Cultural Awareness
18	X	X	X			X		X	X	X	X			
19	X	X	X	X	X	X	X	X	X	X	X		X	
20	X	X	X		X	X	X	X	X	X	X			
21	X	X	X			X	X	X	X	X	X			
22	X	X	X	X	X	X	X	X	X		X			
23		X		X	X	X			X	X	X			
24	X	X	X		X	X	X	X	X	X	X			
25	X	X	X	X	X			X	X	X	X		X	
26	X	X	X	X	X	X	X	X	X	X	X			
27	X	X	X	X	X	X	X	X	X	X	X		X	
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X
29	X	X	X	X	X		X	X	X	X	X	X	X	X
30	X	X	X	X	X	X	X	X	X	X	X		X	
31	X	X	X	X	X		X	X	X	X	X	X	X	X
32	X	X	X	X	X	X	X	X	X	X	X	X	X	X
33	X	X	X		X	X	X	X	X	X	X			
34	X	X	X	X	X		X	X	X	X	X	X	X	X
35	X	X	X	X	X			X	X	X	X			
36	X	X	X	X	X		X	X	X	X	X			
37	X	X	X	X	X		X	X	X	X	X			

Skill Set	Cognitive skills							Intra-personal Skills				Interpersonal Skills		
	Problem Solving	Critical Thinking/Analysis	Decision Making	Effective Communication	Digital Literacy	Numeracy	Creativity	Plan/Prioritise	Self-Management	Independent learning	Self-Reflection	Team Work	Leadership	Cultural Awareness
38	X	X	X	X	X		X	X	X	X	X	X	X	
39	X	X	X	X	X		X	X	X	X	X	X	X	X
40	X	X	X	X	X		X	X	X	X	X	X	X	X
41	X	X	X	X	X		X	X	X	X	X	X		
42	X	X	X	X	X			X	X	X	X		X	
43	X	X	X	X	X		X	X	X	X	X		X	X
44	X	X	X	X	X	X	X	X	X	X	X			
45		X	X	X	X				X	X	X			X
46	X	X	X	X	X	X	X	X	X	X	X	X	X	X
47	X	X	X	X	X		X	X	X	X	X	X	X	X
48	X	X	X		X			X	X	X	X			
49	X	X	X		X		X	X	X	X	X	X	X	
50		X	X	X	X			X	X	X	X			
51	X	X	X	X	X		X	X	X	X	X		X	X
52	X	X	X	X	X	X	X	X	X	X	X		X	X
53	X	X	X	X	X		X	X	X	X	X		X	X
54	X	X	X	X	X		X	X	X	X	X	X		

