

## Programme specification

*(Notes on how to complete this template are provided in Annexe 3)*

### 1. Overview / factual information

<b>Programme/award title(s)</b>	FD Computing
<b>Teaching Institution</b>	Middlesbrough College
<b>Awarding Institution</b>	The Open University
<b>Date of first OU validation</b>	2018
<b>Date of latest OU (re)validation</b>	2024
<b>Next revalidation</b>	2028/29
<b>Credit points for the award</b>	240
<b>UCAS Code</b>	A144
<b>HECoS Code</b>	100366
<b>LDCS Code (FE Colleges)</b>	CB.
<b>Programme start date and cycle of starts if appropriate.</b>	September 2024
<b>Underpinning QAA subject benchmark(s)</b>	<a href="#">Computing (2022)</a>
<b>Other external and internal reference points used to inform programme outcomes. For apprenticeships, the standard or framework against which it will be delivered.</b>	<ul style="list-style-type: none"> <li>• <a href="#">Level 4 Software Developer Apprenticeship Standard</a></li> <li>• <a href="#">Level 4 Network Engineer Apprenticeship Standard</a></li> <li>• <a href="#">QAA Characteristics Statement: Higher Education in Apprenticeships</a></li> <li>• <a href="#">QAA Characteristics Statement: Foundation Degree</a></li> <li>• <a href="#">Framework for Higher Education Qualifications</a></li> <li>• <a href="#">QAA Quality Code</a></li> <li>• <a href="#">SEEC Credit Level Descriptors for Higher Education</a></li> </ul>
<b>Professional/statutory recognition</b>	N.A.
<b>For apprenticeships fully or partially integrated Assessment.</b>	Partially.
<b>Mode(s) of Study (PT, FT, DL, Mix of DL &amp; Face-to-Face) Apprenticeship</b>	FT/PT Face-to Face
<b>Duration of the programme for each mode of study</b>	FT: 30 weeks PT: 40 weeks
<b>Dual accreditation (if applicable)</b>	N.A.

**Please note: 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.**

**More detailed information on the learning outcomes, content, and teaching, learning and assessment methods of each module can be found in student module guide(s) and the students handbook.**

**The accuracy of the information contained in this document is reviewed by the University and may be verified by the Quality Assurance Agency for Higher Education.**

<b>Date of production/revision of this specification</b>	2024
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## 2. Programme overview

### 2.1 Educational aims and objectives

The overall aims of the programme are to:

- Develop students' enthusiasm for computing technologies;
- Develop students' abilities to realise technical/creative goals through networking and programming;
- Develop students' ability to understand relationships between networking, security and programming concepts;
- Develop students' awareness of the applications for computing in different contexts;
- Involve students in an intellectually stimulating and satisfying experience of learning and studying computing;
- Provide students with a broad and detailed understanding of key computing concepts and technologies;
- Develop students' ability to utilise a range of study methods in the study of computing;
- Provide a sector-relevant syllabus for practitioners, or for those aiming for employment in the computing industry, in areas of networking, security, programming and the web industry;
- Develop students' enthusiasm, aptitudes and interests to bring out their full potential;
- Produce graduates with the sector-relevant skills, knowledge, understanding and professional attitudes required to contribute to - and find/create employment in - the computing industry;
- Develop an understanding of the legal, social, ethical and professional issues involved in the use of computer technologies with respect to professional practice;
- Develop students to become independent learners.

## 2.2 Relationship to other programmes and awards

(Where the award is part of a hierarchy of awards/programmes, this section describes the articulation between them, opportunities for progression upon completion of the programme, and arrangements for bridging modules or induction)

This programme is not directly linked to any others. However, a BSc (Honours) Computing [Top-Up] programme will be available as a progression option for students (subject to validation).

2.3 For Foundation Degrees, please list where the 60 credit work-related learning takes place. For apprenticeships an articulation of how the work based learning and academic content are organised with the award.

### 2.3 Work-Related Learning at Level 4

The Work-Related Learning at Level 4 takes place in the 20-credit module Work Environment and Reflective Practice in which students explore modern computing industries both regionally and UK-wide focusing on the skills required, and careers available, for the various sectors of interest. The module aims to help students to identify their niche within the computing industry and to evaluate the skills they will need to realise their career goals. In all modules, students are encouraged continually to evaluate their career aims and aspirations in the light of their ongoing learning and industry trends.

### 2.4 Work-Related Learning at Level 5

The Work-Related Learning at Level 5 takes place in the 40-credit modules Level 5 Emerging Technology Project. In the Emerging Technology Project, students are provided with the opportunity to work on an industry-focused project that follows industry standard workflows and deadlines. The projects are provided by local employers and the programme team. The module aims to give students a taste of the role assignment, structures, workflows and deadlines they can expect when working in the computing industry. In the module Level 5 Emerging Technology Project, students have the opportunity to explore in greater detail, the career niche they identified at Level 4 and which they have continued to re-evaluate. Students make contact with companies, organisations, explore potential project of value. This activity is used to ensure that the project they choose to pursue is both relevant– and will be presented in a manner appropriate to the computing sector of choice.

## 2.4 List of all exit awards

Cert. HE Computing [120 Credits]

Foundation Degree Computing [240 Credits]

Compulsory modules	Credit points	Is module compensatable?	Semester runs in
Iterative Project Development	20	Y	Year Long
Introduction to Website Development	20	Y	Year Long
Database Design and Development	20	Y	Year Long
Network Fundamentals	20	Y	Year Long
Programming Fundamentals	20	Y	Year Long
The Work Environment and Reflective Practice	20	Y	Year Long
			[1-30 FT]
			Year Long
			[1-40 PT]

Intended learning outcomes at Level 4 are listed below:

<u>Learning Outcomes – LEVEL 4</u>	
3A. Knowledge and understanding	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<b>A1:</b> Demonstrate an understanding of technical concepts for a range of computing disciplines.	<b>A1:</b> Lectures, demonstrations, computer lab sessions and tutorials are used to demonstrate a range of concepts and techniques used across various aspects of computing. Sessions offer a mixture of practical exercises and lectures in order to develop comprehensive advanced knowledge and skills tested in the summative assessments. Formative assessments include exercises, scenarios and practical lab sessions where <i>ad hoc</i> feedback is provided.

<b><u>Learning Outcomes – LEVEL 4</u></b>	
<b>3A. Knowledge and understanding</b>	
<p><b>A2:</b> Demonstrate an understanding of techniques and processes using appropriate hardware and software tools to meet programming, databases, networking, iterative project management and web development goals.</p>	<p><b>A2:</b> Lectures, demonstrations, computer lab sessions and tutorials are used to demonstrate advanced techniques in: application development, use of hardware/software tools for penetration testing and data analysis. Sessions offer a mixture of practical work and lectures in order to provide ample opportunity for formative feedback prior.</p>
<p><b>A3:</b> Identify and apply the key fundamental principles of programming language paradigms.</p>	<p><b>A3:</b> Tutorials and computer lab sessions include practical exercises that allow students to practice and develop fundamental programming techniques. Sessions provide an opportunity for formative feedback and allow students to work individually and in groups to solve programming problems. Feedback is provided to allow students to adapt and develop their solutions following an iterative model. Summative assessment allows students to demonstrate and understanding of programming techniques through the development of a programme that meets a given scenario.</p>
<p><b>A4:</b> Understand and utilise a range of research methods to investigate career opportunities in, and the skills requirements of, an industry sector.</p>	<p><b>A4:</b> Computer Lab sessions, group seminars and one-to-one tutorial sessions are provided to facilitate students in applying the skills of research/enquiry-based approaches to exploring employment opportunities in the computer industry in the context of independent study.</p>

3B. Cognitive skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>B1:</b> Recognise, interpret and evaluate database and web development technologies.</p>	<p><b>B1:</b> Computer lab-based lectures, practical sessions and tutorials are designed to facilitate discussion and feedback (in both group and one-to-one settings) using a range of theory-based exercises. These sessions are used to help students: explore industry standard database management systems and web standards and frameworks; investigate the features of relational databases; make judgements on the applications of different database management systems; and draw conclusions for future practical web projects. In summative assessments, students demonstrate understanding in the form of a written report.</p>
<p><b>B2:</b> Research, analyse and compare key current models, frameworks, standards, and methodologies used in modern computing fields and apply knowledge through experimentation and use of appropriate software.</p>	<p><b>B2:</b> Classroom-based lectures and tutorials are designed to facilitate discussion and feedback (in both a group and one-to-one settings) using a range of theory-based research exercises. These sessions are used to help students explore and experiment with industry standards, frameworks and methodologies in the field of computing. Summative assessment demonstrates achievement of this outcome in the form of a report and/or practical artefact.</p>
<p><b>B3:</b> Use abstraction and decomposition to solve complex problems.</p>	<p><b>B3:</b> Tutorials and practical sessions allow students to solve problems and produce algorithms that produce accurate solutions. Students have the opportunity to receive formative feedback on their progress and are given time to reflect and assess on the solutions that they have provided. In summative assessments, students demonstrate they can decompose, problem-solve and provide suitable planning and testing documentation.</p>
<p><b>B4:</b> Develop techniques to avoid logical errors in programs.</p>	

3B. Cognitive skills	
<p><b>B5:</b> Analyse career opportunities and recognise the skill sets required through the use of appropriate planning techniques.</p>	<p><b>B4:</b> In Computer Lab sessions, students tackle practical and written exercises - in groups or individually - designed to use abstraction and decomposition to solve a range of programming problems. All exercises are facilitated providing ample opportunities for formative feedback. Additional one-to-one tutorial support is provided. Summative assessments allow students to report upon their understanding of abstraction and decomposition and to demonstrate their ability to solve programming problems.</p> <p><b>B5:</b> Classroom and seminar sessions develop students' research skills, focussing on research tools and techniques. Students analyse, apply and interpret their research findings from a variety of sources in order to reach valid and reasoned conclusions and formulate development plans. Students are guided by the module tutors to explore a wide range of career opportunities.</p>
3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>C1:</b> Analyse and assess the requirements of network technologies and protocols for a modern network design through the use of simulation software.</p> <p><b>C2:</b> Design, develop and document a professional solution using a range of techniques, frameworks and appropriate standards.</p>	<p><b>C1:</b> Network Lab sessions explore the fundamentals of network communication through manufacturer documentation and case studies which are designed to help students design networks using design and simulation tools. These activities culminate in summative assignments in which students evaluate networks and report upon their own network design.</p> <p><b>C2:</b> Tutorials and practical sessions explore and develop students' understanding of software development and web skills and how these skills can be used to solve problems logically and correctly. Summative</p>

3C. Practical and professional skills	
<p><b>C3:</b> Produce a project plan and project documentation.</p> <p><b>C4:</b> Act with limited autonomy, utilise reflective practice and maintain ethical standards in the collection and use of information.</p> <p><b>C5:</b> Design, create, test, evaluate a programmed solution and create appropriate documentation with originality whilst demonstrating practical understanding.</p>	<p>assessments allow students to demonstrate they can produce documentation and a working artefact.</p> <p><b>C3:</b> Classroom-based lectures and tutorials are designed to facilitate discussion and feedback (in both a group and one to one settings) using a range of exercises. These sessions are also used to help students: explore project planning; risk analysis; the production of professional quality project documentation; project management and cost analysis.</p> <p><b>C4:</b> Classroom sessions focus upon the importance of awareness of - and adherence to – ethical considerations when carrying out research. The strategy is designed to encourage a progressive acquisition of subject knowledge and skills by moving from study methods that have a greater degree of support and assistance towards more independence and self-direction. Students are also provided with the task of finding, reviewing and presenting current articles based around the topics covered in each session.</p> <p><b>C5:</b> Tutorials and computer lab sessions include practical exercises that allow students to practice and develop the fundamental programming techniques and generate professional quality documentation. Originality of solution will also be explored by considering multiple solutions to the same problem, allows students to explore different uses of programming constructs. Sessions provide an opportunity for formative feedback as students work individually and in groups to solve programming problems. Summative assessment allows students to demonstrate an understanding of programming techniques through the development of a programme that meets a given scenario.</p>



3D. Key/transferable skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>D1:</b> Demonstrate an awareness of professional, ethical and legal issues for solution development whilst using a range of appropriate software development tools.</p> <p><b>D2:</b> Apply logical and numeracy skills to calculate values and budgets and to allow for greater programming functionality.</p> <p><b>D3:</b> Exercise personal responsibility and decision-making, including time management and organisational skills.</p> <p><b>D4:</b> Justify solutions to problems through the production of key design documentation and in presentations to peers.</p>	<p><b>D1:</b> Students develop their awareness of professional, ethical and legal issues while completing their work in a mix of practical and tutorial-based sessions.</p> <p><b>D2:</b> Tutorials and practical sessions allow students to develop logical reasoning and numeracy skills which in turn allow students to perform complex calculations and develop logical constructs. The development of these skills allows students to apply numerical skills and logical skills to both programming and project management. Summative assessment allows students to demonstrate the practical applications of these skills.</p> <p><b>D3:</b> Classroom-based lectures and tutorials are designed to facilitate discussion and feedback (in both a group and one-to-one settings) using a range of theory-based exercises and practical exercises. These sessions are used to help students: make decisions around the content of the projects to be created; implement methods of time management; and investigate a variety of organisational skills to help with the design and development of the projects.</p> <p><b>D4:</b> In addition to lectures, learners are given to opportunity to explore network scenarios in practical sessions that focus upon justifying solutions using professional criteria. Throughout the process, learners are given formative feedback.</p>

3D. Key/transferable skills	
<p><b>D5:</b> Demonstrate a wide range of interpersonal, communication, English Language, research and planning skills to enhance employment opportunities.</p>	<p><b>D5:</b> Understanding of the practical application of key concepts relating to reflective practice and research is developed through formal lectures and seminars. Students are guided by module tutors to explore organisations and seek opportunities. This activity is supported through educational visits and input from guest speakers. Students are supported to reflect upon their current strengths and areas for development and how they impact upon their capacity to engage with the type of employers and opportunities in which they are interested. Formative assessments and class exercises allow students to receive feedback on the skills they are developing, in addition, tutorials also assist in identifying further development needs. Tutorials will also allow students the opportunity to develop the ability to communicate their work to specialist and a diverse range of non-specialist audiences. Tuition and guidance for students needing support with particular writing skills - i.e. essay, report, short or extended writing - are provided. Tutors will also provide opportunities for students to develop their English skills and refine their written and oral skills. Providing this opportunity to develop and refine their English skills will allow for stronger communication skills which will enhance their employability.</p>
<p><b>D6:</b> Utilise reflective practice techniques to formulate a skills development plan based upon an analysis of the career opportunities in, and the skills requirements of, the Computing industry.</p>	<p><b>D6:</b> Classroom and seminar sessions develop students' research skills, focussing on research tools and techniques. Students analyse, apply and interpret their research findings from a variety of sources in order to reach valid and reasoned conclusions and formulate development plans. Students are guided by the module tutors to research different organisations and opportunities through the introduction of simple research methods.</p>

<b><u>Programme Structure - LEVEL 5</u></b>					
<b>Compulsory modules</b>	<b>Credit points</b>	<b>Optional modules</b>	<b>Credit points</b>	<b>Is module compensatable?</b>	<b>Semester runs in</b>
Internet of Things	20			Y	Year Long
Client-Server Scripting	20			Y	Year Long
Cyber Security and Digital Forensics	20			Y	Year Long
Object Orientated Programming	20			Y	Year Long
Emerging Technology Project	40			N	Year Long [1-30 FT] Year Long [1-40 PT]

**Intended learning outcomes at Level 5 are listed below:**

<b><u>Learning Outcomes – LEVEL 5</u></b>	
<b>3A. Knowledge and understanding</b>	
<b>Learning outcomes:</b>	<b>Learning and teaching strategy/ assessment methods</b>
<b>A1:</b> Analyse contemporary security issues in computing systems.	<b>A1:</b> Network Lab lectures and practical sessions provide ample opportunity to reinforce knowledge and understanding through demonstration of cyber security threats. A range of attack vector mitigation techniques are explored, discussed and demonstrated through facilitated lab sessions.
<b>A2:</b> Utilise a range of techniques and processes using appropriate hardware and software tools to meet programming and client-server scripting goals.	<b>A2:</b> Computing Lab-based lectures - which include written, diagramming, group and individual work – explore solutions to scenario-based problems. Sessions provide ample opportunity for ongoing one-to-one demonstrations, formative feedback and tutorial support. Some sessions are used for one-to-one feedback relating to the first assignment. Summative assessment is a programmed solution for a specific problem.
<b>A3:</b> Justify the use of technologies underpinning connected devices and methods of mitigating security risks.	<b>A3:</b> In Computer Lab sessions, students explore module topics through worked examples/exercises. Sessions provide opportunities to explore connected system technologies, web interfaces, APIs and security issues. This activity is supplemented by formative feedback and tutorial support. Summative assessment includes a group and individual reports in which students' designs and evaluate connected systems.
<b>A4:</b> Research, critically review, select and apply methodologies and skills in the development of technical and/or creative goals.	<b>A4:</b> Group Seminars and one-to-one tutorial sessions are provided to help students critically to review and select methods to develop of technical and/or creative goals in the context of independent study.

<b><u>Learning Outcomes – LEVEL 5</u></b>	
<b>3A. Knowledge and understanding</b>	
<p><b>A5:</b> Implement network security technologies/protocols/appliances and secure wireless network planning and design.</p> <p><b>A6:</b> Recognise the benefits of the MVC software architectural pattern for server-side development.</p>	<p><b>A5:</b> Lectures and practical sessions are used to explore module topics through student investigations, worked examples/exercises and the application of design and simulation tools. Sessions provide opportunity to design networks with security in mind. This activity is supplemented by formative feedback and tutorial support. Summative assessment is via presentations and report writing as well as through the design of a logical network.</p> <p><b>A6:</b> Computer Lab sessions feature demonstrations to help students grasp both theoretical concepts and their implementation. Students demonstrate their understanding and develop their skills through facilitated, problem-based exercises (both written and practical). Some problems are tackled by individuals, others are given to teams of students. The sessions provide ample opportunity for both formal and informal tutorials and <i>ad hoc</i>, formative feedback.</p>
<b>3B. Cognitive skills</b>	
<b>Learning outcomes:</b>	<b>Learning and teaching strategy/ assessment methods</b>
<p><b>B1:</b> Analyse, interpret and apply a range of programming concepts to realise a specific goal.</p>	<p><b>B1:</b> Computing Lab-based lectures include written, diagramming, group and individual exercises resulting in the production of multiple solutions to scenario-based problems. Sessions provide ample opportunity for ongoing one-to-one demonstrations, formative feedback and tutorial support. Some sessions are used for one-to-one feedback relating to</p>

3B. Cognitive skills	
<p><b>B2:</b> Evaluate the risks that cyber threats pose to an organisation and ways of preventing/minimising their impact.</p>	<p>assignments. Summative assessment is a programmed solution for a specific problem.</p> <p><b>B2:</b> Lectures and practical sessions explore and demonstrate fundamental concepts relating to computer networks and the threat posed by cyber security breaches. Students analyse scenarios and use simulation software to design a secure, logical network diagram (wired/wireless) to help analyse the requirements and characteristics of a modern secure business computer network. Students also analyse scenarios and use simulation software to design logical network diagrams. Sessions provide ample opportunity for learners to practice and discuss common cyber-attacks and the way in which they function, with a view to minimising a network attack and protecting data. Related real world exercises will provide opportunities for demonstrations and 1-2-1 tutor support and formative feedback.</p>
<p><b>B3:</b> Analyse user requirements gained from various techniques.</p>	<p><b>B3:</b> Tutorials and practical sessions facilitate students to design solutions to problems. Students have the opportunity to receive formative feedback on their progress and they will be given time to reflect upon and assess their own they develop. Through summative assessments, students demonstrate decomposition, problem-solving, planning/testing and appropriate documentation.</p>

3B. Cognitive skills	
<p><b>B4:</b> Analyse and apply theoretical knowledge and understanding to plan and design a secured wireless network.</p>	<p><b>B4:</b> Lectures and practical sessions explore and demonstrate fundamental concepts relating to computer networks and the threat posed by cyber security breaches. Students also analyse scenarios and use simulation software to design a secure, logical network diagram (wired/wireless) to help analyse the requirements and characteristics of a modern secure business computer network. Students also analyse scenarios and use simulation software to design a logical network diagram. Sessions provide ample opportunity for learners to practice and discuss common cyber-attacks and the way in which they function, with a view to minimising a network attack and protecting data. Related real world exercises will provide opportunities for demonstrations and 1-2-1 tutor support and formative feedback.</p>
<p><b>B5:</b> Critically evaluate and test the extent to which a programmed solution meets the criteria defined for its current use and future development.</p>	<p><b>B5:</b> Computer Lab sessions utilise group and individual written, diagramming and practical exercises. In exploring OOP techniques, students explore multiple solutions to the same problem and evaluate each to compare efficacy. Students also explore techniques to evaluate pseudo code to assist in reaching conclusions about optimal solutions. Sessions provide ample opportunity for ongoing one-to-one demonstrations, formative feedback and tutorial support. Some sessions are used for one-to-one feedback relating to the first assignment. Tutorials are also provided to guide students to find their own solution to challenging problems related to their design of an OOP.</p>
<p><b>B6:</b> Research an aspect of emerging technology and choose appropriate tools/methods for its investigation whilst demonstrating intellectual flexibility and openness to new ideas.</p>	<p><b>B6:</b> Group seminars and one-to-one tutorial sessions facilitate students to identify an aspect of emerging technology and choose appropriate</p>

3B. Cognitive skills	
	tools/methods for its investigation whilst demonstrating intellectual flexibility and openness to new ideas.
3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>C1:</b> Design and test secure network/application solutions using appropriate protocols/methodologies based on given criteria.</p> <p><b>C2:</b> Develop a range of programmes, web applications and constructs that meet a specific goal.</p> <p><b>C3:</b> Work with increasing autonomy, using initiative and with reduced need for supervision.</p>	<p><b>C1:</b> Lab sessions include a range of scenario exercises, using simulation software and programming IDEs to provide opportunities for learners to create and test various logical models and networks. Session discussions and practical exercises form a basis upon which learners practice and demonstrate skills. Practical sessions provide a means of providing 1-2-1 support and feedback prior to summative assessments.</p> <p><b>C2:</b> Computer Lab-based sessions include practical exercises that provide students with the opportunity to edit and programme a range of solutions with increasing autonomy. Several sessions are used to provide opportunities to complete practical work associated assignments. Some sessions are used for one-to-one feedback relating to the first assignment. Summative assessment is via a question paper in which some questions require students to undertake practical work in the computer labs.</p> <p><b>C3:</b> Group seminars and one-to-one tutorials help students to work with increasing autonomy, to find solutions to challenging problems and to use initiative to develop independent study.</p>



3D. Key/transferable skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>D1:</b> Produce and deliver professional and effective documentation refining English Language skills to enhance communication skills.</p> <p><b>D2:</b> Use a range of communication methods and technologies to prepare, deliver, and evaluate a presentation to peers.</p> <p><b>D3:</b> Use specialist hardware and software, where appropriate to the elected study area.</p> <p><b>D4:</b> Reflect systematically on performance to further develop learning.</p>	<p><b>D1:</b> Students receive feedback on their draft reports in formal tutorials. Students capture the process of designing developing and testing applications and projects in an online blog. Blogs are used to inform a written, evaluative reports.</p> <p><b>D2:</b> In preparation for presentations to peers, students practice presenting information in lectures and Network Lab sessions in exercises requiring them to explain network scenarios to peers. Extensive feedback is given on students' formative presentations of the proposed study.</p> <p><b>D3:</b> Computer Lab-based practical sessions include practical exercises that provide students with the opportunity to use all available hardware and software to meet their goals. Several sessions are used to provide opportunities to complete practical and written work. Some sessions are used for one-to-one feedback relating to assignments. Summative assessment includes questions that require students to undertake practical work in the computer labs.</p> <p><b>D4:</b> Students reflect upon their project work by completing a development diary in the form of an online bog to which the project supervisor has access. The blog is used to inform students' final reports.</p>

#### 4. Distinctive features of the programme structure

- **Where applicable, this section provides details on distinctive features such as:**
  - where in the structure above a professional/placement year fits in and how it may affect progression
  - any restrictions regarding the availability of elective modules
  - where in the programme structure students must make a choice of pathway/route
- **Additional considerations for apprenticeships:**
  - how the delivery of the academic award fits in with the wider apprenticeship
  - the integration of the 'on the job' and 'off the job' training
  - how the academic award fits within the assessment of the apprenticeship

##### 4.1 Rationale

As a vocational foundation degree, the programme focuses upon increasing students' employability through a focus on the skills required across the computing industry focussing on Cyber Security, Networking/Network Security, and Programming/Web Technologies. In addition to entering the job market, successful completion of this programme provides the opportunity to enrol on an associated BSc (Hons) Computing [Top-Up] programme.

##### 4.2 Programme Structure

A significant feature of the programme structure is the duration of all modules: all are delivered in year-long mode. There are many reasons for delivering modules over the academic year rather than completing in a single semester. Firstly, most modules involve the use of industry standard hardware, and/or software development tools. Students need to become proficient in their use and a year-long module delivery provides this opportunity.

More generally, year-long modules help to maintain students' focus upon learning and teaching and less upon assessment especially in the first half of the academic year. Practical assessment is completed at the end of the year, allowing students maximum time to develop their understanding and use of the practical requirements. A year-long delivery model is also better suited to students requiring more support and guidance and is helpful in developing independent learners.

##### 4.3 Virtual Desktop Infrastructure

Another significant feature of the programme is that all learners are offered access to all software products used on the programme through remote access to the VDI (Virtual Desktop Infrastructure) free of charge as part of the programme. This will provide students with remote access to all software used within the course, this means there is no expectations that's students will have any software of their own. There is an expectation that the students will have access to a standard desktop computer or laptop in order to access this. However there are many opportunities for the students to use computers within the college campus. Students have access to shared open work space within the HE building and also the LRC in the main building. They also have access to the classrooms within the Digital Building when not in use.

Students are able to make use of the following specialist software as part of their course:

- Adobe suite

- Android Studio
- Microsoft Visual Studio
- IDLE
- Packet Tracer
- Virtual Box
- Kali Linux

#### 4.4 Part-Time Mode

Part-time students can opt to study the course over a 2-year period utilising an extended academic year. In response to local market demand, the College offers part-time modes of delivery for some of its programmes that enable students to complete their studies in a 40-week period. The key features of the part-time mode are:

- Each stage of the programmes starts in September and concludes at the end of July.
- This allows an additional 10 weeks of delivery per academic year when compared to the full-time mode.
- The additional 10-week window is to allow an extended period of time for part-time students to complete the project or work-based element of the programme.
- All part-time students receive formal scheduled teaching sessions (FST) each week that cover all of the taught elements of the programme of study.
- Academic Support (AS) sessions for part-time students are supported via the VLE for a proportion of their learning. The approach to managing this is as follows:
  - each programme of study is allocated hours for FST and AS;
  - AS hours for part-time students are delivered via the VLE;
  - students are allocated tasks and activities designed to build on the content delivered in FST sessions;
  - part-time students are expected to complete these tasks away from the College;
  - a window for completion of the tasks is set to allow students time to refer to tutors/peers as required with a specified response time allocated;
  - staff are allocated a time in the week (usually an evening) when they will be available to respond to posted requests for help as well as engage in on-line discussions.

#### *Support for Part-Time Students*

To ensure that all part-time students can engage with the delivery model, the following support will be made available:

- Initial support and guidance during induction to ensure that part-time students are able to log-on to the VLE and understand the relevant aspects required to support their engagement in remote AS sessions.
- Information - both on the VLE and in the part-time Student Handbook - to guide students through the process of log-on and use of the various sections.
- Lap-top loans for students that encounter technical difficulties or do not have access to a computer at home.
- Technical help to support students when not at the College.

#### *Help for Staff supporting Part-Time Students*

Staff are supported in working with part-time students as follows:

- Staff are allocated time during teaching weeks to manage AS sessions.
- Staff development is provided to ensure staff make best use of the VLE for the delivery of AS sessions.
- Mentor support from the Associate Director HE (Learning and Teaching) is ongoing.

#### 4.5 Apprenticeship Delivery

Offering the part time model allows for apprenticeship students to engage in the modules within a realistic time frame within their studies. The AS using the VLE also allows apprenticeship students the option for remote access as and when required. The use of labs, practical sessions and tutorials will provide the practical aspects required for their job role. The incorporation of core industry skills will allow for the development of the necessary skills for them to utilise within the workplace.

### **5. Support for students and their learning**

*(For apprenticeships this should include details of how student learning is supported in the workplace)*

#### 5.1 Induction

The following activities are provided in induction week:

- students are introduced to the VLE and any other communication/file sharing tools necessary
- students are given two taster sessions for Level 4 modules to give them a feel for the course and to get them creating computing content quickly
- alumni speak to new students about their experience of the programme and specifically address what students need to do to achieve a Distinction
- a representative from the Student Union helps to elect student representatives.

#### 5.2 Engagement Support

Engagement is monitored closely to ensure that all students are getting the best from the programme. Should a student need to miss a session for any reason, they are required to contact the lecturer beforehand. Where a lecturer notes that a student has not attended with no prior warning, the student is contacted at the end of the session, asking if the student is well and reminding the student that they are required to let lecturers know if they cannot attend.

Where a student misses three consecutive sessions, the year tutor also contacts the student with an invitation to attend a formal meeting. Where attendance problems persist, the year tutor works with the College student support staff who, where necessary, direct students to the relevant confidential support (personal, financial, etc). Where students are facing difficulties, it is vital to ensure they get the right support and

where necessary, decide to withdraw or suspend as the timing of any withdrawal/suspension can affect their student loan.

### 5.3 Tutorial Support

Student tutorial opportunities are embedded in all sessions. Theory sessions are structured to provide input followed by practical experimentation, the results of which can then be fed back into spontaneous tutorials in further sessions. Formative and summative feedback tutorials are also embedded into each module and feedback tutorial sessions are listed in module guides. Students are asked to log their practical activity, which is used as the basis of regular tutorials with their year tutor.

### 5.4 Pastoral Tutors

In addition to standard duties the level 4 pastoral tutor provides sessions towards the end of the academic year to prepare students for study at level 5. The level 5 pastoral tutor offers return to study sessions at which students are encouraged to:

- reflect on their performance at level 4
- develop support strategies for level 5
- determine the highest award classification that is attainable
- develop strategies to achieve this best outcome.

The programme team have all attended staff development sessions relating to Asperger's and dyslexia (attendance at many of these sessions is mandatory). For students with dyslexia, staff offer dyslexia-friendly versions of lecture notes and include a higher-contrast background on notes/session plans. Students declaring either condition receive a formal assessment after which the programme team are advised on the steps they must take.

### 5.5 Encouraging Completion

One of the significant advantages offered by the programme is the amount of time students are given by module tutors. This is due to the relatively small number of students and the mode of delivery discussed above. There are, therefore, plenty of opportunities to give formative feedback and emphasise the importance of submitting on time.

### 5.6 Reassessment Period

Tutorials are provided for students offered reassessment and the facilities remain available.

### 5.7 Module compensation

All programme modules other than Emerging Technology Project may be compensated. Each student may be compensated to the value of 20 credits per level.

### 5.8 Academic Support and Skills

The delivery of many modules is based upon individual sessions that consist of demonstrations and practical exercises. This delivery strategy ensures that theory is always applied, that practical skills, knowledge, and understanding are regularly checked, and that formative feedback is continuous rather than focussed at specific points in the academic year.

In addition to in-session help, students can also make appointments to get support from:

- members of the programme team: module leaders, lecturers, and technicians;
- the programme leader and year tutors.

The personal tutoring system is in place to support a student's full engagement with their programme of study and gain as much as possible from their time at the College. Though the emphasis is on academic support the meetings are also an opportunity to raise pastoral issues which may be having an impact on a student's academic performance. Tutors can offer support and advice and, if required, direct students to further support services available within the College which they may find of value. Student learning and personal development is supported throughout all years of study, and explicitly in modules such as Work Environment and Reflective practice in which students are introduced to self reflection and managing their own personal development and practice. This is further supported by the personal tutor system. The development of generic academic skills is supported by these same modules via teaching/learning and assessment. The modules focus on research, presentation, acquisition of knowledge, planning, and collaboration to various degrees of emphasis. The development of written work is embedded widely throughout the programme as specified in module specifications.

#### 5.9 Technical Support

The specialised labs and facilities containing relevant equipment are supported by excellent technician staff. They ensure that equipment is used and maintained appropriately and oversee all the health and safety and risk management concerns. Students can log IT support requests via the [HALO system](#).

#### 5.10 Programme Documentation and Online Learning Support

Students are provided with programme and module guides that contain comprehensive information on how their programme and modules are structured and delivered. These documents are also available to students throughout each academic year (and for the duration of their registration) via the College Virtual Learning Environment (VLE). All teaching and learning content is made available via the VLE. This online resource includes lecture notes and a range of audio/video materials. Assessments are communicated to and submitted by students using the VLE.

#### 5.11 Supporting Learning in the Workplace for Apprentices

Scheduled teaching and learning are facilitated via regular sessions relating to each of the modules on the programme. Theoretical knowledge is developed in order that students test their understanding and develop their skills in the workplace. Students are asked to log their successes, failures, and queries as they work to inform further sessions/tutorials with module leaders and year tutors. Employers are advised to assign a workplace mentor to each apprentice and where they are appointed they are supported with twice yearly mentorship development sessions by the programme leader. Learning is expected to occur in the workplace, however, teaching is not. There is no expectation for employers and/or workplace mentors to teach, that is covered by module leaders on the programme. Technical support in the workplace is expected and required for apprentices to develop. The apprentice experience is therefore equitable with the experience of a 'non-apprenticeship' student, who receives theoretical teaching and learning support via module sessions and access to College resources which are



available to utilise with technical support. The above is discussed with employers who are interested in enrolling an apprentice on the programme.

#### 5.12 Virtual Learning Environment (VLE)

Every programme uses the College VLE which is a key resource to support student learning as well as engagement with the programme and the College in general. All teaching materials and general course information is backed up on the VLE, ensuring that students can access what they need when they need it. The VLE is also used as a portal to other sources of support. Students can access the programme of informal workshops designed to support their learning, including: improving writing style and referencing, planning assignments, developing critical thinking and other key skills. All elements of the VLE are checked for accessibility to ensure inclusion throughout all resources.

#### 5.13 Library and Learning Resources

Students can access a range of resources through the College Learning Resource Centre (LRC) and associated online services. Online services are listed in the background document for this programme. Students can access specific sessions with the LRC staff with regard to advanced academic and research skills. This activity is introduced as part of the induction sessions at the start of each year but can be revisited again throughout the year through refresher sessions.

#### 5.14 Additional Learning Support

Any student that considers that they have, or may have, additional learning support needs can access a range of support through the College. Initial assessments by the College HE Student Support and Participation Coordinator are provided to support understanding of the range of support that may be needed which then triggers the provision required.

#### 5.15 Student Services

All students are able to access the College student services which are based in the Dock Street building which has its own reception and drop in facilities. As well as general advice about the College, the student services team also provide: counselling, financial support, learning support and signposting to additional or partner services.

#### 5.16 HE Student Areas

All HE students have areas in the College that are exclusively for their use. In the main HE building, all HE students have access to the HE open-plan working space, which has access control to retain its exclusivity.

#### 5.17 The Fitness Studio

All students are entitled to free membership of the Fitness Studio. The Techno Gym equipped facility, provides a range of cardiovascular and resistance exercise equipment. Together with the latest innovations in IT wellness programme monitoring, students can engage in regular exercise in a friendly and easily accessible environment. Support and guidance are available during opening hours from experienced staff.

#### 5.18 Other Facilities

The College has a wide range of other facilities which students can access either free

of charge or at subsidised or nominal rates. Examples include:

- 156 seat theatre which produces several performances throughout the year many of which are free for students to attend
- hair salon providing low cost services
- beauty Spa facility which offers
  - jacuzzi, light therapy sauna and steam room, flotation room, 39 private treatment rooms and nail bar
- Fully equipped recording studios and control rooms.

#### 5.19 Digital Building

This programme makes use of both the HE building for delivery and also the dedicated Digital Building which contains labs, classrooms and all specialist equipment for the successful delivery of Digital courses from Level 1 to 6. The specialist classrooms contain industry standard equipment which has been selected and developed based on the requirements from industry to best fit their needs for a smooth transition from education to employment. Each room is sponsored by a digital employer and they invest time and support into the courses through their engagement with Digital Advisory Boards and also workshops and guest speakers. Developing this strong link with employers not only prepares the students for transition into employment but also offers links and contacts for their own professional networking.

#### 5.20 Laptop Scheme

Middlesbrough College's MC Click scheme provides all HE students with a Microsoft Surface to assist with their studies. Students who complete the laptop scheme for 2 years get to keep the device. Any student who leaves within 2 years is required to return the device to the College.

#### 5.21 EDI Statement

At Middlesbrough College we strive to ensure equality, diversity and inclusion in every aspect of our provision. We recognise and appreciate individual uniqueness and believe it should be embraced. We foster a culture where every individual feels supported, valued, respected and accepted regardless of their age, race, ethnicity, disability, gender identity or expression, sexual orientation, religion, or any other characteristic which makes them who they are.

Every programme reflects our commitment to create an inclusive environment where each individual has equal opportunities to achieve and succeed. Discriminatory practice, unconscious biases and systemic barriers are challenged and eliminated. We will continue to develop a learning environment where we celebrate diversity, treat everyone with respect, dignity and fairness.

## **6. Criteria for admission**

*(For apprenticeships this should include details of how the criteria will be used with employers who will be recruiting apprentices.)*



#### **6.1 Admission Criteria – Year 1**

To enrol on this programme, applicants should have achieved 48 UCAS tariff points, or equivalent, from an appropriate Level 3 qualification (NVQ 3, BTEC Award or A Level) as well as GCSE passes at Grade 4 (C) or equivalent in English and Maths. Relevant subjects include Computing and IT.

The Non-Standard Entrants Process (NSEP) encompasses the mechanism via which programme leaders can recommend to an RPL panel that applicants without the standard entry qualifications should be admitted to an HE programme at the normal point of entry without module exemption due to experience, ability, or other factors evidencing their readiness for HE study. In these cases, a recommendation is made to an RPL panel for consideration, including evidence.

#### **6.2 Admission Criteria - Direct Entry to Year 2**

Applications are considered for direct entry to year 2 of the programme, in all cases applicants are referred to [the College RPL policy](#).

All applicants require qualifications in English Language and Mathematics to at least GCSE level 4 or have demonstrated adequate skills and competencies in an interview (for example, functional skills assessment).

### **7. Language of study**

English

### **8. Information about non-OU standard assessment regulations (including PSRB requirements)**

N.A

### **9. For apprenticeships in England End Point Assessment (EPA)**

*(Summary of the approved assessment plan and how the academic award fits within this and the EPA)*

#### **9.1 SOFTWARE DEVELOPER**

The EPA plan for the two methods of assessment:

- Work-based project with questioning
- A professional discussion underpinned by a practical portfolio

The list below shows the primary areas of activity and how they are assessed in the EPA:

- Project Management (Professional Discussion)
- Software Requirements (Professional Discussion)
- System Life Cycle and all stages (Professional Discussion)
- Developing Programmed Solutions (Work Based Project)

- Project Documentation (Work Based Project)
- Professionalism (Professional Discussion)

Mapped to Modules:

- Project Management (Module: Iterative Project Development/Emerging Tech Project)
- Software Requirements (Module: Iterative Project Development/Programming Fundamentals/ Object Orientated Programming)
- System Life Cycle and all stages (Module: Iterative Project Management/ Emerging Tech Project)
- Developing Programmed Solutions (Module: Programming Fundamentals/ Object Orientated Programming/ Client Server Scripting)
- Project Documentation (Module: Database Design and Development/ Programming Fundamentals/ Object Orientated Programming/ Client Server Scripting)
- Professionalism (Module: The Work Environment and Reflective Practice/ Emerging Tech Project)

## 9.2 NETWORK ENGINEER

The EPA plan for the two methods of assessment:

- Simulated assessment and questioning
- A professional discussion underpinned by a practical portfolio

The list below shows the primary areas of activity and how they are assessed in the EPA:

- Network Management (Simulated Assessment)
- Risk Management (Professional Discussion)
- Project Management (Professional Discussion)
- Maintaining Appropriate Documentation (Professional Discussion)
- Professionalism (Professional Discussion)

Mapped to Modules:

- Network Management (Module: Network Fundamentals/ Cyber Security and Digital Forensics)
- Risk Management (Module: Network Fundamentals/ Cyber Security and Digital Forensics/ Iterative Project Management)
- Project Management (Module: Network Fundamentals/ Cyber Security and Digital Forensics/ Iterative Project Management/ Emerging Tech Project)
- Maintaining Appropriate Documentation (Module: Network Fundamentals/ Cyber Security and Digital Forensics/ Iterative Project Management/ Emerging Tech Project)

- Professionalism (Module: The Work Environment and Reflective Practice/  
Emerging Tech Project)

### 9.3 Assessment

Practical assessment is embedded within the modules which will allow students appropriate opportunity to develop a rich and wide-ranging portfolio. This portfolio will demonstrate the practical skills gained and the underpinning knowledge required to effectively produce artifacts and respond to project briefs and requirements, which is appropriate for the computing industry. This portfolio will form the basis of the discussion. The assessment plan has been designed in such a way to allow for maximum opportunity for the students to develop skills inline with the EPA.

## **10. Methods for evaluating and improving the quality and standards of teaching and learning**

### 10.1 College HE Teaching and Learning

The College has recognised the importance of having a distinct approach to HE teaching and learning for over ten years. The first HE specific Learning and Teaching process was introduced in 2009. Subsequent reviews and updates in 2011 and 2014 have enhanced the process to reflect the aims of the [UK Professional Standards Framework](#) and prepared the College to meet the expectations of the [Teaching Excellence Framework](#).

Many of the innovations established in the evolution of this process have been subsumed into the current Cross-College Learning and Teaching model for all levels, including a non-graded observation process. The underlying principle is to place the student at the centre of the process to ensure that their learning and attainment of learning outcomes drives the process. Underpinning this has been a focus on ensuring that lecturing staff are fully engaged in the process to match outcomes to professional discussion and peer review. These approaches have been further refined to form part of the College departmental review process.

### 10.2 Observation of Teaching and Learning (OTL)

The OTL process for HE provision has been contextualised to reflect the differences between HE and FE. The OTL process for FE courses is based upon the expectations of the Common Inspection Framework, whereas the HE model is aligned to the expectations of the [UKPSF](#) and the [TEF](#). Central to the process is the student as an independent learner, developing their academic skills as they progress through their academic career.

The College model distinguishes between different levels of study and differing abilities of the students. At Level 4, teaching staff take a lead role in the student learning process, but as students progress, the balance gradually evolves so that the students become leaders/co-leaders of learning. To facilitate this model, student learning and reflection may not take place at the same time as content delivery, making it difficult for an observer to see the product of the model. To work around this, the OTL process for HE lessons is based on mapping the observation of the session to the scheme of work and planned assessment tasks.

The outcome of the OTL forms the basis of a professional discussion with a Teaching and Learning mentor as well as with members of the HE teaching team, to ensure that good practice is shared across the College. Any trends identified from OTL reports or staff feedback are used to inform relevant CPD activity.

### 10.3 Feedback from Students

Another input to the process of evaluating and improving the quality and standards of teaching and learning is feedback from students. Feedback emerges through several routes. The most significant is through module evaluation questionnaires. In addition to five-point Likert scale questions, students are asked to state 'what worked and what could be improved' regarding any aspect of the module. The results and comments from the module evaluation questionnaires feed into module reports. Over the past twelve years this student feedback has been vital in informing the major and minor modifications the programme has undergone. Student feedback is also collected from induction surveys, the Student Reps, the NSS and in both formal and *ad hoc* tutorials.

### 10.4 Staff Workforce Development

Improving the quality and standards of teaching and learning is also a focus of the internal and external workforce development (WFD) sessions. Academic staff attend a range of internal and external staff development events aimed at improving teaching and learning. The academic year 20/21 saw the introduction of Teaching Innovation Groups (TIG).

### 10.5 Staff New to HE

All staff new to teaching HE at the College are required to hold a relevant degree and a PGCE as part of the terms of their employment. A higher degree is desirable for all staff and for those teaching Level 6, holding a relevant level 7 qualification or the commitment to study for one is essential. Staff new to teaching HE at the College receive initial tailored CPD to help them to make the transition including:

- An HE induction session;
- An HE assessment, marking, and feedback session;
- A number of HE specific developmental observations.

### 10.6 Ongoing Subject and Pedagogic Development

All HE teams share resources and good practice via the HE Staff Room located in the University Centre. The area is set up to encourage HE staff from across the College to meet, both formally and informally, to share good practice and discuss ideas and approaches to module and programme design and delivery. All teaching staff are supported by more experienced members of the team who act as mentors. In addition, cross-college learning and teaching mentors, made up of advanced practitioners, provide 1:1 support to teams as well as tailored CPD sessions. The College has a research and scholarly activity procedure which encourages and supports staff to maintain and annually update both pedagogical and subject expertise.

### 10.7 HE Digital Champion

The College is focussed on providing the highest quality online provision to enhance programmes delivered face to face. Each department has been allocated a 'digital champion', who is an expert practitioner using Microsoft 365 for teaching and learning. Digital champions are the first point of contact for any staff member requiring support with online teaching and learning, and they regularly provide in person and online

sessions tailored to the specific requirements of staff. Digital champions are managed by the College Director of Digital Innovation who holds regular cross-college meetings where information/updates are shared to be passed on to departments.

#### 10.8 Staff CDP

Staff are encouraged to engage in CPD to enhance the delivery of the subjects, whether that is subject specific upskilling or teaching and learning. Staff are encouraged and supported with undertaking new courses or industry specific skills development. Funding is available yearly for staff CPD to undertake further HE qualifications and time is allocated for that work within their weekly contact. A number of the team have had time and funds to complete further HE qualifications to assist in the delivery of the qualification.

#### 10.9 Staff Research

The college have a Research Group that meet regularly to explore research opportunities and support in the writing and publications of research papers. Two of the delivery team for this course have had papers published and are presenting them at an upcoming conference. Staff are supported in this endeavour and given time and resources to complete the work and also resources to attend and present at the conference. The most recent paper is titled "Revolutionizing Vehicle Damage Inspection: A Deep Learning Approach for Automated Detection and Classification" to the 9th International Conference on Internet of Things, Big Data and Security (IoTBDs 2024). The submitted paper aims to explore the use of deep learning algorithms to automate the process of vehicle damage detection and classification. The paper focused on three main deep learning architectures: Convolutional Neural Networks (CNNs), Generative Adversarial Networks (GANs), and Deep Neural Networks (DNNs). The results of the experiment revealed significant differences in the performance of the CNN, DNN, and GAN models. The CNN model achieved the highest accuracy rate, at 91%, followed by the DNN model at 84%. The GAN model achieved a more modest accuracy rate of 78%. These findings contribute to the advancement of vehicle damage detection technology and have important implications for industries, policymakers, and researchers interested in deploying state-of-the-art solutions for faster and more precise identification of various levels of damage and their severity.

### **11. Changes made to the programme since last (re)validation**

Incorporation of Apprenticeship content with some updating for modules:

- Iterative Project Development
- Internet of Things
- Cyber Security and Digital Forensics

Annexe 1: Curriculum map

Annexe 2: Curriculum mapping against the apprenticeship standard or framework (delete if not required.)

Annexe 3: Notes on completing the OU programme specification template

## Annexe 1 - Curriculum map

This table indicates which study units assume responsibility for delivering (shaded) and assessing (✓) particular programme learning outcomes.

Level	Study module/unit	Programme outcomes																						
		A1	A2	A3	A4	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5	D6			
4	Iterative Project Development	x	x				x		x				x	x			x	x						
	Introduction to Website Development	x		x		x							x		x	x				x				
	Database Design and Development	x	x			x		x				x					x	x						
	Networking Fundamentals	x	x				x			x	x								x					
	Programming Fundamentals			x	x			x	x			x			x	x	x							
	Work Environment and Reflective Practice				x					x				x						x	x			

Level	Study module/unit	Programme outcomes																						
		A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	C1	C2	C3	D1	D2	D3	D4				
5	Emerging Technologies Project				x							x	x			x		x	x	x				
	Client Server Scripting		x				x	x		x					x		x			x				
	Cyber Security and Digital Forensics	x		x		x			x		x			x			x		x					
	Object Orientated Programming		x		x			x				x		x	x		x							
	Internet of Things	x	x	x		x			x	x	x				x	x		x						

## Annexe 2 - Curriculum mapping against the apprenticeship standard

This table indicates which study units assume responsibility for delivering (shaded) and assessing (✓) particular knowledge, skills and behaviours.

### Software

Level	Study module/unit	Apprenticeship standard																																							
		K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	K11	K12	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	B1	B2	B3	B4	B5	B6	B7	B8	B9		
4	Iterative Project Development	x	x	x	x	x	x		x												x	x							x												
	Introduction to Website Development														x								x												x						
	Database Design and Development										x																				x			x			x				
	Networking Fundamentals																																								
	Programming Fundamentals						x	x		x		x		x		x	x	x	x	x				x	x				x	x		x									
	Work Environment and Reflective Practice						x							x															x			x		x		x	x	x	x	x	
5	Emerging Technologies Project	x		x																											x						x		x		
	Client Server Scripting								x						x	x							x		x					x	x										
	Cyber Security and Digital Forensics																																								
	Object Orientated Programming	x		x				x		x		x	x	x			x	x	x	x			x	x	X	x	x	x	x	x	x							x			
	Internet of Things	x	x				x									x	x				x	x													x	x					

## Networking – Knowledge

Displayed in two tables due to quantity of standards and readability.

Level	Study module/unit	Apprenticeship standard																														
		K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	K11	K12	K13	K14	K15	K16	K17	K18	K19	K20	K21										
4	Iterative Project Development					x	x					x																				
	Introduction to Website Development																															
	Database Design and Development																															
	Networking Fundamentals	x	x	x	x		x		x	x	x	x			x	x	x	x	x	x		x										
	Programming Fundamentals																															
	Work Environment and Reflective Practice																															
5	Emerging Technologies Project																															
	Client Server Scripting													x																		
	Cyber Security and Digital Forensics	x						x					x		x		x	x	x	x	x											
	Object Orientated Programming																															
	Internet of Things													x	x							x	x									



## Networking – Skills and Behaviours

Level	Study module/unit	Apprenticeship standard																																						
		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	B1	B2	B3	B4	B5	B6	B7	B8											
4	Iterative Project Development							x		x	x			x	x		x	x				x	x	x	x	x			x											
	Introduction to Website Development																																							
	Database Design and Development																																							
	Networking Fundamentals					x	x		x	x	x	x	x							x																				
	Programming Fundamentals																																							
	Work Environment and Reflective Practice							x		x						x	x						x	x					x											
5	Emerging Technologies Project														x							x	x		x		x	x	X											
	Client Server Scripting									x																														
	Cyber Security and Digital Forensics	x	x	x	x		x		x											x	x																			
	Object Orientated Programming																																							
	Internet of Things																																							

### Annexe 3: Notes on completing programme specification templates

- 1 - This programme specification should be mapped against the learning outcomes detailed in module specifications.
- 2 – The expectations regarding student achievement and attributes described by the learning outcome in section 3 must be appropriate to the level of the award within the **QAA frameworks for HE qualifications**:  
<http://www.qaa.ac.uk/AssuringStandardsAndQuality/Pages/default.aspx>
- 3 – Learning outcomes must also reflect the detailed statements of graduate attributes set out in **QAA subject benchmark statements** that are relevant to the programme/award: <http://www.qaa.ac.uk/AssuringStandardsAndQuality/subject-guidance/Pages/Subject-benchmark-statements.aspx>
- 4 – In section 3, the learning and teaching methods deployed should enable the achievement of the full range of intended learning outcomes. Similarly, the choice of assessment methods in section 3 should enable students to demonstrate the achievement of related learning outcomes. Overall, assessment should cover the full range of learning outcomes.
- 5 - Where the programme contains validated **exit awards** (e.g. CertHE, DipHE, PGDip), learning outcomes must be clearly specified for each award.
- 6 - For programmes with distinctive study **routes or pathways** the specific rationale and learning outcomes for each route must be provided.
- 7 – Validated programmes delivered in **languages other than English** must have programme specifications both in English and the language of delivery.