

Programme Specification amendment notification

Title of Programme: Degree Apprenticeship – Digital & Technology Solutions Professional

Programme Code: CMDADATS

As a result of the ongoing Coronavirus pandemic, the University has been required to make some revisions to this programme for the 2020/21 academic session, affecting sections C and/or D of this Programme Specification. These amendments are as follows:

Section	Amendment
D. Programme Structures, Features, Levels, Modules, and Credits	Unseen written examinations will not be returning for the semester A which typically runs from September to January each academic year. Use of alternative methods such as Online Timed Assessments and quizzes that incorporate several features to create valid assessments. There will be practice quizzes through the module prior to any assessment using the Canvas quiz.
	The School has revised the assessment structure where unseen examinations and practical sessions were key sections of the assessment. The practical sessions will still take place but not be mandatory in the assessment for the final grade in order to protect any student as a result of national Covid guidelines e.g. lockdown and self-isolation. The modules show AW which means there has been a change to Assessment Weighting where weighting is the percentage amount of the assessment, whether coursework or exam or practical, contributes to the overall grade of the module. CS means there has been a Change to the Semester the module is being taught on due to other issues.
	The table below shows the structure for the modules in Semester A 2020 2021 at all levels 4, 5 ,6 and 7 where appropriate. Table 1a in the Programme Specification module assessment structure will be replaced where applicable with the structures shown below for the affected AW and CS modules.

Level 5 2020 2021

2020-21 Programmes	Module Title	Module Code	Coursework %	Exam %	Practical %	Semester	Credit Points	DMD Change: AW = assessment weighting CS = Change Semester
CMDADATS	Advanced Database Topics (DTS)	5COM1085	100	0	0	A	15	AW
CMDADATS	Algorithms and Data Structures (DTS)	5COM1072	100	0	0	A	15	AW

Level 6 2020 2021

2020-21 Programmes	Module Title	Module Code	Coursework %	Exam %	Practical %	Semester	Credit Points	DMD Change: AW = assessment weighting CS = Change Semester
CMDADATS	Network Protocols and Architectures (DTS)	6COM1071	100	0	0	A	15	AW
CMDADATS	Object Oriented Development (DTS)	6COM1069	100	0	0	A	15	AW
CMDADATS	Software Engineering Practice (DTS)	6COM1070	100	0	0	A	15	AW

Associate Dean of School (Academic Quality Assurance):

Signature



School of Engineering and Computer Science

Title of Programme: Degree Apprenticeship – Digital & Technology Solutions Professional

Programme Code: CMDADATS

Programme Specification

This programme specification is relevant to students entering:

21 September 2020

Associate Dean of School (Academic Quality Assurance):

Susan Murray



Signature

A programme specification is a collection of key information about a programme of study (or course). It identifies the aims and learning outcomes of the programme, lists the modules that make up each stage (or year) of the programme, and the teaching, learning and assessment methods used by teaching staff. It also describes the structure of the programme, its progression requirements and any programme-specific regulations. This information is therefore useful to potential students to help them choose the right programme of study, to current students on the programme, and to staff teaching and administering the programme.

Summary of amendments to the programme:

Section	Amendment
Table 1a-j to 1a-k	Final year project modules (6COM1077, 6COM1078, 6COM1079 and 6COM1076) offered also as one semester-only option in Semester C

If you have any queries regarding the changes please email AQO@herts.ac.uk

Programme Specification Degree Apprenticeship – Digital & Technology Solutions Professional

This programme specification (PS) is designed for prospective students, enrolled students, academic staff and potential employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content for each module can be found in Definitive Module Documents (DMDs) and Module Guides.

Section 1

Awarding Institution/Body	University of Hertfordshire
Teaching Institution	University of Hertfordshire
University/partner campuses	College Lane campus
Programme accredited by	The Tech Partnership
Final Qualification	BSc Honours
All Final Award titles (Qualification and Subject)	BSc Honours Digital & Technology Solutions (Cyber Security Analyst) BSc Honours Digital & Technology Solutions (Data Analyst) BSc Honours Digital & Technology Solutions (Network Engineer) BSc Honours Digital & Technology Solutions (Software Engineer)
FHEQ level of award	6
UCAS code(s)	n/a
Language of Delivery	English

A. Programme Rationale

“Degree Apprenticeships combine university study and workplace learning to enable apprentices to gain a full bachelor’s degree. This provision of an academic undergraduate degree is integrated with experience, practice and further learning in the workplace. An apprentice has full-time (minimum 30 hours / week) paid employment status and does not pay any training costs or student fees. Degree Apprenticeships are co- designed by employers ensuring that apprentices are equipped with the skills employers need and for their own future career” (The Future Growth of Degree Apprenticeships, Universities UK, March 2016).

The Standard and Assessment Plan for the Degree Apprenticeship in Digital and Technology Solutions have been designed by employers in the “Digital Industries” (or Information Technology) sector.

The Degree Apprenticeship for the occupation Digital and Technology Solutions Professional at the University of Hertfordshire leads to a BSc (Honours) in Digital and Technology Solutions.

In accordance with the Apprenticeship Standard, the programme consists of “core” content taken by all apprentices, amounting to approximately 70% of the total, and specialist content that amounts to the remaining 30%. Each student is enrolled on a course leading to one of four specialist awards. Each of the four specialisms is introduced as part of the core and, if this is taken into account, the split is nearer to 60% core and 40% specialism.

The specialisms are designed to provide occupational competency for four specific job roles:

- Software Engineer
- Cyber Security Analyst
- Data Analyst
- Network Engineer

These roles are quite broad and actual job titles may be different⁶. In fact, because of the core plus specialism model, graduates will be equipped for a broad range of careers in related occupations within the Digital Industries (IT industry or in IT departments).

IMPORTANT NOTE: Although there are four specialist awards specified in this document, they will not all necessarily be offered for any one cohort of students. The availability of each specialism is subject to negotiation with employers on behalf of prospective students. This programme specification does not commit the School of Computer Science to make all specialisms available for any particular cohort. Please contact the School for further information.

B. Educational Aims of the Programme

A Degree Apprenticeship programme integrates the provision of undergraduate degree level academic knowledge, understanding and skills with the opportunity to contextualise this provision in the workplace and thus to develop occupation competency at a professional level in specific job roles.

The programme has been endorsed (accredited) that it meets the Degree Apprenticeship Standard by an employer panel under the aegis of the Tech Partnership. The programme has been designed to meet this employer-led national Standard and to follow the associated Assessment Plan, as well as being referenced to the QAA Subject Benchmarking Statement for Computer Science, 2016 and other academic standards. Apprentices, who are in permanent full-time professional employment, are also learning in the workplace in a structured fashion, supported by both the university and the employer. In addition, the programme has been developed with the assistance of a range of local employers to ensure it meets the needs of the region.

The programme draws on the School's existing BSc Honours degree in Computer Science and Information Technology, which is a very well-established and highly popular degree programme, both for applicants to the programme, and for employers seeking to recruit its graduates. Teaching is informed by both the research strengths of the School of Computer Science and its long-standing links with business and industry through such activities as student placements and consultancy.

In addition to academic development, the programme also recognises the importance of developing students' professional and civic character, as articulated through the University's Graduate Attributes. The programme has been devised in accordance with the University's graduate attributes of programmes of study as set out in [UPR TL03](#).

Additionally this programme aims to:

- develop a range of cognitive abilities and practical skills relevant to the successful design, development, implementation, and evaluation of digital technology-enabled solutions to business problems, and relevant to the application of these solutions in a variety of application domains;
- develop a range of cognitive abilities and practical skills relevant to the management of the development of digital solutions as above;
- appreciate the legal, social, ethical, environmental, and professional issues involved in the development and application of digital technologies;
- acquire high level skills in analysis, critical thinking, entrepreneurial and problem-solving to enable long term career development and progression at a professional level;
- develop occupational competency in one of four roles: as a Software Engineer, Cyber Security

- Analyst, Data Analyst, or Network Engineer – or in a closely related role;
- gain direct real-world experience of operating in one of these roles within a business environment;
- develop a range of transferable skills including communication, cogent presentation of ideas and arguments, with independent and team working; and to practise these skills within a team-based, project-centred curriculum and in the workplace.

C. Intended Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the areas shown below in the table, “Programme Learning Outcomes”. The programme outcomes are referenced to the following:

- Degree Apprenticeship Standard for the Occupation: Digital and Technology Solutions Professional (and also the related Assessment Plan) – cross-referenced as “AS” in the table;
- QAA subject benchmark statement for Computing (2016) – cross-referenced as “SBS” in the table;
- Framework for Higher Education Qualifications in England, Wales and Northern Ireland (revised in 2014).

These programme outcomes relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education (2010) have been used as a guiding framework for curriculum design.

As a degree apprenticeship, the programme integrates the learning outcomes required for an academic degree with those defined by employers as an occupational standard for specific (but broadly based) job roles.

In addition, the programme provides opportunities for students to develop all of the University’s Graduate Attributes i.e.

- Professionalism, employability and enterprise
- Learning and research skills
- Intellectual depth, breadth and adaptability
- Respect for others
- Social responsibility

Knowledge and Understanding	Teaching and learning methods	Assessment strategy
A1: The underlying principles of scientific & computational thinking that underpin computer science including the application of the scientific method to problem solving, the use of modelling techniques, and the complexity of interactions between agents, both humans and programmed systems. [SBS: i, ii, iv]	Computer-related cognitive skills are developed partly through academic study and partly through the workplace. Typically knowledge, understanding and intellectual skills are taught at the University with students putting them into context and appreciating their relevance through applying them at work. The University will work closely with the employer in this regard.	Computing-related cognitive skills (including knowledge and understanding) are assessed by the University as follows. At level 4, A1 – A5 are assessed primarily through a combination of coursework and in-class tests, with some unseen examinations.
A2: Knowledge and understanding of the essential facts, theories and principles relevant to the engineering of	Throughout, the learner is encouraged to undertake independent study both to supplement and consolidate what is being taught/learnt and to broaden their individual	Assessments concentrate on specific topics within a

technology solutions including information systems, systems development, data management, cyber security, IT project management, and computer/ network infrastructure. [SBS: iii], [AS]

A3: Appreciation of the context within which technology solutions are deployed including business organisation, meeting business requirements and recognising practical constraints. [SBS: v]

A4: Ability to deploy recognised methodologies and tools for the specification, design, development, test, implementation, support and critical evaluation of computer-based systems. [SBS: vi, vii]

A5: Recognition of the wider considerations involved for professional practice, including the legal, social, ethical, professional and environmental issues. [SBS: viii]

Additionally for the Software Engineering specialist award

A6: The engineering principles behind all stages of the software development process including requirements, analysis, design, development, and the provision of security robustness. [AS]

Additionally for the Cyber Security Analyst specialist award

knowledge and understanding of the subject.

In particular, Work Based Learning (WBL) is deployed within many of the modules, typically as work-based projects or other directed assignments.

Acquisition of knowledge and understanding is through a combination of lectures, small group tutorials, supervised computer laboratory sessions, online material, and guided self-study, as well as WBL. In addition, assessed coursework plays an important part in the learning process.

Throughout the course there is a partnership between the employer and the university, established via contractual agreement. The employer will provide learning support for the individual apprentice e.g. through a “mentor” and may, in some cases, contribute material such as case studies and guest lectures for the cohort.

Throughout the course, material is integrated by means of the DTS-specific modules (see Section 1D, *Programme Structure*), relating different topics through the core themes.

At level 4, A1 – A5 are introduced via specific topics, mostly through classroom teaching. Tasks will in general concentrate on building proficiency and confidence at the topic level, and students will not be expected to work at the systems level without considerable support.

A1 is specifically addressed in the module 4COM1051, while A3 and A5 are introduced through the module 4COM1054.

At level 5, additional topics addressing A1 – A5 will be introduced using the same teaching methods as at Level 4; in addition, WBL will be progressively introduced.

provided framework, rather than on substantive integrative tasks.

At level 5, A1 – A5 will be assessed through a more “balanced” combination of coursework, in-class tests, and unseen examinations.

Assessments will begin to include more substantial elements of team-work, especially in the modules 5COM1075 and 5COM1079, with elements of project work and thus more substantial assessment tasks are completed.

Assessments will also include work-based projects or other assignments, drawing on the student’s knowledge of and experience in the workplace.

Students meeting the progression requirements from levels 4 and 5 (see Section 1D, Table 6) will be deemed to have met the minimum threshold level in A1 – A9 necessary to progress to examination for an Honours award.

At level 6, A1 – A9 will again be assessed through a combination of coursework, in-class test and unseen examinations. There will be a substantial component of individual project-type activity, including work-based projects, for which students will be expected: to establish for themselves the framework within which the work is carried out; to select and to apply knowledge and understanding as appropriate to the specific problem(s) being addressed; and to evaluate solutions, referencing appropriate research or scholarship.

A7: A in-depth and broad understanding of network infrastructure, software and data to identify where threat and hazard can occur, including the main types of security and the main attack techniques. [AS]

Additionally for the Data Analyst specialist award

A8: An in-depth and broad understanding of data structures, software development procedures, and a range of analytic tools for standard and custom studies. [AS]

Additionally for the Network Engineer specialist award

A9: An in-depth and broad understanding of network building blocks, routing, configuration, cloud, network administration and monitoring tools, and the principles of network performance and security. [AS]

Students will be expected to begin to integrate material and adopt a more critical and analytical attitude.

A4 will be addressed explicitly in the module 5COM1082.

Depending on the specialism followed by the apprentice, one of A6 to A9 will start to be addressed in depth during level 5, although all specialist areas are introduced as part of the core.

In particular the module 5COM1079 provides all students with the opportunity to experience an end-to-end software development process, contextualised for their particular specialism. Modules 5COM1076, 5COM1081 and 5COM1084

provide the opportunity to investigate and reflect on the implementation of their specialist discipline in the context of the workplace.

At level 6, learning relating to A1

– A9 is expected to be increasingly independent, critical and evaluative, and students are expected to take increasing responsibility for the selection and use of theories, principles

and methods in particular contexts, and for tackling particular problems.

Some material will be presented via the same teaching methods as in Levels 4 and 5, but with significant learning undertaken and achieved through WBL and independent, self-study.

The specialist project at level 6 plays a key role in enabling the student to integrate all the taught material and apply it in a realistic context.

At all levels, where appropriate, assessments will also include a component of peer assessment by students.

The individual “synoptic” project (see section C in this table) also plays a major role in assessing cognitive skills.

Throughout the programme, the apprentice’s employer (“mentor”) has an important role to play in supporting assessment, in particular suggesting topics and providing feedback on formative assessment. However, except for the synoptic project, he or she has no formal role in grading.

Intellectual skills	Teaching and learning methods	Assessment strategy
---------------------	-------------------------------	---------------------

Not applicable under QAA Benchmarking statement for Computing. Intellectual skills are subsumed under Cognitive Skills.

Practical skills	Teaching and learning methods	Assessment strategy
<p>C1: Be able to specify, design and develop computer- based systems deploying professional techniques, notations, methods and tools (including software tools) as an individual or as part of a team. [SBS i, v]</p> <p>C2: Be able to evaluate computer-based systems in respect of quality attributes and trade-offs. [SBS ii]</p> <p>C3: Be able to plan and manage projects to develop and to deploy computer-based systems, recognising any risks, security and safety aspects. [SBS iii, iv]</p> <p>C4: Be able to devise effective solutions for complex problems, including those with incomplete information, applying a range of techniques both technical and non-technical, including dialogue with all stakeholders. [SBS vi].</p> <p>Additionally for the Software Engineering specialist award</p> <p>C5: Design, build and test high quality, secure software solutions, with the ability to deploy the high level of responsibility required for applying engineering principles to all stages of the software development process. [AS]</p>	<p>Practical skills are developed partly through academic study and partly through the workplace, Typically the principles of practical skills are taught at the University with students practising the application of these principles at work to develop proficiency. The University will work closely with the employer in this regard.</p> <p>In computing there is significant overlap between practical and cognitive skills and so much of the commentary in section A above also applies to section C.</p> <p>Practical skills are developed through the following.</p> <p>Level 4, 5 and 6 will address C1 – C2 using lectures and tutorials for the presentation of instructional material, with supervised computing laboratory sessions, independent study and project work offering the opportunity to practise the skills in a supportive environment. In some cases, particular at levels 5 and 6, practical work may be undertaken in the workplace. The amount of purely instructional material will decrease as the programme progresses, with students being expected to take an increasing responsibility for developing their own skills and identifying resources to support their development.</p> <p>Level 4, 5 and 6 will address C1 and C4. The examples used at level 4 will be simple, and considerable support will be given in problem identification and evaluation. At levels 5 & 6 this support will be increasingly reduced and more open tasks will be set. Students will be exposed to a variety of</p>	<p>Practical skills are assessed by the University as follows.</p> <p>At level 4, C1 will be assessed directly through coursework, and assessed indirectly through unseen examinations and in-class tests. The examinations and in-class tests will assess understanding that has developed, or been consolidated, as a result of practical activity.</p> <p>At level 5, C1 and C3 are assessed through a team-based development task.</p> <p>At level 6, C1 – C4 will be assessed directly and indirectly in the taught modules.</p> <p>C1 – C4 will also be assessed by the individual “synoptic” project. The project plays a major role in assessing C5 to C8, in particular to assess occupational competency.</p> <p>As required by the Degree Apprenticeship Assessment Plan, the specialist “synoptic” project acts as an end-point assessment within the degree. Hence it also assesses A1 – A9. It has two elements: the project assessment and presentation assessment. Both elements of the project are assessed in partnership by the employer and the University.</p> <p>Students meeting the progression requirements from levels 4 and 5 (see Section 1D, Table 6) will be deemed to have met the minimum threshold level in C1 – C8 necessary to progress to examination for an Honours award.</p>
<p>Additionally for the Cyber Security Analyst</p>		

specialist award

C6: Implement, maintain and support the security controls that protect an organisation's systems and data assets from threats and hazards, with the ability to ensure that security technologies and practices operate in accordance with an organisation's policies and standards, to perform vulnerability assessments, and to respond to incidents. [AS]

Additionally for the Data Analyst specialist award

C7: Collect, organise and study data to provide new business insight, with the ability to provide up-to-date, accurate and relevant data analysis for an organisation, acquired through managing, cleansing, abstracting and aggregating data across a network infrastructure. [AS]

Additionally for the Network Engineer specialist award

C8: Design, install, maintain and support communications networks within an organisation or between organisations, with the ability to maintain high levels of network performance and availability. [AS]

technologies such as operating environments, programming languages, applications and specification techniques.

At level 6, students will be expected to extend their skills developed in C1 – C4 to the task of evaluating and selecting appropriate approaches to addressing specific tasks appropriate to that level.

Each apprentice will address one of C5 to C8 depending on the specialism chosen. In most cases, practical skills are initially developed in core modules at levels 4, 5, and 6 then further developed in specialist modules at levels 5 and 6.

As required by the Degree Apprenticeship Assessment Plan, each student carries out a (45 credit) individual specialist "synoptic" business-related, work-based project at level 6 (one of 6COM1076 to 6COM1079). It is a substantial piece of work, requiring two semesters (about 7 months) to complete and is designed to integrate all the skills, knowledge and behaviours defined in the Apprenticeship Standard.

It is a requirement for the Degree Apprenticeship that apprentices must maintain a digital portfolio of their completed assessed practical work to provide evidence of their achievements and capabilities. This includes the synoptic project and presentation. The portfolio will not be assessed separately.

For the role of the employer in assessment, see under A.

<u>Transferable skills</u>	<u>Teaching and learning methods</u>	<u>Assessment strategy</u>
D1 Be capable of analytical	Generic, transferable skills are	Transferable skills are

<p>and critical thinking, of reflection on own and others work, and be able to explain, justify and otherwise defend an argument, interacting as appropriate, with reference to academic and professional issues and conventions. [SBS ii] [AS]</p>	<p>developed partly through academic study and partly through experience in the workplace. Typically the principles of transferable skills are taught indirectly during academic study at the University with students developing proficiency through experience at work. The University will work closely with the employer in this regard.</p>	<p>assessed through a variety of means built into the curriculum.</p>
<p>D2 Self-manage learning and work including time management, self-awareness, independence and initiative, and including the identification of personal needs for continuing professional development. [SBS iii]</p>	<p>Transferable skills are developed through using a variety of teaching and learning methods and strategies. (Studynet) are typically included in modules at levels 5 and 6 to direct and encourage reflection by students, thus supporting D1.</p>	<p>D1 is assessed at levels 5 and 6 by reviewing the outcomes of assignments and additionally through peer assessment, where appropriate.</p>
<p>D3 Communicate effectively orally, in writing and visually using the conventions, vocabulary and form of both academic expression and professional practice, including mathematical, informal and diagrammatic modes of discourse. [SBS iv], [AS]</p>	<p>Students are expected to take an increasing responsibility for their own learning as the programme progresses. They are supported in meeting D3 by personal tutoring at level 4 and guided independent study using both local and central resources: e.g. sessions and self-study guides on information retrieval.</p>	<p>D1 is further assessed at level 6 through the individual synoptic project.</p>
<p>D4 Work effectively and confidently as a member of a team, understanding the role of leadership including setting direction, negotiation, and taking responsibility. [SBS v] [AS]</p>	<p>The development of confidence and the ability to use more formal mathematical modes is addressed explicitly at level 4. Central support, e.g. the Mathematics drop-in centre and courses on written and spoken English, are available for any students having difficulties in meeting aspects of D3.</p>	<p>D2 is assessed at levels 4, 5 and 6 through the setting of different kinds of task, providing feedback on those tasks to students (including through peer assessment).</p>
<p>D5 Be able to take responsibility as a professional, being aware of the broader impact of activities in the workplace on the organisation, society and the environment. [SBS vi, vii]</p>	<p>At level 5, team-working is used explicitly in the context of assessed tasks in two modules, thus supporting students in meeting D4.</p> <p>At level 6, the individual synoptic project addresses D1 – D3 & D5.</p> <p>Throughout the programme, assessed and non-assessed work encourage the learner to develop a range of transferable skills. At level 4, this starts with closely defined, directed assignments. At level 5 he or she is encouraged by more loosely defined work and at</p>	<p>D3 is assessed at levels 4, 5 and 6 in different ways e.g. a short report at level 4, team presentations at level 5, and an individual presentation at level 6. Specialist modules at levels 5 and 6 will typically offer further opportunities for extended writing.</p> <p>Additional, the individual synoptic project at level 6 provides opportunities for students to select appropriate modes of discourse for the problem(s) they are seeking to address.</p> <p>D4 is assessed through team-based exercises at level 5 in two core modules and at level 6 in at least one.</p> <p>D5 is assessed at levels 4 and 5 in taught modules that address professional, social and ethical issues.</p> <p>For the role of the employer in assessment, see under A.</p>

level 6, by self-definition of the project and other assignments. Throughout, the learner is encouraged to include a record of transferable skills development in the digital skills portfolio.

D. Programme Structures, Features, Levels, Modules, and Credits

The programme is offered in a standard mode of study which is a flexible duration of 3, 4 or 5 years starting in September or a custom mode, determined by negotiation with a particular employer or delivery partner and leads to the award of a:

BSc Honours Digital and Technology Solutions (Cyber Security Analyst)
BSc Honours Digital and Technology Solutions (Data Analyst)
BSc Honours Digital and Technology Solutions (Network Engineer)
BSc Honours Digital and Technology Solutions (Software Engineer)

Entry is normally at level 4 (with A-level or equivalent qualifications) but may also be at level 5 or 6 with suitable qualifications and experience (see Section 1F).

Candidates with significant relevant professional experience or with recognised qualifications at Level 4 or above may apply for exemption from (credit for) individual modules through the University's standard APEL (Accreditation of Prior Experiential Learning) or APCL (Accreditation of Prior Certificated Learning) processes. Such candidates should consult the tutors first.

The programme is offered at the University on an "open cohort" basis in a flexible part-time mode that normally takes 3, 4 or 5 years to complete. "Open cohort" means that students from different employers study the same course as a group at the same time. However, subject to negotiation, certain bespoke delivery modes may be offered, whilst retaining the same overall structure. See *Mode of Study* below.

Professional and Statutory Regulatory Bodies

The programme has been accredited by a Tech Partnership (now TP Degrees) panel of employers endorsing it as meeting the national Apprenticeship Standard published by the Skills Funding Agency.

The programme is not currently accredited by the British Computer Society (BCS).

Employment Status

The programme is only available to students who are in full time relevant employment at a professional level and who are sponsored by their employer for a Degree Apprenticeship. An award is only made to students who maintain full-time employment throughout the programme, not necessarily with the same employer.

Work-Based Learning, including Sandwich Programmes

Work Based Learning (WBL) is integrated within the programme, in general within a module in conjunction with other delivery methods. For three of the specialist awards (excluding Software Engineering), there is a 15 credit fully work-based learning module. In addition, for all the specialist awards, the final year synoptic project is largely work based.

WBL takes place partially but not entirely in the workplace, with the engagement and support of the employer. In accordance with the Apprenticeship Standard, the employer and the university jointly assess the final year synoptic project.

The university and the employer are bound by contract to work together to support the apprentice and to carry out the end-point assessment (the final year synoptic project).

Erasmus Exchange programme

NA

Programme Structure

The programme structure and progression information below (Tables 1a-k and 2a) is provided for the Honours award. Any interim awards are identified in Table 2a. The Programme Learning Outcomes detailed above are developed and assessed through the constituent modules. Table 2 identifies where each learning outcome is assessed.

The programme structure is defined in Figures 1 and Table 1. At each level, students study as follows:

Level 4: 5 core modules (2 x 15 credits, 3 x 30 credits), for a total of 120 credit points

Level 5: 5 core modules (4 x 15 credits, 1 x 30 credits) plus
2 specialist modules (2 x 15 credits) for a total of 120 credit points

Level 6: 3 core modules (3 x 15 credits) plus
2 specialist modules (2 x 15 credits) plus
synoptic project (1 x 45 credits) for a total of 120 credit points

There are no optional modules for each award.

Figure 1 provides a structure diagram for the programme, by level of study, indicating the constituent modules for each specialism. It distinguishes between “core” and “specialist” modules, as defined in the Apprenticeship Standard and indicates the main core skills area from the Standard for each module.

Figure 3 (3a – 3d) provides a structure diagram for each of the routes of the programme, one for each specialism. Table 1 (1a – 1k) presents information on the modules at each level of the programme. Table 2 shows progression. Finally, Table 3 lists the available interim and final awards for the programme. Each of these also provides delivery information for the “Standard Mode of Study” – see *Mode of Study* below.

This information is provided for the Honours award. Interim awards are identified in Table 3. The Programme Learning Outcomes detailed in Section 1C are developed and assessed through the constituent modules. Table 5 in Section 2 of this document indicates where each programme learning outcome is typically assessed.

In accordance with the Apprenticeship Standard, the final year synoptic project provides the end-point assessment for the Degree Apprenticeship. Both the project outcomes and the associated presentation will be assessed. The project is work-based, is chosen in conjunction with the employer, and is assessed jointly by the university and the employer.

Refer to the note at the end of Section 1A about the availability of specialisms.

Table1 Outline Programme Structure

Primary Core Skill		Specialism	
C1 Information Systems	C5 Business Organisation	Software Engineer	Cyber Security Analyst
C2 Systems Development	C6 IT Project Management	Data Analyst	Network Engineer
C3 Data	C7 Computer & Network Infrastructure		
C4 Cyber Security			
Level			
4	4COM1050 Programming (DTS) C2	4COM1051 Models & Methods in Computing (DTS)	4COM1053 Human Dimensions of Computing (DTS) C1
	4COM1052 Platforms for Computing (DTS) C7	4COM1054 System Requirements & Analysis (DTS) C2	
5	5COM1073 Operating Systems & Networks (DTS) C7	Specialist Module 5-a	5COM1079 Software Development Exercise (DTS) C2
	5COM1077 Enterprise databases (DTS) C3	Specialist Module 5-b	Specialist Module 5-a
	5COM1075 IT in organisations (DTS) C5	5COM1082 Digital & Technology Solutions for the Enterprise (DTS) C1	Specialist Module 5-b
6	6COM1075 Information Security Management (DTS) C4	6COM1080 Managing Large Scale Software Projects (DTS) C6	Specialist Module 6-a
	Specialist Module 6-a	Specialist Module 6-b	Specialist Module 6-b
	6COM1074 Strategic IT Management (DTS) C5	Specialist Synoptic Project	Specialist Project (45 credits)

Mode of study

The programme has been designed to be offered for part-time study with delivery at the university. However, as a degree apprenticeship, other types of flexible delivery may be required. Hence this specification distinguishes between:

1. *The Programme Structure*, which consists of:
 - the modules, as defined by DMDs, including the level, delivery mode (e.g. classroom based or distance), and delivery activities (e.g. lectures, directed independent study);
 - the designation of modules as “core” or “specialist” and their grouping for each specialism.
2. *The Delivery Pattern*, which consists of:
 - the duration of the programme including the year in which each module is delivered
 - whether the programme is delivered full-time or part-time
 - the intake date (start of which semester)
 - the semester(s) in which each module is delivered
 - for part-time, whether delivery of classroom based teaching is by block release or day release
 - whether a particular cohort is “open” or “closed” (restricted to apprentices from a single employer).

This programme specification describes two Modes of Study:

a. Standard Mode of Study:

- the initial offer by the university: with the defined programme structure and defined delivery pattern:
 - flexible duration of 3, 4 or 5 years, starting in September
 - delivered part-time through a mix of day release and block release across all three semesters
 - with a cohort open to all employers.

b. *Custom Mode of Study:*

- determined by negotiation with a particular employer or delivery partner: following the defined programme structure, but with a bespoke delivery pattern, not defined in this specification.

Unless stated otherwise, the remainder of this specification makes no distinction and primarily describes the Standard Mode of Study.

Standard Mode of Study

For the Standard Mode of Study, teaching takes place in all three semesters: A, B and C. Typically teaching is by day release in Semesters A and B, with block release in Semester C. These blocks take place in June and/or September.

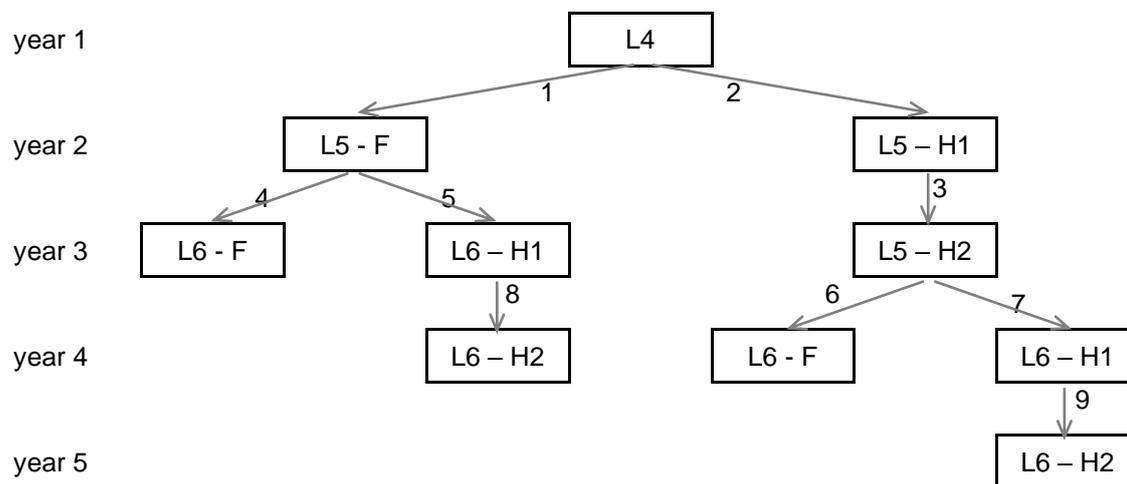
All students study at the full rate of 120 credits in the first year, at level 4. At levels 5 and 6, students who have passed all modules at the previous level may opt to continue at the full “accelerated” rate of 120 credits per year. Other students (those who elect to do so through their employer and those who do not achieve this standard) will study (new modules) at the half rate of 60 credits per year.

The study rate is shown diagrammatically in Figure 1a and the progression paths as Figure 1b. Progression requirements are given in Table 2. The “index” numbers on the connecting arrows in Figure 1b are shown in the right hand column of the table.

Figure 1a – Study Rate (Standard Mode of Study)

	3 years		4 years		4 years		5 years
year 1	level 4 – full rate		level 4 - full		level 4 – full rate		level 4 – full rate
year 2	level 5 – full rate		level 5 –		level 5 – full rate		level 5 –
year 3	level 6 – full rate		half rate		level 6 –		half rate
year 4			level 6 – full rate		half rate		level 6 –
year 5							half rate

Figure 1b – Progression Paths (Standard Mode of Study)



Entry point

For the Standard Mode of Study, Intake is normally in Semester A (September) to Level 4, but prospective employers are invited to contact the School should they have different requirements.

Table 1a-a Level 4 modules for all routes (including the University Certificate interim award)

Module Title (all compulsory)	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Programming (DTS)	4COM1050	30	English	40	60	0	B
Models and Methods in Computing (DTS)	4COM1051	30	English	0	100	0	A
Platforms for Computing (DTS)	4COM1052	15	English	0	100	0	B
Human Dimensions of Computing (DTS)	4COM1053	30	English	0	100	0	C
System Requirements and Analysis (DTS)	4COM1054	15	English	0	100	0	A

Table 1a-b Level 5 modules for all routes

Module Title (all compulsory)	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Operating Systems and Networks (DTS)	5COM1073	15	English	50	50	0	B
Enterprise Databases (DTS)	5COM1077	15	English	50	50	0	B
IT in Organisations (DTS)	5COM1075	15	English	0	100	0	A
Digital & Technology Solutions for the Enterprise (DTS)	5COM1082	15	English	50	50	0	B
Software Development Exercise (DTS)	5COM1079	30	English	0	100	0	C

Table 1a-c Level 5 modules for specialist route: Cyber Security Analyst

Module Title (all compulsory)	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Cyber Security Analysis in Practice (DTS)	5COM1076	15	English	0	100	0	A
Computer Crime (DTS)	5COM1083	15	English	0	100	0	A

Table 1a-d Level 5 modules for specialist route: Data Analyst

Module Title (all compulsory)	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Data Analysis in Practice (DTS)	5COM1081	15	English	0	100	0	A
Advanced Database Topics (DTS)	5COM1085	15	English	50	50	0	A

Table 1a-e Level 5 modules for specialist route: Network Engineer

Module Title (all compulsory)	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Network Engineering in Practice (DTS)	5COM1084	15	English	0	100	0	A
Industry Standard Networking Topics (DTS)	5COM1080	15	English	0	100	0	A

Table 1a-f Level 5 modules for specialist route: Software Engineer

Module Title (all compulsory)	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Algorithms and Data Structures (DTS)	5COM1072	15	English	100	0	0	A
Software Testing and Quality (DTS)	5COM1078	15	English	0	100	0	A

NOTE: The above module structures are for full time modes of study, for indicative patterns of study for half rate please see Tables 1l, 1m and 1n

Table 1a-g Level 6 modules for all routes (including the non-honours interim award)

Module Title (all compulsory)	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Information Security Management (DTS)	6COM1075	15	English	0	100	0	B
Managing Large Scale Software Projects (DTS)	6COM1080	15	English	40	60	0	B
Strategic IT Management (DTS)	6COM1074	15	English	0	100	0	B

Table 1a-h Level 6 modules for specialist route: Cyber Security Analyst

Module Title (all compulsory)	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Computer Systems Security (DTS)	6COM1068	15	English	0	100	0	A
Cyber Security (DTS)	6COM1072	15	English	0	100	0	A
Cybersecurity Analysis Project (DTS)	6COM1077	45	English	0	80	20	BC, CA, C

Table 1a-i Level 6 modules for specialist route: Data Analyst

Module Title (all compulsory)	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Data Mining and Visualisation	6WCM0035	30	English	0	100	0	A, AB
Data Analysis Project (DTS)	6COM1078	45	English	0	80	20	BC, CA, C

Table 1a-j Level 6 modules for specialist route: Network Engineer

Module Title (all compulsory)	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Computer Systems Security (DTS)	6COM1068	15	English	0	100	0	A
Network Protocols and Architectures (DTS)	6COM1071	15	English	0	100	0	A
Network Engineering Project (DTS)	6COM1079	45	English	0	80	20	BC, CA, C

Table 1a-k Level 6 modules for specialist route: Software Engineer

Module Title (all compulsory)	Module Code	Credit Points	Language of Delivery	% Examination	% Coursework	% Practical	Semesters
Object Oriented Development (DTS)	6COM1069	15	English	67	33	0	A
Software Engineering Practice (DTS)	6COM1070	15	English	0	100	0	A
Software Engineering Project (DTS)	6COM1076	45	English	0	80	20	BC, CA, C

Table 1a-l: Indicative Patterns of Study (Semester A) for student studying at half rate for Levels 5

The table below provides the study pattern for students studying at half rate for the academic sessions 2020-21. This applies to all four specialist routes.

Award	Semester A (2020/21)	Semester B (2020/21)	Semester C (2020/21)	Semester A (19/20 and 21/22)	Semester B (19/20 and 21/22)
BSc Honours Digital & Technology Solutions (Software Engineer)	5COM1075 IT in Organisations (DTS) (15 credits)	5COM1082 Digital & Technology Solutions for the Enterprise (DTS) (15 credits)	5COM1079 Software Development Exercise (DTS) (30 credits)	5COM1072 Algorithms and Data Structures (DTS) (15 credits) 5COM1078 Software	5COM1073 Operating Systems and Networks (DTS) (15 credits) 5COM1077 Enterprise

Award	Semester A (2020/21)	Semester B (2020/21)	Semester C (2020/21)	Semester A (19/20 and 21/22)	Semester B (19/20 and 21/22)
				Testing and Quality (DTS) (15 credits)	Databases (DTS) (15 credits)
BSc Honours Digital & Technology Solutions (Data Analyst)	5COM1082 Digital & Technology Solutions for the Enterprise (DTS) (15 credits)	5COM1075 IT in Organisations (DTS) (15 credits)	5COM1079 Software Development Exercise (DTS) (30 credits)	5COM1077 Enterprise Databases (DTS) (15 credits) 5COM1085 Advanced Database Topics (DTS) (15 credits)	5COM1073 Operating Systems and Networks (DTS) (15 credits) 5COM1081 Data Analysis in Practice (DTS) (15 credits)
BSc Honours Digital & Technology Solutions (Cyber Security Analyst)	5COM1082 Digital & Technology Solutions for the Enterprise (DTS) (15 credits)	5COM1075 IT in Organisations (DTS) (15 credits)	5COM1079 Software Development Exercise (DTS) (30 credits)	5COM1076 Cyber Security Analysis in Practice (DTS) (15 credits) 5COM1083 Computer Crime (DTS) (15 credits)	5COM1073 Operating Systems and Networks (DTS) (15 credits) 5COM1077 Enterprise Databases (DTS) (15 credits)
BSc Honours Digital & Technology Solutions (Network Engineer)	5COM1082 Digital & Technology Solutions for the Enterprise (DTS) (15 credits)	5COM1075 IT in Organisations (DTS) (15 credits)	5COM1079 Software Development Exercise (DTS) (30 credits)	5COM1084 Network Engineering in Practice (DTS) (15 credits) 5COM1080 Industry Standard Networking Topics (DTS) (15 credits)	5COM1073 Operating Systems and Networks (DTS) (15 credits) 5COM1077 Enterprise Databases (DTS) (15 credits)

Table 1a-m: Indicative Patterns of Study (Semester B intake) for student studying at half rate for Levels 5 (second year)

The table below provides the study pattern for students studying at half rate for the academic sessions 2020 and 2021 who entered Level 5 in January 2019. This applies to the specialist route Cyber Security Analyst.

Award	Semester B (2019/20)	Semester A (2020/21)	Semester B (2018/19)	Semester C (2018/19)	Semester A (2019/20)
BSc Honours Digital & Technology Solutions	5COM1073 Operating Systems and Networks	5COM1075 IT in Organisations (DTS) (15 credits)	5COM1082 Digital & Technology Solutions for the Enterprise	5COM1079 Software Development Exercise	5COM1076 Cyber Security Analysis in

Award	Semester B (2019/20)	Semester A (2020/21)	Semester B (2018/19)	Semester C (2018/19)	Semester A (2019/20)
(Software Engineer)	(DTS) (15 credits) 5COM1077 Enterprise Databases (DTS) (15 credits)		(DTS) (15 credits)	(DTS) (30 credits)	Practice (DTS) (15 credits) 5COM1083 Computer Crime (DTS) (15 credits)

Honours classification

The University has approved structure and assessment regulations common to all programmes. Full details are provided in [UPR AS14](#), Section D.

Table 1b Final and interim awards available

The programme provides the following final and interim awards:

Final Award	Award Title	Minimum requirements	Available at end of Level	Programme Learning Outcomes developed (see above)
BSc	Digital & Technology Solutions	300 credit points including 180 at level 6/5 of which 60 must be at level 6. The following modules must be passed (without compensation): 6COM1075 Information Security Management (DTS) 6COM1080: Managing Large Scale Software Projects (DTS) 6COM1074: Strategic IT Management (DTS)	6	All programme learning outcomes (see Table 2)
BSc (Hons)	Digital & Technology Solutions (Cyber Security Analyst)	360 credit points including 240 at level 6/5 of which 120 must be at level 6 The following module must be passed (without compensation): 6COM1077, Cyber Security Analysis Project (DTS)	6	
	Digital & Technology Solutions (Network Engineer)	360 credit points including 240 at level 6/5 of which 120 must be at level 6 The following module must be passed (without compensation): 6COM1078, Data Analysis Project (DTS)	6	
	Digital & Technology Solutions (Software Engineer)	360 credit points including 240 at level 6/5 of which 120 must be at level 6 The following module must be passed (without	6	

	compensation): 6COM1079, Network Engineering Project (DTS)	
	360 credit points including 240 at level 6/5 of which 120 must be at level 6 The following module must be passed (without compensation): 6COM1076, Software Engineering Project (DTS)	

Interim Award	Award Title	Minimum requirements	Available at end of Level	Programme Learning Outcomes developed (see above)
University Certificate		45 credit points at level 4	4	See UPR AS11, section 13: http://sitem.herts.ac.uk/secret/upr/AS11.htm
Certificate of Higher Education		120 credit points at level 4	4, 5	<i>For untitled awards:</i> See UPR AS11, section 13: http://sitem.herts.ac.uk/secret/upr/AS11.htm
Diploma of Higher Education Digital & Technology Solutions		240 credits points including at least 120 at level 5	5, 6	<i>For named awards:</i> A1, A2, A3, A4, A5 C1, C2 and partial fulfillment of C3, C4 and C5, D1, D2, D3, D4 and D5

Programme-specific assessment regulations

The programme complies with the University's academic regulations (in particular, [UPR AS11](#), [UPR AS12/UPR AS13](#) and [UPR AS14](#)) with the exception of those listed below, which have been approved by the University:

Refer to following Table 2 in Section 1D for a summary of the progression requirements of the programme.

Table 2: Progression Requirements

Progression From	Progression To	Minimum requirements	Index
------------------	----------------	----------------------	-------

Level 4	Level 5 (full time)	120 credits or more at Level 4	1
Level 4	Level 5 (half rate)	90 credits or more at Level 4.	2
Continuation within Level 5 (for those studying at half rate)		no formal requirement	3
Level 5 (full time)	Level 6 (full time)	240 credits or more at Level 4 and Level 5, with at least 120 credits at Level 5.	4
Level 5 (full time)	Level 6 (half rate)	210 credits or more at Level 4 and Level 5, with at least 90 credits at Level 5.	5
Level 5 (half rate)	Level 6 (full time)	240 credits or more at Level 4 and Level 5, with at least 120 credits at Level 5.	6
Level 5 (half rate)	Level 6 (half rate)	210 credits or more at Level 4 and Level 5, with at least 90 credits at Level 5.	7
Continuation within Level 6 (for those studying at a half rate)		no formal requirement	8/9

The maximum study rate is 120 credits per year. Any deficit must be redeemed at the earliest opportunity, i.e. the next time that the module runs.

Final Degree Classification

As specified by the Degree Apprenticeship Assessment Plan, for an award with Honours and hence a Degree Apprenticeship, the following modules will contribute to the final degree classification.

Course Code	Course Instance	Award Title	Modules (child instance codes and Title)	Must be included in Award degree algorithm
CMDADATS	DTSCSASEP3P-1, DTSCSASEP3P-2	BSc Honours Digital and Technology Solutions (Cyber Security Analyst)	6COM1077 – Cyber Security Analysis Project (DTS)	yes
CMDADATS	DTSDASEP3P-1, DTSDASEP3P-2	BSc Honours Digital and Technology Solutions (Data Analyst)	6COM1078 - Data Analysis Project (DTS)	yes
CMDADATS	DTSNESEP3P-1, DTSNESEP3P-2	BSc Honours Digital and Technology Solutions (Network Engineer)	6COM1079 - - Network Engineering Project (DTS)	yes
CMDADATS	DTSSSESEP3P-1, DTSSSESEP3P-2	BSc Honours Digital and Technology Solutions (Software Engineer)	6COM1076 - Software Engineering Project (DTS)	yes

No Compensation

As specified by the Degree Apprenticeship Assessment Plan, for an award with Honours and hence a Degree Apprenticeship, a student cannot be compensated for the final year project module for the chosen specialism, i.e. one of 6COM1076, 6COM1077, 6COM1078, 6COM1079, See Table 2.

Further points of clarification and interpretation relevant to this specific programme are given below:

Completed Work Portfolio

In accordance with the Degree Apprenticeship Assessment Plan, for an award with Honours and hence a Degree Apprenticeship, students must maintain a digital portfolio of their completed work to demonstrate their achievements and capabilities. It consists of the practical output of all assessments completed during the programme, including the synoptic project report and presentation. Since these have already been assessed, no further assessment will take place, but to gain an Honours award the portfolio must be maintained.

Period of registration

The maximum period within which a student may gain an award on the programme is eight (8) years from the student's first date of registration on it.

E. Management of Programme & Support for student learning.

Management

The programme is managed and administered through:

- Dean of School;
- The Associate Dean of School (Academic Quality Assurance) and the Associate Dean of School (Teaching and Learning) who have overall responsibility for programmes in Computer Science;
- The Programme Leader who is responsible for day to day management and is the primary point of contact with the Tech Partnership; management is conducted through the Programme Committee, which includes representation from each cohort of students;
- An Admissions Tutor, with specific responsibility for working with employers to determine the admission of students to the programme;
- A programme administration team, including a designated individual to deal with day to day administration of the programme;
- Module Leaders who are responsible for the delivery of individual modules, including the assessment;
- A Programme Committee, the membership of which is defined by the Standing Orders of the Academic Board;
- Programme "Apprenticeship Liaison Tutors" based at UH who manage the relationship between the programme and each individual employer (the Employer "Apprenticeship Liaison Manager").

Support

Students are supported by:

- An induction week at the beginning of each new academic session
- An Overseas Orientation Programme at the beginning of each new academic session;
- Specialised computer laboratories and well equipped learning resources centres on each campus;
- StudyNet, a versatile on-line inter-active intranet and learning environment;
- Guided student-centred learning on StudyNet module sites
- Access to extensive digital and print collections of information resources;
- Attractive modern study environments in 2 Learning Resources Centres;
- A substantial Student Centre that provides advice on issues such as finance, University regulations, legal matters, accommodation, international student support, etc.;
- Office of Dean of Students, incorporating Chaplaincy, Counselling and nursery;
- Medical Centre;
- A Mathematics Drop-in Centre;
- University Disability Advisors;
- An Equal Opportunities Officer;

- The Students' Union;
- Guided student-centred learning through the use of StudyNet;
- Careers Enterprise and Employment Services
- Help Desks in both the Learning Resources Centres and the more specialised Computing laboratories.

F. Other sources of information

In addition to this Programme Specification, the University publishes guidance to registered students on the programme and its constituent modules:

- A Programme (or Student) Handbook;
- A Definitive Module Document (DMD) for each constituent module;
- A Module Guide for each constituent module.

The [Ask Herts](#) website provides information on a wide range of resources and services available at the University of Hertfordshire including academic support, accommodation, fees, funding, visas, wellbeing services and student societies.

As a condition of registration, all students of the University of Hertfordshire are required to comply with the University's rules, regulations and procedures. These are published in a series of documents called 'University Policies and Regulations' (UPRs). The University requires that all students consult these documents which are available on-line, on the UPR web site, at: <http://www.herts.ac.uk/secreg/upr/>. In particular, [UPR SA07](#) 'Regulations and Advice for Students' Particular Attention - Index' provides information on the UPRs that contain the academic regulations of particular relevance for undergraduate and taught postgraduate students.

In accordance with section 4(5) of the Higher Education and Research Act 2017 (HERA), the UK Office for Students (OfS) has registered the University of Hertfordshire in the register of English higher education providers. The Register can be viewed at: <https://www.officeforstudents.org.uk/advice-and-guidance/the-register/the-ofs-register/>. Furthermore, the OfS has judged that the University of Hertfordshire delivers consistently outstanding teaching, learning and outcomes for its students. It is of the highest quality found in the UK. Consequently, the University received a Gold award in the 2018 Teaching Excellence and Student Outcomes (TEF) exercise. This award was made in June 2018 and is valid for up to 3 years. The TEF panel's report and conclusions can be accessed at: <https://www.officeforstudents.org.uk/advice-and-guidance/teaching/tef-outcomes/#/provider/10007147>

G. Entry requirements

The normal entry requirements for the programme are:

Under UK Government rules, Degree Apprentices must be employed for a minimum of 30 hours per week and must have the right to live and work in the UK (applies only in England). A Degree Apprentice cannot be self-employed. The employer must enter into an Apprenticeship Agreement with the student.

All candidates must be employed in a role related to the subject matter of the Degree Apprenticeship and be sponsored by their employer. Applications can only be made through the sponsoring employer. The university will consider all such applications and will have the final decision whether to accept the candidate for entry to the programme.

Standard Entry at Level 4

The normal minimum entry requirements for Level 4 entry to the programme are:

- UCAS tariff points: 104 points (260 points previously) from a minimum of two 6-unit awards or one 12-unit award. All key skills and other tariff points will be counted; (For example, this tariff is achieved by grades BBD or ACD with GCE A-level or by grades DMM or D*D* with BTEC Level III)

- All applicants must have passes in GCSE English Language and Mathematics at grade C or above.

Applications are welcomed from those with qualifications equivalent to the above, for instance from Access Certificate courses.

All students originally from non-majority English speaking countries require proof of English language proficiency. The following qualifications and grades will be considered:

- GCSE English language grade A-C
- IELTS 6.0 (with no less than 5.5 in any band)

It is not necessary to have A-level or equivalent in Maths, Computer Science or ICT.

Direct Entry at Levels 5 and 6

For direct entry to Level 5, candidates must be able to demonstrate that they have met all the Learning Outcomes of the Apprenticeship Standard that are covered in the programme at Level 4. They must also have been employed at an appropriate professional level and in an appropriate role for at least 12 months and hence have similar experience of work to apprentices who have completed level 4 of the programme.

For direct entry to Level 6, candidates must be able to demonstrate that they have met all the Learning Outcomes of the Apprenticeship Standard that are covered in the programme at Levels 4 and 5. They must also have been employed at an appropriate professional level and in an appropriate role for at least 24 months and hence have similar experience of work to apprentices who have completed level 5 of the programme.

Account will be taken of APCL and APEL as described in the previous section.

The programme is subject to the University's Principles, Policies and Regulations for the Admission of Students to Undergraduate and Taught Postgraduate Programmes (in [UPR SA03](#)), along with associated procedures. These will take account of University policy and guidelines for assessing accredited prior certificated learning (APCL) and accredited prior experiential learning (APEL).

If you would like this information in an alternative format please contact:

School Administration Manager

If you wish to receive a copy of the latest Programme Annual Monitoring and Evaluation Report (AMER) and/or the External Examiner's Report for the programme, please email a request to aqo@herts.ac.uk

KEY TO PROGRAMME LEARNING OUTCOMES

Key to Programme Learning Outcomes

Knowledge and Understanding e.g.

- A1. The underlying principles of scientific & computational thinking that underpin computer science including the application of the scientific method to problem solving, the use of modelling techniques, and the complexity of interactions between agents, both humans and programmed systems.
- A2. Knowledge and understanding of the essential facts, theories and principles relevant to the engineering of technology solutions including information systems, systems development, data management, cyber security, IT project management, and computer/network infrastructure.
- A3. Appreciation of the context within which technology solutions are deployed including business organisation, meeting business requirements and recognising practical constraints.
- A4. Ability to deploy recognised methodologies and tools for the specification, design, development, test, implementation, support and critical evaluation of computer-based systems.
- A5. Recognition of the wider considerations involved for professional practice, including the legal, social, ethical, professional and environmental issues.

Additionally for the Software Engineering specialist award

- A6. The engineering principles behind all stages of the software development process including requirements, analysis, design, development, and the provision of security robustness.

Additionally for the Cyber Security Analyst specialist award

- A7. A in-depth and broad understanding of network infrastructure, software and data to identify where threat and hazard can occur, including the main types of security and the main attack techniques.

Practical Skills

- C1. Be able to specify, design and develop computer-based systems deploying professional techniques, notations, methods and tools (including software tools) as an individual or as part of a team.
- C2. Be able to evaluate computer-based systems in respect of quality attributes and trade-offs.
- C3. Be able to plan and manage projects to develop and to deploy computer-based systems, recognising any risks, security and safety aspects.
- C4. Be able to devise effective solutions for complex problems, including those with incomplete information, applying a range of techniques both technical and non-technical, including dialogue with all stakeholders.

Additionally for the Software Engineering specialist award

- C5. Design, build and test high quality, secure software solutions, with the ability to deploy the high level of responsibility required for applying engineering principles to all stages of the software development process.

Additionally for the Cyber Security Analyst specialist award

- C6. Implement, maintain and support the security controls that protect an organisation's systems and data assets from threats and hazards, with the ability to ensure that security technologies and practices operate in accordance with an organisation's policies and standards, to perform vulnerability assessments, and to respond to incidents.

Additionally for the Data Analyst specialist award

- A8. An in-depth and broad understanding of data structures, software development procedures, and a range of analytic tools for standard and custom studies.

Additionally for the Network Engineer specialist award

- A9. An in-depth and broad understanding of network building blocks, routing, configuration, cloud, network administration and monitoring tools, and the principles of network performance and security.

Intellectual Skills e.g.

Not applicable under QAA Subject Benchmarking Statement. Intellectual skills are subsumed under Knowledge and Understanding

Additionally for the Data Analyst specialist award

- C7. Collect, organise and study data to provide new business insight, with the ability to provide up-to-date, accurate and relevant data analysis for an organisation, acquired through managing, cleansing, abstracting and aggregating data across a network infrastructure.

Additionally for the Network Engineer specialist award

- C8. Design, install, maintain and support communications networks within an organisation or between organisations, with the ability to maintain high levels of network performance and availability.

Transferable Skills

- D1. Be capable of analytical and critical thinking, of reflection on own and others work, and be able to explain, justify and otherwise defend an argument, interacting as appropriate, with reference to academic and professional issues and conventions.
- D2. Self-manage learning and work including time management, self-awareness, independence and initiative, and including the identification of personal needs for continuing professional development.
- D3. Communicate effectively orally, in writing and visually using the conventions, vocabulary and form of both academic expression and professional practice, including mathematical, informal and diagrammatic modes of discourse.
- D4. Work effectively and confidently as a member of a team, understanding the role of leadership including setting direction, negotiation, and taking responsibility.
- D5. Be able to take responsibility as a professional, being aware of the broader impact of activities in the workplace on the organisation, society and the environment.

Programme management

Relevant QAA subject benchmarking statements	Computing (2020)
Type of programme	Undergraduate
Date of validation/last periodic review	2020
Date of production/ last revision of PS	March 2020
Relevant to level/cohort	All students entering September 2020 and January 2021
Administrative School	School of Engineering and Computer Science

Table 3 Course structure

Course details		
Course code	Course description	HECOS
CMDADTS	Degree Apprenticeship: Digital & Technology Solutions Professional	100366