WARWICKSHIRE COLLEGE
UNIVERSITY
CENTRE

Programme Specification

BSc (Hons) Computer Networks and Cybersecurity

9th July 2021

Programme Specification

1	**Awarding Institution**	Warwickshire College
2	**Teaching Institution**	Warwickshire College Group
3	**Final Award Title**	BSc (Hons) Computer Networks and Cybersecurity
4	**Interim Award Titles**	FdSc Computer Networks and Cybersecurity
5	**Modes of Attendance**	Full-time, part-time, blended learning
6	**Pathways available**	Integrated Foundation Year at level 4 (120 credits) Foundation Degree at level 5 (240 credits) 'Top Up' Degree at level 6 (120 credits at level 6) BSc (Hons) 3-year degree levels 4-6 (360 credits)
7	**Locations of Study**	Royal Leamington Spa College, Rugby College
8	**UCAS Code**	Institution Code: W25 Course Codes: I903
8	**QAA Benchmark Statements**	Subject Benchmark Statement: Computing (2019) Foundation Degree Characteristics Statement (2020)
9	**Accreditations**	None
10	**Other External Factors**	None
11	**Date of Approval**	*9th July 2021*
12	**Date for Next Review**	*June 2025*
13	**Dates of Revision**	

14 Educational Aims of the Programme

The purpose of this qualification is to help provide students with the knowledge, behaviours and skills required to work in the computer networks and cyber security fields. The course integrates placement to provide students with opportunities to apply their learning in the work place.

The aims of this programme are to:

- Provide a systematic understanding of Computer Networks and Cybersecurity including the acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, the forefront of defined aspects of the IT industry;
- Enable students to deploy accurately established techniques of analysis and enquiry within IT;
- Provide theoretical understanding that enables the student:
    - To devise and sustain arguments, and/or solve problems, using ideas and techniques, some of which are at the forefront of the IT industry and
    - To describe and comment on particular aspects of current research, or equivalent advanced scholarship in IT.
- Enable students to manage their own learning, and to make use of scholarly reviews and primary sources;
- Develop students' ability to apply their knowledge and skills to new situations, including in the workplace;
- Develop effective communication skills in a variety of forms and for a range of audiences within the IT sector; and
- Develop students as T-Shaped Learners in order to prepare them for personal, social and economic success;

Typically, holders of this qualification will be able to:

- Apply the methods and techniques they have learnt to review, consolidate, extend and apply their knowledge and understanding, and to initiate and carry out projects;
- Critically evaluate arguments, assumptions, abstract concepts and data to make judgements and to frame appropriate questions to achieve a solution – or identify a range of solutions to a problem;
- Communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.

And holders will have:

- The qualities and transferable skills necessary for employment.

With reference to the QAA Computing Subject Benchmark, the course aims to develop students computing-related cognitive skills such as being able to demonstrate knowledge and understanding of essential facts, recognising and analysing criteria and specifications appropriate to specific problems and planning strategies for their solution, as well as carrying out critical evaluation and testing. The course will provide students with computing related-practical skills such as the ability to specify, design and construct reliable, secure and usable computer-based systems; be able to plan and manage projects; be able to deploy skills

effectively in the construction and documentation of computer applications and be able to critically evaluate and analyse complex problems. Students will also develop generic skills for employability such as developing their critical thinking, self-management, team working and business awareness skills.

15 Intended Learning Outcomes of the Programme

The intended learning outcomes for the BSc Computer Networks and Cybersecurity are shown in sections 15.1 to 15.4 below, grouped under the following headings

- Knowledge and understanding of the subject
- Cognitive skills
- Practical and/or professional subject skills
- T-shaped employability behaviours (transferable skills)

Warwickshire College Group believes that students should be equipped with an entrepreneurial mind set – to be confident, innovative, resilient, enterprise-aware and willing to 'have a go' – in order to prepare them for personal, social and economic success. The college uses a T-Shaped employability behaviour model as a framework to develop transferable skills.

The T-Shaped framework connects this breadth of personal capabilities and qualities with a depth of technical competence through the development of three core behaviours: personal development, social skills and enterprise. The core enterprise behaviours include personal qualities for success in the workplace of the future; capacities to find, make and manage networks and collaborations; knowledge and skills in vocational and academic areas and aptitude for driving successful enterprises.

The T-Shaped skills are as follows (see the platinum level of the T-Shaped employability framework, available in your Course Handbook, for more information):

T-Shaped Framework		
Personal Development	**Enterprise**	**Social Skills**
● Resilience ● Focus and Drive ● Reliability ● Reflectiveness ● Adaptability	● Creativity ● Initiative ● Problem solving ● Risk taking ● Business awareness	● Teamwork ● Networking ● Empathy ● Communication ● Leadership

15.1 Knowledge and Understanding of the Subject	
On successful completion of the programme a student should be able to demonstrate knowledge and understanding of:	
KU1	Delivering excellent customer service to a range of various user groups;
KU2	Specifying, designing and constructing reliable, secure and usable networks;
KU3	Critically evaluating networks in terms of quality attributes and possible trade-offs presented within the given problem;
KU4	Planning and managing projects to deliver solutions within the constraints of requirements, timescale and budget;
KU5	Providing appropriate routing and switching options for scalable networks;
KU6	Deploying effectively the tools used for the construction and documentation of computer networks;
KU7	Risk, cybersecurity and service management aspects of IT systems.

15.2 Cognitive Skills	
On successful completion of the programme a student should be able to:	
CS1	Recognise any risks and safety aspects that may be involved in the deployment of computing systems within a given context;
CS2	Develop own intellectual powers, understanding and judgment and ability to see relationships within what they have learnt and to examine the field of study in a broader perspective;
CS3	Interpret complex projects requiring time management, and use appropriate resources to achieve business objectives of the project;
CS4	Collect and interpret statistical data to refine projects to meet business objectives;
CS5	Critically evaluate created solutions against appropriate theory and the suitability for user's current and future use;
CS6	Critically evaluate and analyse complex problems, including those with incomplete information, and devise appropriate solutions.

15.3 Practical and/or Professional Subject Skills	
On successful completion of the programme a student should be able to:	
PS1	Reflect on their own reliability in a range of situations and contexts and evaluate how their reliability affects others;
PS2	Critically analyse criteria and specifications appropriate to specific problems, and plan strategies for their solutions;
PS3	Design, plan and implement a complex network;
PS4	Critically analyse and troubleshoot network issues;
PS5	Make appropriate judgements in formulating and creating solutions to solve complex problems;
PS6	Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to computer networks and cybersecurity.

15.4 T-Shaped Employability Skills (Transferable Skills)	
On successful completion of the programme a student should be able to:	
TS1	Communicate effectively to a range of audiences using the appropriate format and, following evaluation, identify methods for improvement;
TS2	Evaluate and, through reflection, improve own confidence to take initiative;
TS3	Evaluate own ability to reflect meaningfully and honestly on personal performance and review strategies for using feedback from self and others to improve;
TS4	Evaluate own resilience in response to a range of challenges and set-backs;
TS5	Use customer service-related principles to develop skills with dealing with client requirements;
TS6	Solve complex problems in a range of familiar and unfamiliar situations.

16 Relationship with External Reference Points

The aims and outcomes of this award are clearly in alignment with the Framework**s** for Higher Education Qualifications of Degree-Awarding Bodies in England, Wales and Northern Ireland (October 2014) at level 6, as referenced in the QAA's UK Quality Code for Higher Education (2018).

This programme is designed for the provision of key understanding, knowledge and skills as identified in the QAA's Subject Benchmark Statement for Computing (2019). The relevant understanding, knowledge and skills from the Benchmark Statement have been mapped to the core modules at the end of this document. The programme is also mapped to the defining characteristics of Foundation degrees identified in the QAA's Foundation degree qualification benchmark (2020).

Students completing the course will have the opportunity to take the external assessments for the Cisco Certified Network Associate (CCNA) qualification. The knowledge and skills for CCNA certification are covered in the following modules:

- 421CIT Introduction to Networks
- 422CIT Switching Routing And Wireless Essentials
- 521CIT Enterprise Networks And Automation

The first two years of the course has been mapped the Institute for Apprenticeships & Technical Education's standard for Network Engineer (level 4) (ST0127). It is evidenced within the following modules:

- 421CIT Introduction to Networks
- 422CIT Switching Routing And Wireless Essentials
- 423CIT IT Helpdesk Professional
- 424CIT Management of Resources
- 521CIT Enterprise Networks And Automation
- 522CIT Network Security

All the knowledge, skills and behaviours (KSBs) listed in the standard will be taught, and will be either assessed with formative or summative assessment. For the mapping of the KSBs, please see appendix 1.

17 Course Credit and Outcome Requirements

Warwickshire College Group higher education programmes are based on a credit-accumulation system where 1 credit represents 10 hours of student study time. Modules are normally 20 credits or multiples thereof. Modules are also at different levels (4, 5 and 6) according to the intellectual challenge. Courses leading to specific awards include core modules. To achieve a named award, students must pass all core modules.

BSc (Hons) Computer Networks and Cybersecurity
To be awarded an honours degree, students must successfully achieve a total of 360 credits of which a minimum of 100 credits must be at level 6, a minimum of 100 credits must be at level 5 and a minimum of 100 credits must be at level 4.

BSc (Hons) Computer Networks and Cybersecurity (Level 6)
To be awarded a 'top up' honours degree, students must successfully achieve a total of 120 credits at level 6.

FdSc Computer Networks and Cybersecurity (Foundation degree)
To be awarded with a foundation degree, students must successfully achieve a total of 240 credits of which a minimum of 100 credits must be at level 4 and a minimum of 120 credits must be at level 5. The 100 hours of work-based and placement learning must be completed.

17.1 Course Work-Based and Placement Learning (WBPL) Requirements

Work-Based and Placement Learning is a fundamental and mandatory aspect of all Warwickshire College degrees. Students are expected to complete 100 hours of work-based or placement learning by the end of Level 5.

It is strongly recommended that students undertake placements in the workplace, as this will prove invaluable in seeing the correlation between what is learnt in the classroom and what is practiced in a working environment.

Modules will draw on experiences of being in a work placement which will furthermore illustrate the links. These modules include:

- 423CIT IT Helpdesk Professional
- 500CIT Work-based and Placement Learning

17.2 Course Structure and Distinctive Features

The course structure provides for the student to develop employability skills within a computing environment.

- Common skills development and knowledge modules are taught across a range of modules.
- Subject-specific modules ensure that the course is appropriately focused. In the case of FdSc Computer Networks and Cybersecurity these modules focus on the operation and management of IT Networks in Business Operations.
- The course has a strong focus on employability; students should complete at least 100 hours of work placement by the end of Level 5.
- To support the learning process, the course offers tutorial support: academic tutorial workshops; course tutor support (at the qualification level); and personal and professional tutor support (for personal issues and professional development and placement issues).

- Students have access to a HE-specific networking room. Modules 421CIT, 422CIT and 521CIT help to prepare students with the knowledge to undertake the Cisco CCNA qualification.
- To achieve the Cisco CCNA qualification students will need to take the tests at an external test centre. You do not need to pass the external tests in order to achieve the Degree.

This course map in 17.3, below, gives basic details for all modules relating to the award including module codes for any pre-requisite or co-requisite modules. The course map also states whether each module's status is mandatory (M) or optional (O) for the award.

17.3 Course Map – Programme Structure (Full Time Mode)

Level 4

Module Code	Module Title	Credit Value	Pre-req Co-req	Delivery	Module Status
490CIT	Academic Study Skills, Employability and T-Shaped	20	None	Year 1 Semester 1	M
410CIT	Systems Analysis and Database Design	20	None	Year 1 Semester 1	M
421CIT	Introduction to Networks	20	None	Year 1 Semester 1	M
422CIT	Switching, Routing, and Wireless Essentials	20	None	Year 1 Semester 2	M
423CIT	IT Helpdesk Professional	20	None	Year 1 Semester 1	M
424CIT	Management of Resources	20	None	Year 1 Semester 2	M

Level 5

Module Code	Module Title	Credit Value	Pre-req Co-req	Delivery	Module Status
590CIT	Work-based and Placement Learning	20	None	Year 2 Semester 2	M
520CIT	Object-oriented Programming	20	None	Year 2 Semester 1	M
521CIT	Enterprise Networks and Automation	40	None	Year 2 Semester 1 & 2	M
522CIT	Network Security	20	None	Year 2 Semester 2	M
523CIT	The Human Element of Cybersecurity	20	None	Year 2 Semester 1	M

Level 6					
Module Code	**Module Title**	**Credit Value**	**Pre-req Co-req**	**Delivery**	**Module Status**
690CIT	Research Theory and Design	20	None	Year 3 Semester 1	M
691CIT	Capstone Project/ Dissertation	40	None	All year	M
602CIT	Networking of Things	20	None	Year 3 Semester 2	M
603CIT	IT Security, Strategy and Management	20	None	Year 3 Semester 1	M
604CIT	Advanced Cybersecurity and Ethical Hacking	20	None	Year 3 Semester 1	M

18 Learning & Teaching Methods

This programme has been designed for students to develop and experience a variety of harmonising approaches to learning and teaching and a good balance of activities. Students will develop a range of academic, cognitive, practical and transferable skills to prepare them for further study and their future employment. The College places emphasis on enabling students to develop the independent learning capabilities that will equip them for lifelong learning and future employment, as well as academic achievement. A mixture of independent study, teaching and academic support from Library Services, and the personal academic tutoring system enables students to reflect on progress and build up a profile of skills, achievements and experiences that will help them to flourish and be successful graduates.

Scheduled learning and teaching activities are structured into approximately a third of the time on content delivery (including sign posting for guided learning by the use of reading lists), a third of the time on active learning engagement (either individually or in groups using compare & contrast and visualisation to interpret understanding of the content) and a third of the time is used for seminar discussion work, usually led by the students with direction from the lecturer with academic material.

Contact time
A typical 20-credit module will normally have 60 hours of timetabled teaching in lectures, seminars and practical sessions.

Independent self-study
In addition to contact time, for each module, students are expected to undertake regular self-study plus additional preparation for assessments. Students are expected to work independently for 140 hours per module. Independent learning is supported by the College's virtual learning environment, Google Classroom and the electronic learning resources available from the College libraries.

19 Assessment

The approach to assessment has been designed to provide students with a variety of challenges appropriate for undergraduate level work. Assessment is constructed in such a way that a student's knowledge and understanding of each module studied during the course is assessed.

Summative assessment items are scheduled and students will receive an assessment plan at the beginning of each academic year. Detailed assessment briefs are given to students at the start of a module as part of the module guide.

The overall purpose of assessment is to enable students to demonstrate they have developed the expected skills and knowledge at each level of study. Summative assessment tends to be a mix of practical and written assessments. Detailed feedback is received with each summative assessment.

Formative assessment is a key part of each module, whether it is completing practical activities, case studies, group and individual research tasks or presentations. Verbal feedback is provided to allow students to gauge their progress.

The table below 19.1 shows the weighting of different assessment activities used across the programme(s).

19.1 Assessment Grid

Level 4

Module Code	Module Title	Written Report	Presentation	Timed Test(s)	Practical Activity	Portfolio of evidence	Seminar
490CIT	Academic Study Skills, Employability and T-Shaped	✔	✔				
410CIT	Systems Analysis and Database Design	✔			✔		
421CIT	Introduction to Networks			✔			
422CIT	Switching, Routing, and Wireless Essentials			✔			
423CIT	IT Helpdesk Professional	✔				✔	

424CIT	Management of Resources	✔					✔
Level 5							
Module Code	**Module Title**	**Written Report**	**Presentation**	**Timed Test(s)**	**Practical Activity**	**Portfolio of evidence**	
590CIT	Work-based and Placement Learning	✔				✔	
520CIT	Object-oriented Programming	✔			✔		
521CIT	Enterprise Networks and Automation	✔		✔			
522CIT	Network Security			✔			
523CIT	The Human Element of Cybersecurity	✔	✔				
Level 6							
Module Code	**Module Title**	**Written Report**	**Presentation**	**Timed Test(s)**	**Practical Activity**	**Seminar**	**Project**
690CIT	Research Theory and Design	✔	✔				
602CIT	Networking of Things	✔			✔		
603CIT	IT Security, Strategy and Management		✔			✔	
604CIT	Advanced Cybersecurity and Ethical Hacking	✔			✔		
691CIT	Dissertation/ Capstone Project	✔					

20 Regulation of Assessment

This course uses the Warwickshire College Group higher education (HE) academic regulations for bachelor degrees awarded by Warwickshire College. The full Warwickshire College Group HE academic regulations can be found in the HE area of the Warwickshire College Group intranet.

Marks are provided along with coursework feedback within four term-time weeks of submission or before the next assessment in the same subject is due, whichever is the sooner. All marks remain provisional until they have been ratified by the Subject Assessment Board. The overall grade for a whole module will be determined by the Subject Assessment Board which will consider the overall grade profile of all assessments for that module.

If an overall module grade does not meet the minimum pass grade, then the relevant Assessment Board will make a decision relating to the student's eligibility to reassess or restudy the module in line with the academic regulations. Individual assessments cannot be resubmitted to improve individual grades. A Course Assessment Board will make decisions about whether students have satisfied all of the requirements for progression or final award grades.

Should a student fail a module then the Course Assessment Board will notify the student of their entitlement to be reassessed or to restudy the module in the following year. Students will be advised of the reassessment procedures which normally require students to carry out and resubmit work at the end of the summer. Students should ensure that they are available to carry out reassessments at this time should the need arise.

Inclusion policies and mitigating circumstances procedures are available on the WCG intranet – individual cases are considered based on this framework and passed through a HEQAS board (Higher Education Quality and Academic Standards).

WCG welcomes all students and will always aim to make reasonable adjustments to meet any specific needs or difficulties. In exceptional circumstances, the learning outcomes of some courses may mean that such adjustments are not possible and the college cannot guarantee that every requirement can be supported.

21 Entrance Requirements

The Warwickshire College HE Admissions Policy is available on the College external website.

UCAS entry profiles may be found by searching for the relevant course on the UCAS website, then clicking on 'Entry profile'.

Standard entry requirements

The standard entry requirements for a Warwickshire College undergraduate degree at level 4 is a minimum of two A levels (or equivalent qualification at level 3 such as a BTEC Diploma) which would provide a minimum of 80 UCAS points plus four GCSEs (grades 4/C minimum or equivalent qualifications) including English Language and mathematics.

Applicants with formal qualifications will normally be expected to have a minimum of 80 UCAS tariff points. This may comprise any combination of:

- BTEC National Diploma in Computing (level 3) or a relevant subject; or

- one A Level in a relevant subject; or
- T-Level in Digital
- Kitemarked Access to HE Diploma; or
- Advanced apprenticeship at Level 3

A minimum of 40 points must be from a six- or twelve-unit award.

Entry onto the Integrated Foundation Year
Entry onto the four-year Integrated Foundation Year is a minimum of 32 UCAS points plus four GCSEs including English Language and mathematics at grade 4/C or above. The Foundation phase of the course is integrated and studied across the first two years.

Alternative entry requirements
Applications are welcomed from individuals with employment experience and non-standard qualifications. Mature applicants (aged over 21) may be able to join the course following an assessment of experience including a discussion with the HE Subject Leader. Applicants with non-standard entry requirements will normally be required to complete the recognition of prior learning (RPL) procedure and this may include an assessment of standards in written English.

International applicants
Applicants with international qualifications will be considered on the merits and equivalence of their offered qualifications supported by evidence of competency in written and spoken English. (e.g. IELTS score 6.0 or equivalent for the standard entry requirement or IELTS score 5.5 for entry onto the Integrated Foundation Year)

22 Support for Students and their Learning

Equal Opportunities
Student support is consistent with the Warwickshire College Group policy on Equality and Diversity which can be found on the Warwickshire College Group external website. WCG has a proactive Equality and Diversity Committee plus an Access and Participation Committee to review widening access, student support and progression.

Learning Resources
Warwickshire College Group library service provides a full range of texts, journals, e-books and other online resources. The College virtual learning environment known as the Google Classroom can be accessed via the Internet and holds a wide range of course materials and assessment information.

Inclusion
The HE Inclusion team provide support for students registered with disabilities such as dyslexia. The team will help students access Disabled Student's Allowance (DSA) funding and ensure that students have the support they require to achieve the course.

Induction
All students will be given a full induction to their course which will include meeting academic staff and non-academic support staff, plus an overview of College services. Students will receive a copy of the HE Student Handbook which provides key information for students.

Tutorials
Students will be allocated an academic tutor who will offer support throughout their studies. Each course has a comprehensive course handbook. Students are entitled to a minimum of two academic tutorials per year on an individual basis with their academic tutor. In addition, students will have a pastoral tutor to support them through their studies and provide a sign-posting service to the other support available in the College.

Study Skills
During their course all students should develop and exercise a range of academic competencies as described in the programme aims and intended learning outcomes, including through the module Academic Study Skills, Employability and T-Shaped, known as ASSET. This module has been developed in order to help students to plan and carry out their coursework and assessments, making the most of the time available and helping them to achieve their potential.

Student Services
The college's Student Services department provides a range of support and guidance services for students as described in the HE Student Handbook and Warwickshire College Group intranet. This includes residential accommodation at three of the college sites: Leamington, Moreton Morrell and Pershore Colleges. The Student Engagement Officer ensures that students have the opportunity to elect Student Representatives to sit on the HE Student Council and Course Consultative Committees.

Careers Advice
Students will meet for careers talks and common topic discussions allowing for closer support and exploration of your job opportunities. The Career Launchpad online employability portal offers the opportunity for students prepare for job interviews, and give tips for CV writing in addition to keeping students up to date with current affairs and updates from their chosen profession or sector.

Work-Based and Placement Learning (WBPL)
All HE WBPL is undertaken in line with the approved Warwickshire College Group WBPL documentation and procedures which are held on the HE area of the Warwickshire College Group intranet.

23 Evaluating and Enhancing the Quality and Standards of Teaching & Learning

Quality and standards at Warwickshire College Group are monitored and maintained through a wide range of processes, including those relying upon contributions from the student body. The Quality and Enhancement Manual on the college intranet provides details of the regulations, policies and procedures used. The Higher Education Quality Team (HEQT) oversee the monitoring of quality and standards.

The HE Subject Leader completes an Annual Course Report (ACR) at the end of each academic year. This report enables the evaluation of many aspects of the course management including the quality of assessment and employer engagement. The ACR is scrutinised at an annual validation event where the resulting quality improvement plan is approved.

One key piece of information that feeds into the Annual Course Report is the External Examiner (EE) Report. The EE looks at the quality of assessment on the course and sits on the Assessment Board that confirms grades and progression.

The annual programme of lesson observations undertaken within Warwickshire College Group assesses the standard of teaching in the classroom.

Student-focused quality mechanisms and student engagement mechanisms are as follows:

- The Students' Union has a series of approaches to Student Voice with details on the Warwickshire College Group intranet.
- A range of surveys allow students to comment formally on their programmes including the nationally-administered National Student Survey (NSS), the HE First Impressions and HE Course Surveys.
- Course Consultative Committees are held three times a year to ensure that student representatives have an input to course management issues including reviewing ACRs, EE reports and HE Course Survey results.
- Students are represented on a number of Warwickshire College Group meetings including the Higher Education Student Experience Committee, Higher Education Academic Board and Academic Standards and Quality Assurance (ASQA) Committee (Governors).

24 Indicators of Quality and Standards

This award is designed with reference to the UK Quality Code for Higher Education as described in section 16. This includes the Frameworks for Higher Education Qualifications (FHEQ) (which provides details of the academic level expected within each year of the course) and Subject Benchmark Statements (which describe the content expected in courses in particular subjects).

Indicators of annual quality and standards include annual reports that are considered carefully by the course team and any actions are responded to:

- Annual External Examiners' reports; and
- Annual Industry Adviser reports.

In April 2021, Warwickshire College Group was granted Bachelor Degree-Awarding Powers (BDAP) via an Order from the Office for Students following an in-depth scrutiny of quality and standards by the Quality Assurance Agency (as the designated quality body) during 2020.

25 Progression

This course has been specifically developed to facilitate students to maximise their employability. It equips them to start a career in IT support & network management for a small-medium sized enterprise (SME) or larger businesses. Opportunities may also be available within IT & support network companies.

The College Careers team will support students to apply for employment positions within an organisation in a variety of business roles dependent upon the student's interests.

Students who successfully achieve the BSc (Hons) Computer Networks and Cybersecurity are eligible to apply for entry to a range of Masters degrees connected to computing at a number of universities.

26 Further Information

This programme 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 by taking full advantage of the learning opportunities provided.

More detailed information relating to this programme can be found in the Course Handbook and Module Descriptors collated in the Module Handbook.

The language of study is English.

27 Curriculum Map

The curriculum map, over the page, identifies where the intended learning outcomes of the programme are covered within the modules. A box is ticked where an outcome is demonstrated to a significant extent in a given module. The coded columns relate to the intended learning outcomes within the four categories described in sections 15.1 to 15.4:

KU	Knowledge and understanding of the subject
CS	Cognitive skills
PS	Practical and/or professional subject skills
TS	T-shaped employability framework

Level 4

Module Codes	Module Titles	KU1	KU2	KU3	KU4	KU5%5	KU6	KU7	CS1	CS2	CS3	CS4	CS5	CS6	PS1	PS2	PS3	PS4	PS5	PS6	TS1	TS2	TS3	TS4	TS5	TS6
490CIT	Academic Study Skills, Employability and T-Shaped	✔								✔	✔			✔	✔						✔	✔	✔	✔	✔	✔
410CIT	Systems Analysis and Database Design	✔			✔				✔	✔	✔	✔	✔	✔	✔	✔			✔		✔	✔	✔	✔	✔	✔
421CIT	Introduction to Networks		✔	✔			✔		✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔
422CIT	Switching, Routing, and Wireless Essentials		✔	✔		✔	✔		✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔
423CIT	IT Helpdesk Professional	✔			✔				✔	✔		✔			✔	✔				✔	✔	✔	✔	✔	✔	✔
424CIT	Management of Resources				✔			✔	✔	✔					✔	✔				✔	✔	✔	✔	✔		✔

Level 5																										
Module Codes	**Module Titles**	**KU1**	**KU2**	**KU3**	**KU4**	**KU5**	**KU6**	**KU7**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**PS1**	**PS2**	**PS3**	**PS4**	**PS5**	**PS6**	**TS1**	**TS2**	**TS3**	**TS4**	**TS5**	**TS6**
590CIT	Work-based and Placement Learning	✔													✔						✔	✔	✔	✔	✔	✔
520CIT	Object-oriented Programming	✔				✔		✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔		✔	✔	✔
521CIT	Enterprise Networks and Automation		✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔
522CIT	Network Security		✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔
523CIT	The Human Element of Cybersecurity							✔	✔		✔	✔		✔	✔	✔			✔	✔	✔	✔	✔	✔	✔	✔

Level 6																										
Module Codes	**Module Titles**	**KU1**	**KU2**	**KU3**	**KU4**	**KU5**	**KU6`**	**KU7**	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**PS1**	**PS2**	**PS3**	**PS4**	**PS5**	**PS6**	**TS1**	**TS2**	**TS3**	**TS4**	**TS5**	**TS6**
690CIT	Research Theory and Design									✔						✔					✔	✔	✔	✔		✔
602CIT	Networking of Things	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
603CIT	IT Security, Strategy and Management							✔	✔	✔					✔	✔				✔	✔	✔	✔	✔		✔
604CIT	Advanced Cybersecurity and Ethical Hacking	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
691CIT	Capstone Project				✔					✔	✔	✔		✔		✔				✔	✔	✔	✔	✔		✔

Appendix 1 – HQ Mapping

KSB		421CIT	422CIT	423CIT	424CIT	521CIT	522CIT
K1	The causes and consequences of network and IT infrastructure failures	√				√	
K2	The architecture of typical IT systems, including hardware, OS, server, virtualisation, voice, cloud, and applications					√	
K3	The techniques for systems performance and optimisation					√	
K4	Diagnostic techniques and tools to interrogate and gather information regarding systems performance					√	
K5	Organizational procedures to deal with recording information effectively and in line with protocols			√	√		
K6	Service Level Agreements (SLAs) and their application to delivering network engineering activities in line with contractual obligations and customer service				√		
K7	Their role in Business Continuity and Disaster Recovery.				√	√	
K8	The purposes and uses of ports and protocols	√					
K9	Devices, applications, protocols, and services at their appropriate OSI and/or TCP/IP layers	√					
K10	The concepts and characteristics of routing and switching		√				
K11	The characteristics of network topologies, types, and technologies		√				
K12	Wireless technologies and configurations		√				
K13	Cloud concepts and their purposes				√	√	
K14	Functions of network services					√	
K15	The different types of network maintenance					√	
K16	How current legislation relates to or impacts occupation				√		

K17	Troubleshooting methodologies for network and IT infrastructure					√	
K18	How to integrate a server into a network		√				
K19	The types of security threats to networks and IT infrastructure assets						√
K20	How to use tools to automate network tasks					√	
K21	Approaches to change management				√		
S1	Apply the appropriate tools and techniques when securely operating and testing Networks						√
S2	Install and configure the elements required to maintain and manage a secure Network						√
S3	Implement techniques to monitor and record systems performance in line with defined specifications					√	√
S4	Maintain security and performance of the system against known and standard threats						√
S5	Apply the appropriate tools and techniques to identify systems performance issues					√	
S6	Apply the appropriate tools and techniques to gather information to troubleshoot issues and isolate, repair or escalate faults					√	√
S7	Communicate outcomes of tasks and record in line with organisational procedures and SLAs including adherence to good customer service standards			√	√		
S8	Upgrade, apply and test components to systems configurations ensuring that the system meets the organisation's requirements and minimises downtime. This should include backup processes,					√	
S9	Record task details whether face-to-face, remote or in writing in line with ogranisational requirements			√			

S10	Interpret information received from a manager, customer or technical specialist and accurately implement the defined requirements	√	√			√	√
S11	Monitor, identify and implement required maintenance procedures					√	
S12	Implement techniques to optimise systems performance in line with defined specifications					√	
S13	Organise and prioritise clients/stakeholders' requests in line with SLAs and organization processes			√	√		
S14	Explain their job role within the business context to stakeholders to enable a clear understanding on both sides of what their remit is and convey technical constraints in appropriate language considering accessibility and diversity implications			√			
S15	Operate securely and apply the appropriate process, policies, and legislation within their business responsibilities			√			
S16	Communicate with a range of stakeholders taking into consideration of organisations cultural awareness and technical ability			√			
S17	Apply the appropriate level of responsibility when planning and prioritizing work tasks			√			
S18	Apply the relevant numerical skills (Binary, dotted decimal notation) required to meet the defines specification	√					
S19	Ensure compliance of network engineering outputs with change management processes				√		
S20	Select the appropriate tools and comply with organisation policies and processes when upgrading systems						√
B1	Work independently and demonstrate initiative being resourceful when faced with a	√	√	√		√	√

	problem and taking responsibility for solving problems within their own remit						
B2	Work securely within the business	√		√			
B3	Work within the goals, vision, and values of the organisation			√			
B4	Take a wider view of the strategic objectives of the tasks/ projects they are working on including the implications for accessibility by users and diversity	√		√		√	
B5	Works to meet or exceed customers' requirements and expectations	√	√	√		√	√
B6	Identifies issues quickly, investigates and solves complex problems and applies appropriate solutions. Ensures the true root cause of any problem is found and a solution is identified which prevents recurrence			√		√	√
B7	Committed to continued professional development to ensure growth in professional skill and knowledge				√		
B8	Work effectively under pressure showing resilience	√	√	√		√	√