Programme Specification: *insert programme title*

Version History

Version	Occasion of Change	Change author	Date of Modification	Modifications made	Credit Value
1.0	Original signed off as part of validation event				
2.0	*Update for HQT*		*24/11/2020*	*Pages 6, 28 and 29*	

Higher Education Programme Specification

1.	**Awarding institution/body:**	NCG
2.	**Teaching institution:**	Newcastle College
3.	**Programme accredited by: (any PRSB accreditation)**	None
4.	**Final award and title:**	FdSc Networking and Cyber Security
5.	**JACS code:**	I120
6.	**QAA benchmarking group(s):**	
	Framework for Higher Education Qualification	Frameworks for Higher Education qualification of UK Degree-Awarding bodies (FHEQ)
	Subject specific benchmarking group(s):	Computing 2016
7.	**Date of approval/revision:**	27/3/19
8.	**Delivery location**	

9. Aims of the programme

The aims of this programme have been developed using the https://www.qaa.ac.uk/quality-code

10. Mapping to External & Internal Reference Points

10.1 Academic Reference Points

The programme has been designed and informed by the following external reference points:

Qualifications framework: https://www.qaa.ac.uk/quality-code/supporting-resources

Characteristic Statements https://www.qaa.ac.uk/quality-code/supporting-resources

Academic Credit framework Academic credit in higher educations in England

Subject statement benchmarks https://www.qaa.ac.uk/quality-code/subject-benchmark-statements

National Occupational Standards https://www.ukstandards.org.uk/ (where appropriate)

10.2 Professional, Statutory and Regulatory Bodies/Occupational Standards

This course does not adhere to any PSRB standards

10.3 Employers and/or other appropriate professional/sector practitioners

The course team have worked closely with a range of employers across the county to obtain their input into the design of this programme and the modules within. The programme has been designed to meet the needs of industry and address the specific skills gaps that employers believe undergraduate students to have. Employer input has helped to shape a rounded curriculum that provides students the opportunity to hone and refine the higher-level skills deemed to be in short supply by those in industry .

Consulation has been held with employers, or representatives thereof; such as as Vodafone, NTE limited, Vertu Motors, Engica Technology Systems, Blue Logic Computers, Estio, Oriium Consulting, TeraByte, Santander and United lex. These industries will also help inform the module briefs and assessment designs, providing live briefs wherever possible.

Due to the strong relationships with industry, this programme will help students meet their career goals as all modules deliver valuable information to ensure that the student is employable at the end of the course. Examples of our links with industry include yearly workshops held by one of the recruitment team at United Lex.

The need for courses of this nature has been highlighter in the North East Strategic Economic Plan (published in January 2019). The North East is home to 11 of the 100 fastest growing technology comapined in the north of England and Scotland. The Plan lists Cyber Security as one of the North Easts digital specialsims, contributing towards the 22,000 people employed within digital industries in the North East.

11. Aims and Learning Outcomes of the Programme

11.1 The programme aims are:

- Provide curricula which develops skills surrounding design, implementation and troubleshooting of computer networks.
- Develop a programme of study that encourages the development of student autonomy.
- Provide a challenging high quality programme which embeds computer networking and cyber security in equal parts.
- Develop graduates who have an analytical and reflective understanding of Networking and their relationship with the wider business environment.

11.2 The programme Learning Outcomes are:

Knowledge & Understanding

Upon successful completion of Level *4* students will be able to:

K1	Comprehend the scientific methods and thir applications to problem solving in networking and cyber security.
K2	Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to networking and cyber security.
K3	Appraise computational thinking including its relevance to everyday life.
K4	Apply knowledge and understanding in the modelling and design of computer networks for the purposes of comprehension, communication, prediction and the understanding of trade-offs.
K5	Deploy appropriate theory, practices and tools for the Specification, design, implementation and evaluation of secure network systems.

Upon successful completion of Level *5* students will be able to:

K6	Recognise the professional, economic, social, environmental, moral and ethical issues involved in the ethical hacking of computer systems and be guided by the adoption of appropriate professional, ethical and legal practices.
K7	Solve issues surrounding practical constraints within networking and cyber security, and plan strategies to find appropriate solutions.
K8	Analyse and apply a range of concepts, principles and practices of secure network design and development in an appropriate manner.
K9	Exercise an ability to understand and meet the needs of individuals,

	businesses and key stakeholders through planning and development.
K10	Analyse the extent to which a secure network system meets the criteria defined for its current use and future development.

Practical/Professional skills

Upon successful completion of Level *4* students will be able to:

P1	Specify, design and construct reliable, secure and usable computer networks.
P2	Evaluate network systems in terms of quality attributes and possible trade-offs presented within the given problem.
P3	Recognise any risks and safety aspects that may be involved in the deployment of network systems within a given context.
P4	Evaluate and analyse complex problems, including those with incomplete information, and devise appropriate solutions.
P5	Plan and manage projects to deliver secure netwoeked systems within constraints of requirements, timescale and budget.

Upon successful completion of Level *5* students will be able to:

P6	Make concise, engaging and well-structured verbal presentations, arguments and explanations
P7	Demonstrate a comprehensive understanding of the main areas of networking and cyber security, and be able to exercise critical judgement across a range of issues
P8	Demonstrate creativity and innovation in their approach to securing networked systems.
P9	Exercise an ability to understand and meet the needs of individuals, businesses and key stakeholders through planning,development and implementation of networked systems.
P10	Effectively deploy the tools involved in the security testing of a networked system, with emphasis on understanding the whole process involved.

Behaviors

Cyber Security Technologist

B1	Logical - Applies logical thinking, for example, uses clear and valid reasoning when making decisions related to undertaking the work instructions
B2	Analytical - working with data effectively to see patterns, trends and draw meaningful conclusions.
B3	Works independently and takes responsibility. For example, works diligently regardless of how much they are being supervised, and stays motivated and committed when facing challenges
B4	Shows initiative, being resourceful when faced with a problem and taking responsibility for solving problems within their own remit
B5	Thorough & organised. For example uses their time effectively to complete work to schedule and takes responsibility for managing their own work load and time
B6	Works effectively with a wide range of people in different roles, internally and externally, with a regard to inclusion & diversity policy
B7	Communicates effectively in a wide variety of situations for example contributing effectively to meetings and presenting complex information to technical and non-technical audiences
B8	Maintains a productive, professional and secure working environment.
B9	Creative - taking a variety of perspectives, taking account of unpredictable adversary and threat behaviours and approaches, bring novel and unexpected solutions to address cyber security challenges
B10	Problem Solving - Identifies issues quickly, solves complex problems and applies appropriate solutions.

Network Engineer

B11	work independently and demonstrate initiative being resourceful when faced with a problem and taking responsibility for solving problems within their own remit
B12	work securely within the business
B13	work within the goals, vision, and values of the organisation
B14	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.
B15	works to meet or exceed customers' requirements and expectations
B16	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
B17	Committed to continued professional development to ensure growth in professional skill and knowledge.
B18	work effectively under pressure showing resilience

Reflective and intellectual skills

Upon successful completion of Level *4* students will be able to:

R1	Develop a wide range of generic skills to ensure they become effective in the workplace, to the benefit of themselves, their employer and the wider economy. Students will develop generic skills, and be able to evidence and demonstrate such skills.
R2	Construct well argued and grammatically correct documents. The ability to locate and retrieve relevant ideas, and ensure these are correctly and accurately referenced and attributed.
R3	Demnstrate self-awareness and reflection, including goal setting, action planning, independence and adaptability and acting on initiative.
R4	The ability to work unsupervised, plan effectively and meet deadlines, and respond readily to changing situations and priorities
R5	Succinctly present rational and reasoned arguments that address a given problem or opportunity, to a range of audiences (orally, electronically or in writing).

Upon successful completion of Level *5* students will be able to:

R6	Recognise and make best use of the skills and knowledge of individuals to collaborate in order to identify problems and desired outcomes.
R7	Negotiate to mutually acceptable conclusions. To understand the role of a leader in setting direction and taking responsibility for actions and decisions
R8	Classify the needs of individuals, business and the community, and to understand how workplaces and organisations are governed.
R9	Recognise factors in environmental and societal contexts relating to the opportunities and challenges created by networked systems across a range of human activities.

Transferable Skills

The transferable skills for the programme are:

T1	Application of Number
T2	Communication
T3	Information Communication Technology
T4	Working with Others
T5	Problem Solving
T6	Reasoning and Work Process
T7	Management Skills
T8	Employment/Employability

The programme has contextualised these skills to reflect the specific requirements of the award. Modules within the programme (see Module Specifications) will specify where the transferable skills are developed and assessed.

12. Teaching, Learning and Assessment

Teaching, learning and assessment is informed by the college Teaching and Learning and Assessment Strategy. Programmes have their own methods of delivery and assessment to support and develop students as individuals within their chosen vocational areas.

The course team utilise a range of teaching methods that include formal lectures, workshops, seminars, independent research, problem based learning, team exercises/activities, directed and independent learning; all of which allow the lecturer to facilitate the learning in a collaborative environment.

The course team are keen to encourage the ethos of Students as Producers; this is key in the classroom as it allows for students to work in collaboration with lecturers to improve the design and delivery of their teaching and learning programmes. One such example is encouraging students to take active roles in managing and maintaining the off-network labs to ensure a stable and efficient working environment for all classes. Students develop essential skills in network security and maintenance from being involved.

Teaching spaces are used as simulated work environments to give students essential experience in how the workplace operates. Formative assessment built into some modules has students working collaboratively to solve industry related problems and report to their lecturer as a line manager.

The team use active learning where students have the opportunity to discuss issues and carry out problem solving exercises. Cooperative learning allows for structured groups to work on particular topics which allows for exploration. Class

contact will be student centred. Learning checks and question and answers will be employed along with group work. Student progress will be checked on a four weekly basis with the use of formative assessment in the from of VLE based quizzes on the content covered thus far.

Lectures are employed to underpin theory, with the majority of learning coming from workshops where students are tasked with building practicalelements for their modules such as a piece of software or a network often from aprevious live brief or scenario given by industry partners. These methods are employed to ensure that the work based environment is mimicked as closely as possible.

Learning activities are based around real world examples aided by local employers in the region, as this will engage students and prepare them for the world of work or further studies. Students will be given the opportunity to consolidate their understanding of theories and practice through independent reflection and group work.

Students are introduced to the virtual learning environment (VLE) in induction where all teaching and learning materials are uploaded as the programme progresses. All teaching materials will be made available on the VLE to support the student through the programme.

There are a number of conferences that occur through the academic year such as Digital Union, British Computing Society (BCS) and TEDx conferences on new technologies and innovations in computing. Students are encouraged to attend additional local conferences as part of their studies. These will be advertised to students via the VLE and notification given in class via tutors. Additionally, the department are looking to put on a yearly cyber event with those from industry attending and giving lectures/holding activities.

Assessment

A range of formative and summative assessment methods will be used which are appropriate to the teaching and learning delivery method, mode of attendance and proposed weighting criteria used for this module, and as reflected within the module specifications.

An approved assessment strategy and schedule will be published to students in the Programme Handbookand online via the VLE. The assessment methods will include practical-based assignments, case studies (some of which use live briefs), presentations, projects, problem-based scenarios, simulations, portfolios and reflective assignments. The module assessments are intended to develop the students' practical application and theoretical understanding of computing. This is manifested through the design and development of systems around negotiated briefs/scenarios, the selection and use of appropriate industry development tools and techniques, and the understanding of legal, ethical, social and professional

issues.

The assessments will enable the student to provide evidence which clearly satisfies the intended Learning Outcomes for each module within this award. The assessment methods will be recorded in each Module Guide and can be evidenced in the Programme Handbook. Module Guides will be published at the start of each semester. All assessments will be reviewed by the team and any student, employer and external examiner feedback informs any changes at Annual Planning to ensure the course is still relevant and meets its original aims.

The course team work closely with employers in the design of assessments in order that students gain real world experience of carrying out projects. Employers are encouraged to set up projects whereby students tender to undertake in the work, which gives students real experience of putting forward a bid and gaining valuable feedback. Whilst projects are being undertaken, employers will help monitor and give feedback on the progress students make, whilst maintaining contact with the teaching team.

All assessments have been written in a manor that closely replicate industry specific scenarios.

Delivery Methods

This programme will be offered in a full time and part-time mode.

The full time programme runs over two years, with two semesters in each year, and students attending two days a week.

The first year comprises of seven modules, three of which are taken in semester one, and three taken in semester two. The seventh module is a year long module that runs throughout both semester one and semester two.

The second year comprises of six modules, two of which are taken in semester one, and two taken in semester two. The fith and sixth modules are year long modules that run throughout both semester one and semester two.

The part time mode consists of the same modules, condensed into one day a week, facilitated by a weekly tutorial to monitor progress and provide the students an opportunity to raise any questions they may have.

Part time students must be employed within a relevant field. It may be possible to achieve recognition of prior learning dependent on previous industry experience. This will be discussed at interview.

13. Programme structure and requirements, levels, modules, credits and awards

To be awarded the FdSc Networking and Cyber Security students will complete 240 credits (120 at level 4 and 120 credits at Level 5).

If a student does not complete the full programme of study they may have achieved sufficient credits to be awarded a contained award. The named contained award for this programme is Certificate of Higher Education.

More detailed information regarding the number of credits required to be considered for the contained award can be found with the NCG HE Academic Regulations.

13.1 Programme Structure

Full time and Part time

Level 4

Module	Credits	Semester 1 ✓	Semester 2 ✓
PRD 100 – Personal Development	10		✓
ACS 100 – Academic Study Skills	10	✓	
RPL 100 – Recognition of prior learning	10		
WRL100 – Work Related Learning	20	✓	✓
NCS 101 – Network Design Fundamentals	20	✓	
NCS 102 – Routing Protocols and Concepts	20		✓
NCS 103 – Fundamentals of Security Programming	20		✓
NCS 104 – Open Source Investigation	20	✓	

Level 5

Module	Credits	Semester 1 ✓	Semester 2 ✓
PFD200 - Professional Development	20	✓	✓
WKL200 -Work Based Learning	20	✓	✓
NCS 201 - LAN switching and Server Administration	20	✓	
NCS 202 - Enterprise Network Design	20		✓
NCS 203 -Advanced Security Programming	20		✓
NCS 204 – Ethical Hacking and Penetration Testing	20	✓	

13.2 Work based learning and work placement activity

Thorughout the programme every effort is made to ensure that students are working to live briefs, or where this is not possible real world scenarios.

At level 4 students will take a work related learning module where they are given a subject specific brief to work on over the course of the academic year. This will be solving a real worl problem and working through the design, development and implementation process, before reviewing their project as a conclusion.

At level 5 students will take the work based learning module. This echoes the level 4 module, only students are required to source their own work project. Where this is not possible/feasible, “in house” projects are made available.

14. Support for students and their learning

The programme accesses the college student learning support services which provide support, advice and guidnance for students with a wide range of learning needs. The institutuion is committed to providing inclusive education in a safe and positive environment.

Induction

Students will be invited to an induction before the modules and teaching begins. During this induction period they will finish their enrolment to the course, be given and talked through a copy of their timetables and a tour of the college and its facilities.

During this week the students will also meet all of the staff on the programme and receive presentations on the course content, modules, assessment, feedback, academic regulations and library induction.

Students will also receive ice breaker activities to encourage them to create new relationships and a co-operative working environment.

This induction event will be heavily tailored to the cohort of students that are enrolled every year. Focus will be on the use of facilities and support availaible to students as part-time students, when they can access our equipment and how their work can support them on the programme. Extra emphasis will also be placed on the use of the VLE as a tool to stay in communication with staff and each other for support on the course.

Virtual Learning Enviroment (VLE)

The college uses a VLE to support the students' studies on the course. The VLE is of vital importance within digital technologies, and is used for the following:

- Copy of lesson materials
- Course annuncements
- Email between staff and students
- Submission of written work
- Publishing of learner grades (privately)
- Forum (encourage learner interaction)
- Formative assessment (use of quiz feature on a four weekly basis)

Personal Tutorials

Students are entitled to a minimum of three personal tutorials. Students are assigned a Personal Tutor whose role is to:

- Provide support and guidance as to how students can manage their
- learning and personal and professional development.
  Monitor student progress.
- Advise on progression opportunities.

Students are provided with a tutorial schedule near the start of the programme.

Three tutorials are pre-booked throughout the academic year and students have the option to book more if they require additional support.

Timetable

Students are given a weekly timetable during induction. A copy of this is then made available via the VLE. Timetables may vary to accommodate particular projects or events during the year. Where possible, students are informed in advance of any changes to timetables by the VLE or in class. Effort will be made to minimalise any changes to structure between semester one and two.

Library

Students have access to the physical library through the use of their student card and the online and e-libraries as well as a large range of academic journals with their college username and password.

The library routinely updates its stock to ensure they have the latest reading lists from all courses. A reading list for the FdSc Networking and Cyber Security has been given to the library to ensure up to date materials will be available.

Central Support Services

Newcastle College University Center provides many support services to students choosing to study here. While on programme a student can access central support services for support in a wide selection of areas including;

- Pastoral suppor

Students can access pastoral support to help them understand issues outside of their course and where help can be found, such as housing and finance.

- Assistive technologies

Students requiring specialised technologies to support their learning can access this with our assistive technologies section, everything from screen readers and magnifiers to brail and coloured screening.

- Mentoring

Students can access learning mentors or cross college HE mentors that can support a student with softer academic skills such as time planning and assessment organisation.

- Dyslexia

Specialist dyslexia tutors are accessible to support students and proof read assessments for typographical errors and mistakes.

- Counselling

Students with serious issues can access a counselling service that can help them while on programme.

- Learner support servies

Learning support services work with a wide range of disability organisations to plan and help implement stratergies for students studying our courses that may have specific learning needs.

All of these services are confidential.

Personal Planning and Development

The programme aims to develop students who can effectively manage and organise their own learning. It is important that students research effectively and produce original work.

Digital Technologies provides opportunities for students to work in collaboration with lecturers to improve the design and delivery of their teaching and learning programmes.

Transferable skills are high on our agenda and are highly valued by employers. Students are encouraged to develop key skills such as communication, numeracy and ICT as well as collaborative working, decision making, problem solving and effective time management.'

Therefore personal planning and development is a key component of students' studies. Students are supported in assessing their own skills, setting targets and monitoring their progress. Students are expected to show greater independence in managing their personal development planning over the duration of the course.

Staff Support and Module tutorials

Within Digital Technologies the staff are proud of the support they offer students at all times throughout the course. Staff operate an open door policy during set times (advertised in the module guide) where students can access them outside of sessions. Additional tutorials can be booked if necessary.

15. Student Engagement

Students are at the heart of the higher education system, by involving them in quality assurance and enhancement, the college enables students to become active partners in shaping their own education.

As part of the student journey a learner can participate in the following activities by providing views and opinions on the quality of their learning experience which offer an evidence base for enhancement and change.

- Attending HE Learner forums as a programme/student representative
- Providing feedback which relates to the teaching, learning and assessment of individual modules
- Getting involved in programme and curriculum area meetings as a student/programme representative
- Responding to the National Student Survey
- Responding to the [College] Survey
- Volunteering opportunities

16. Student as Producer

'Student as Producer' defines our institutional approach to research engaged teaching and learning, which consists of meaningful collaboration between staff and students in programme design, content and delivery. 'Student as Producer' prizes the outputs of student research as a valued activity within an inclusive academic community.

The following activities are indicative of research engaged teaching and learning:

- Collaborative student involvement in programme design, content and delivery
- Pedagogic activities which consist of, or emulate, subject-specific research techniques
- Learning environments (virtual or physical) which encourage collaboration and pedagogic activities situated at the interface between research and teaching
- Opportunities for students to disseminate their research outputs beyond their peers

The induction week will include various activities to promote 'Student as Producer' in order to reinforce the concept of students producing research from the start of the programme. Students will be made aware of the autonomous learner model, and how that will influence their learning experience at HE.

Teaching

Students will work on live briefs in order to apply theory to real-world problems. Module leaders will engage students in team-based learning and problem-based learning throughout the academic year, producing solutions and applying skills and knowledge from their modules.

Module leaders will work with students encouraging them to collaborate with peers on different stages of the programme. For example work related learning (L4) and work based learning (L5) each have scope for group based projects.

Opportunities

Module leaders will promote Newcastle College University Center specific Research and Scholarly Activities to the students in order to encourage student-led research projects, participation at conferences including presenting at the HE Student Conference and participation in industry projects.

17. Admissions Regulations and Entry requirements

The programme adopts the NCG HE Admission policy and criteria.

17.1 Entry requirements

The following admissions criteria will normally apply at level 4:

- 64 UCAS points – Preferably from an ICT A Level / Level 3 Vocational Qualification such as the Edexcel Extended Diploma.
- GCSEs to include A-C grades in English and Maths.

17.2 Additional requirements

Students are normally required to have a grade C in GCSE Maths and English Language or to have demonstrated ability in Maths and English in further studies (or key/functional skills).

In exceptional cases, the College may admit students who do not satisfy the above requirements, provided that they are able to demonstrate that by virtue of other studies and/or experience, they are capable of managing their studies and benefiting from the route.

17.3 Mature students

Non-traditional or mature students (aged at least 21 by 31st December of the year of admission) who do not meet these criteria will be considered on an individual basis as an 'admissions decision'. The decision on admission will be based on assessment of the candidate's ability to successfully complete the route. Applicants will be judged using the following criteria:

- Evidence of ability for self-organisation
- Evidence of ability to work independently
- The motivation to learn
- Interest in the subject area
- Evidence of ability to work with others
- Evidence that they will benefit from the programme of study

This is normally evidenced by a UCAS application form incorporating supporting references and an interview. Background knowledge and skills in relevant industry setting is also considered as evidence of non-certified learning. This is normally demonstrated by at least two years full time work in a relevant organisation.

17.4 Students with disabilities

No student who is judged to be academically suitable will be refused admission to the route on the grounds of disability without compelling reason. Established procedures for applicants with disabilities which are in existence within the College are rigorously followed. These procedures provide for a process in which academic suitability is separated from discussions centred on the applicant's other needs. Every effort will be made to meet any additional support needs of disabled students. However, this cannot be guaranteed in every instance.

17.5 Entry points

Entry onto the programme is normally at the beginning of level 4 only.

17.6 International Applicants

Applicants at level 4 who do not have English as their first language will be required to have as a minimum an IELTS overall score of 5.5 with none of the tested component scores less than 5.0 in addition to the required entry qualifications.

Entry onto all courses requires a minimum of Level B2 within the Common European Framework of Reference for Languages this is equivalent to:

- IELTS - 5.5 in each language learning component (speaking, reading, writing, listening)

The Admissions Tutor will, where necessary, refer to the NARIC database of qualifications, and liaise, as appropriate, with the International Office to determine the academic standing of the applicant's qualification.

17.7 Recognition of Prior Learning (RPL)

The rationale for Recognition of Prior Learning (RPL) is consonant with the objectives of the NCG to provide a learner-centred environment which is flexibly responsive to the academic requirements of individuals of all ages and backgrounds and where they can be empowered to reach their full potential. This avoids cumbersome and costly duplication of study and enhances efficiency and flexibility in student learning.

RPL may be of two distinct types: Recognition of Prior **Certificated** Learning, or Recognition of Prior **Experiential** Learning. Collectively they are referred to as RPL. Each has its own procedures, the details of which are set out in the NCG Recognition of Prior Learning Policy. The aim of both is to allow students to progress to appropriate and challenging programmes of study and achieve their specified learning objectives without repetition, duplication or unnecessary expense. In the case of experiential learning, the objective of the assessment process is to encourage the identification, articulation and contextualization of

learning through reflection, self-evaluation and review. All RPL claims are submitted online via NCGs web-based platform http://www.ncl-coll.ac.uk/higher-education/recognise-me

A student wishing to make a claim for RPL should discuss their requirements upon admission, or if later with the programme leader. All decisions will be based on the current NCG regulations governing claims for RPL.

Normally an applicant will not be admitted with credit to a point more than half way through the level of the proposed programme of study. Credits will normally be limited to a maximum of 50% of the total credit points for the final level of a programme.

18. Methods for evaluating and improving the quality and standards of teaching and learning

The college has a comprehensive quality assurance programme that monitors all programmes through programme review, achievement of performance indicators and observation of teaching and learning. This is also representation and input from employers who will contribute to curriculum development and review.

In this provision all module guides are internally verified to ensure that all learning outcomes and grading criteria are met.

This programme is externally monitored by external examiners who advise on academic standards and ensure that all learning objectives have been met.

18.1 Assessment Requirements

The NCG Higher Education Academic Regulations are adopted in full:

https://www.ncl-coll.ac.uk/higher-education/studentinfo

Variations to the NCG Higher Education Academic Regulations or particular requirements:

18.2 External Examiners

External examiners are an essential part of the NCG's framework for quality assurance. All approved programmes leading to an NCG award must have external examiners.

External advisers may be appointed to assist external examiners in certain cases, for example short programmes and language awards. New, relatively inexperienced external examiners are normally mentored in their role.

The role of external examiners is to assure the quality of students' learning experience and ensure that they are assessed fairly in relation to other students on the same programme and to all students across NCG and nationally. External examiner/adviser reports are an integral part of the NCG's quality assurance processes. They form part of the requirements for programme annual review and

in all cases programme teams must demonstrate how they have responded to the views and comments made by external examiners/advisers.

The External Examiners' reports are made available to students via Moodle.

19. Indicators of Quality and Standards

The following are a typical range of indicators of programme quality:

• Student evaluation questionnaire. These are completed by students during induction and towards the end of each term to help inform staff of what went well and what didn't allowing them to improve the experience for the next year.

• Module evaluation questionnaires. The students are required to evaluate the quality of each of the modules they have studied, these results are also included in the modules next version of the module guide for learenrs to see and how they were actioned.

• National Student Survey at Level 5

• Independent internal and external reviews including QAA

• Annual reviews by external examiners who comment on levels of achievement compared with standards elsewhere.

• Programme committees are throughout the year. These consist of the student representatives for each year and teaching staff as appropriate.

• Internal progression rates, completion rates, student success indicators.

Health Warning: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes advantage of the learning opportunities that are provided. More detailed information on the specific learning outcomes, indicative content, and the module teaching learning and assessment methods of each study or module can be found at:

1. College website – Information for Current Students
2. Programme Handbook
3. Higher Education Student Handbook
4. Programme VLE site

The accuracy of the information contained in this document is reviewed by NCG and may be checked within the independent review processes undertaken by the Quality Assurance Agency.

The information from this specification may be extracted and included in documents for various audiences, e.g. students, intending students and employers.

Map of learning outcomes

Insert learning outcomes key across the module titles across the top of each column, adding in additional columns where necessary, insert learning outcomes in the left of the grid and place an “X” in the box where the programme outcome is **ASSESSED**.

Level 4 **Programme learning outcomes:**	PRD100	ACS 100	WRL100	NCS 101	NCS 102	NCS 103	NCS 104	RPL 100		
Knowledge & Understanding										
K1 Understand the scientific methods and their applications to problem solving in networking and cyber security.			X	X	X	X	X			
K2 Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to networking and cyber security.			X	X	X	X				
K3 Understand computational thinking including its relevance to everyday life.			X	X	X	X				
K4 Apply knowledge and understanding in the modelling and design of computer networks for the purposes of comprehension, communication, prediction and the understanding of trade-offs.			X	X	X					
K5 Deploy appropriate theory, practices and tools for the Specification, design, implementation and evaluation of secure network systems.	X	X		X	X	X	X			
Practical/Professional skills										
P1 Specify, design and construct reliable, secure and usable computer networks.				X	X					
P2 Evaluate network systems in terms of quality attributes and possible trade-offs presented within the given problem.				X	X					

P3 Recognise any risks and safety aspects that may be involved in the deployment of network systems within a given context.					X	X				
P4 Evaluate and analyse complex problems, including those with incomplete information, and devise appropriate solutions.			X	X	X	X				
P5 Plan and manage projects to deliver secure networked systems within constraints of requirements, timescale and budget.	X	X	X		X		X			
Reflective and intellectual skills										
R1 Develop a wide range of generic skills to ensure they become effective in the workplace, to the benefit of themselves, their employer and the wider economy. Students will develop generic skills, and be able to evidence and demonstrate such skills.	X	X	X	X	X	X	X			
R2 Construct well argued and grammatically correct documents. The ability to locate and retrieve relevant ideas, and ensure these are correctly and accurately referenced and attributed.	X	X	X		X	X	X			
R3 Demnstrate self-awareness and reflection, including goal setting, action planning, independence and adaptability and acting on initiative.	X	X	X		X		X			
R4 The ability to work unsupervised, plan effectively and meet deadlines, and respond readily to changing situations and priorities	X	X	X		X	X	X			
R5 Succinctly present rational and reasoned arguments that address a given problem or opportunity, to a range of audiences (orally, electronically or in writing).	X	X	X		X	X	X			
Transferable skills										
T1 - Application of Number	X	X	X	X	X		X	X		
T2 - Communication	X	X						X		
T3 - Information Communication Technology	X	X	X	X	X	X	X	X		
T4 - Working with Others	X			X	X			X		
T5 - Problem Solving	X		X			X	X	X		
T6 - Reasoning and Work Process	X	X				X	X	X		
T7 - Management Skills	X	X		X	X			X		
T8 - Employment/Employability	X			X	X			X		

Level 5 **Programme learning outcomes:**	PFD200	WKL200	NCS 201	NCS 202	NCS 203	NCS 204				
Knowledge & Understanding										
K6 Recognise the professional, economic, social, environmental, moral and ethical issues involved in the ethical hacking of computer systems and be guided by the adoption of appropriate professional, ethical and legal practices.					X	X				
K7 Understand practical constraints within networking and cyber security and plan strategies to find appropriate solutions.		X	X	X						
K8 Analyse and apply a range of concepts, principles and practices of secure network design and development in an appropriate manner.		X	X	X						
K9 Exercise an ability to understand and meet the needs of individuals, businesses and key stakeholders through planning and development.		X	X	X	X	X				
K10 Analyse the extent to which a secure network system meets the criteria defined for its current use and future development.			X	X		X				
Practical/Professional skills										
P6 Make concise, engaging and well-structured verbal presentations, arguments and explanations	X	X	X		X					
P7 Demonstrate a comprehensive understanding of the main areas of networking and cyber security, and be able to exercise critical judgement across a range of issues		X	X	X	X	X				
P8 Demonstrate creativity and innovation in their approach to securing networked systems.			X	X		X				

P9 Exercise an ability to understand and meet the needs of individuals, businesses and key stakeholders through planning,development and implementation of networked systems.		X	X	X						
P10 Effectively deploy the tools involved in the security testing of a networked system, with emphasis on understanding the whole process involved.					X	X				
Reflective and intellectual skills										
R6 Recognise and make best use of the skills and knowledge of individuals to collaborate in order to identify problems and desired outcomes.				X		X				
R7 Negotiate to mutually acceptable conclusions. To understand the role of a leader in setting direction and taking responsibility for actions and decisions				X		X				
R8 Understand and meet the needs of individuals, business and the community, and to understand how workplaces and organisations are governed.	X	X			X	X				
R9 Recognise factors in environmental and societal contexts relating to the opportunities and challenges created by networked systems across a range of human activities.		X	X			X				
Transferable skills										
T1 - Application of Number		X	X	X	X					
T2 - Communication	X	X	X	X						
T3 - Information Communication Technology	X	X	X	x	X	X				
T4 - Working with Others	X	X	X	X						
T5 - Problem Solving		X	X	X	X	X				
T6 - Reasoning and Work Process	X	X		X						
T7 - Management Skills	X	X		X						
T8 - Employment/Employability	X	X		x		X				

Assessment method and assessment schedule

Level 4	Module	Credits	Optional/ Mandatory	Portfolio	Presentation	Practical	Written / Report	Project	Case Study	Exam
PRD 100	Personal Development	10	M	100%						
ACS 100	Academic Study Skills	10	M	100%						
WRL100	Work Related Learning	20	M	100%						
NCS 101	Network Design Fundamentals	20	M	50%		50%				
NCS 102	Routing Protocols and Concepts	20	M		40%	60%				
NCS 103	Fundamentals of Security Programming	20	M			50%	50%			
NCS 104	Open Source Investigation	20	M		50%		50%			

Level 5	Module	Credits	Optional/ Mandatory	Portfolio	Presentation	Practical	Written / Report	Project	Case Study	Exam
PFD200	Professional Development	20	M	100%						
WKL200	Work Based Learning	20	M	100%						
NCS 201	LAN switching and Server Administration	20	M		30%	70%				
NCS 202	Enterprise Network Design	20	M			30%		70%		
NCS 203	Advanced Security Programming	20	M		50%	50%				
NCS 204	Ethical Hacking and Penetration Testing	20	M			50%	50%			

Assessment Schedule identify with an ‘X’ the weeks when summative assessment will take place

Level 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12	Wk 13	Wk 14	Wk 15
Semester 1															
ACS 100 – Academic Study Skills													X		
NCS 101 – Network Design Fundamentals										X				X	
NCS 104 – Open Source Investigation						X						X			
Semester 2															
PRD 100 – Personal Development										X					
RPL 100 – Recognition Of Prior Learning										D					
WRL100 – Work Related Learning											X				
NCS 102 – Routing Protocols and Concepts							X						X		
NCS 103 – Fundamentals of Security Programming						X						X			

Reassessment Schedule identify with an ‘X’ the weeks when reassessment will be offered for each module

Level 4	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12	Wk 13	Wk 14	Wk 15
Semester 1															
ACS 100 – Academic Study Skills						X									
NCS 101 – Network Design Fundamentals			X				X								
NCS 104 – Open Source Investigation	X				X										
Deadline for these modules will be set at the June board															
PRD 100 – Personal Development															
RPL 100 – Recognition Of Prior Learning															
WRL100 – Work Related Learning															

NCS 102 – Routing Protocols and Concepts															
NCS 103 – Fundamentals of Security Programming															

Assessment Schedule

Level 5	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12	Wk 13	Wk 14	Wk 15
Semester 1															
NCS 201 - LAN switching and Server Administration							X				X				
NCS 204 – Ethical Hacking and Penetration Testing													X		X
Semester 2															
PFD200 - Professional Development										X					
WKL200 -Work Based Learning											X				
NCS 202 - Enterprise Network Design									X					X	
NCS 203 -Advanced Security Programming						X						X			

Reassessment Schedule

Level 5	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10	Wk 11	Wk 12	Wk 13	Wk 14	Wk 15
Semester 1															
NCS 201 - LAN switching and Server Administration	x				X										
NCS 204 – Ethical Hacking and Penetration Testing						X		X							
Deadline for these modules will be set at the June board															
PFD200 - Professional Development															
WKL200 -Work Based Learning															
NCS 202 - Enterprise Network Design															
NCS 203 -Advanced Security Programming															

Behevior mapping

Cyber Security Technologist Pathway	PRD100	ACS 100	WRL100	NCS 101	NCS 102	NCS 103	NCS 104	PFD200	WKL200	NCS 201	NCS 202	NCS 203	NCS 204
Logical - Applies logical thinking, for example, uses clear and valid reasoning when making decisions related to undertaking the work instructions			x				x			x	x		X
Analytical - working with data effectively to see patterns, trends and draw meaningful conclusions.			x			x	x		x			x	
Works independently and takes responsibility. For example, works diligently regardless of how much they are being supervised, and stays motivated and committed when facing challenges	x	x	x					x	x				
Shows initiative, being resourceful when faced with a problem and taking responsibility for solving problems within their own remit			x	x	x		x		x	x	x		x
Thorough & organised. For example uses their time effectively to complete work to schedule and takes responsibility for managing their own work load and time	x	x	x					x	x				
Works effectively with a wide range of people in different roles, internally and externally, with a regard to inclusion & diversity policy			x						x				
Communicates effectively in a wide variety of situations for example contributing effectively to meetings and presenting complex information to technical and non-technical audiences	x		x					x	x	x		x	x
Maintains a productive, professional and secure working environment.	x	x	x	x	x	x	x	x	x	x	x	x	x
Creative - taking a variety of perspectives, taking account of unpredictable adversary and threat behaviours and approaches, bring novel and unexpected solutions to address cyber security challenges				x	x	x				x	x	x	x
Problem Solving - Identifies issues quickly, solves complex problems and applies appropriate solutions.			x	x	x	x	x		x	x	x	x	

Network Engineer Pathway	PRD100	ACS 100	WRL100	NCS 101	NCS 102	NCS 103	NCS 104	PFD200	WKL200	NCS 201	NCS 202	NCS 203	NCS 204
work independently and demonstrate initiative being resourceful when faced with a problem and taking responsibility for solving problems within their own remit	X		X	X	X				X	X			X
work securely within the business	X	X	X	X	X	X	X	X	X	X	X	X	X
work within the goals, vision, and values of the organisation	X		X	X	X				X	X			X
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.	X		X	X	X				X	X			X
works to meet or exceed customers' requirements and expectations			X						X				
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			X	X	X	X	X		X	X	X	X	
Committed to continued professional development to ensure growth in professional skill and knowledge.	X	X	X	X	X	X	X	X	X	X	X	X	X
work effectively under pressure showing resilience	X	X	X	X	X	X	X	X	X	X	X	X	X