Programme Specification
Version June 2025

1. Overview / factual information

Programme/award title(s)	BSc (Hons) Cloud Computing with Cyber Security (Top-Up)
Teaching Institution	Northern Regional College
Awarding Institution	The Open University (OU)
Date of first OU validation	2025
Date of latest OU (re)validation	N/A
Next revalidation	2030
Credit points for the award	120 credits at Level 6
UCAS Code	N/A
HECoS Code	N/A
LDCS Code (FE Colleges)	N/A
Programme start date and cycle of starts if appropriate.	Sept 2025
Underpinning QAA subject benchmark(s)	Subject Benchmark Statement Computing Benchmarks: Subject Benchmark Statement: Computing March 2022 (qaa.ac.uk)
Other external and internal reference points used to inform programme outcomes. For apprenticeships, the standard or framework against which it will be delivered.	• Department for the Economy's (DfE) Economic Mission. • Northern Regional College Development Plan. • QAA UK Quality Code for Higher Education. • Feedback from industry engagement and student groups. • The NI Skills Barometer • Digital Skills Action Plan: Skills Action Plan • Alliance for Lifelong Learning (ALL) • Professional Certifications: Microsoft, Cisco, CISSP, NIST.
Professional/statutory recognition	N/A
For apprenticeships fully or partially integrated Assessment.	
Mode(s) of Study (PT, FT, DL, Mix of DL & Face-to-Face) Apprenticeship	PT. FT

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided.

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

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

Duration of the programme for each mode of study	1 Years Full Time 1.5 Years Part Time
Dual accreditation (if applicable)	N/A
Date of production/revision of this specification	N/A

2. Programme overview

2.1 Educational aims and objectives

This programme is designed to equip students with industry-relevant expertise in Cloud Computing, Cyber Security, and Artificial Intelligence (AI), preparing them for a successful career in the modern computing industry. With a strong emphasis on practical, hands-on learning, students will gain both foundational and advanced knowledge tailored to meet evolving industry demands. Students will benefit from a curriculum led by experienced faculty, where real-world applications of cloud technologies, security management, serverless development, and AI are integrated into the learning experience. The programme fosters professional growth, enabling students to develop expertise in Security Management and Consultancy, AI, Cloud and Cyber Security, utilizing industry-leading platforms such as AWS and Azure.

Graduates will possess specialist skills, problem-solving abilities, and strategic thinking to contribute meaningfully to the Northern Ireland, UK, and global economy. They will have a deep understanding of computing principles, research methodologies, and solution design, enabling them to develop and implement innovative computing solutions that drive business success.

This programme also encourages lifelong learning and professional development, supporting students in enhancing their academic portfolio through aligned certifications and industry-recognized qualifications. By integrating theory with real-world

applications, graduates will be well-positioned to lead technological advancements and shape the strategic direction of organizations within the computing sector.

Graduates of this programme will develop a versatile and industry-relevant skill set, enabling them to:

- Secure rewarding careers in computing, with specialised expertise in cloud computing, AI, consultancy, and cybersecurity.
- Demonstrate problem-solving skills by critically analysing and evaluating concepts, principles, and practices, applying effective judgement in selecting the right tools and techniques.
- Think critically and adapt to new challenges in the fast-evolving tech industry, anticipating and innovating solutions for complex computing scenarios.
- Develop technical, intellectual, and investigative skills that enable them to anticipate future technological advancements and drive high-quality computing solutions.
- Apply professional, legal, and ethical best practices, working independently and in teams to improve employability and foster lifelong learning.
- Appreciate opportunities for entrepreneurial growth, developing strong communication and project management skills that enhance their professional development in the computing industry.
- Bridge the gap between theory and practice, applying sound knowledge of fundamental and advanced computing techniques to real-world industry challenges.
- Enhance their professional portfolio through industry-recognised certifications, further studies, and continuous professional development.

This programme is designed to support career progression, further education, and industry engagement by:

- Providing a vocational, career-focused pathway that expands access to further education.
- Bridging the skills gap in cloud computing and cybersecurity, meeting the growing demands in Northern Ireland, Great Britain, and beyond.
- Aligning academic study with industry certifications, ensuring graduates stand out in the competitive job market.
- Offering experience through industry-related hands-on practical, enhancing employability.
- Encouraging students to take ownership of their professional development, fostering independence, confidence, and adaptability.

- Emphasising professional, ethical, and legal considerations within cloud computing and cybersecurity.

2.2 Relationship to other programmes and awards (Where the award is part of a hierarchy of awards/programmes, this section describes the articulation between them, opportunities for progression upon completion of the programme, and arrangements for bridging modules or induction)
At Northern Regional College (NRC), our Computing programmes span from Level 2 to Level 5, offering students a clear academic progression pathway. For those completing Level 5, we anticipate strong interest in our planned BSc (Hons) Cloud Computing with Cyber Security (Top-Up) —a university-accredited qualification that allows students to continue their education locally, without the need to relocate. To accommodate different learning needs, we offer multiple study pathways, including full-time, part-time, and Higher Level Apprenticeships (HLA). These flexible options enable students to balance academic studies with industry experience, supporting both career progression and further education. Our part-time and HLA programmes run concurrently, providing a seamless learning experience for those in employment. Graduates from these pathways will have the opportunity to progress to the planned Level 6 Top-up Degree (pending approval for 2025) or continue their studies at university. Beyond degree-level education, NRC offers a range of industry-recognised certifications, helping students enhance their professional credentials and stay competitive in the evolving tech sector. With a commitment to career-focused learning, NRC ensures that students not only gain academic qualifications but also develop the practical skills and certifications required for success in the cloud computing, cybersecurity, and wider IT industries.

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

2.4 List of all exit awards
BSc (Hons) Cloud Computing with Cyber Security BSc Cloud Computing with Cyber Security (Ordinary Degree)

3. Programme structure and learning outcomes

(The structure for any part-time delivery should be presented separately in this section.)

September Intake – Full-time

Programme Structure - LEVEL 6 (Full-time)					
Compulsory modules	**Credit points**	**Optional modules**	**Credit points**	**Is module compensatable?**	**Semester runs in**
Security Management and Consultancy in IT	20			No	Yr.1 - S1
Cloud Security	20			No	Yr.1 - S1
Serverless Development in the Cloud	20			No	Yr.1 - S2
Cloud AI & Machine Learning	20			No	Yr.1 - S2
Individual Research Project	40			No	Yr.1 - S1/2

September Intake – HLA /Part time

Programme Structure - LEVEL 6 (HLA/Part time)					
Compulsory modules	**Credit points**	**Optional modules**	**Credit points**	**Is module compensatable?**	**Semester runs in**
Security Management and Consultancy in IT	20			No	Yr.1 - S1
Cloud Security	20			No	Yr.1 - S1
Serverless Development in the Cloud	20			No	Yr.1 - S2
Cloud AI & Machine Learning	20			No	Yr.2 - S1
Individual Research Project	40			No	Yr.1 - S2 Yr.2 -S1

Learning Outcomes – LEVEL 6	
3A. Knowledge and understanding	
Learning outcomes:	**Learning and teaching strategy/ assessment methods**
A1 Critically appraise and integrate advanced theories, principles, and practices of cloud computing and cybersecurity to formulate strategic responses to evolving challenges. A2 Evaluate and apply contemporary computing paradigms — including serverless architectures, AI/ML, and compliance frameworks —to undefined scenarios, exercising sound judgment. A3 Demonstrate expertise in developing interdisciplinary approaches to computing problems, integrating sustainability, ethics, and business considerations. A4 Analyse complex legal, ethical, social, and professional issues (e.g. GDPR, ISO/IEC, AI Ethics) and embed appropriate controls into cloud and security solutions.	Learning is delivered through a combination of lectures, practical sessions, case studies, and independent research. Lectures introduce advanced computing concepts, while practical sessions focus on applying knowledge to industry-relevant scenarios. Students engage in hands-on problem-solving, critical thinking, and technical implementation using industry-standard tools. A variety of teaching approaches, including group discussions, project-based learning, and interactive exercises, encourage collaboration and independent inquiry. Digital resources, such as the Virtual Learning Environment (VLE), support self-directed learning, while real-world projects bridge academic study with professional practice. Guided reading and independent research further develop analytical and evaluative skills. Assessment is conducted through a blend of theoretical and practical evaluations. Written reports, technical documentation, and case study analyses assess critical thinking and problem-solving abilities. Practical demonstrations, presentations, and project-based assessments test technical proficiency and the ability to implement innovative solutions. Computer-marked assessments, quizzes, and structured assignments provide continuous learning opportunities. Formative feedback supports

Learning Outcomes – LEVEL 6	
3A. Knowledge and understanding	
A5 Critique emerging trends and paradigms (e.g. edge computing, zero-trust, federated learning), proposing informed thought-leadership perspectives A6 Formulate research questions and hypotheses in cloud security and computing, demonstrating mastery of scholarly literature.	skill development, while summative feedback evaluates overall performance, identifying strengths and areas for improvement.

3B. Cognitive skills	
Learning outcomes:	**Learning and teaching strategy/ assessment methods**
B1 Critically assess complex, open-ended requirements to devise robust solution strategies using advanced computational tools. B2 Synthesize computational thinking and advanced algorithms to address real-world, multidisciplinary challenges in cloud environments. B3 Lead intellectual discourse on untested or emerging technologies, conducting original analyses of their applicability. B4 Formulate and manage structured research or project plans, applying rigorous methodologies to evaluate outcomes. B5 Critically evaluate and optimise computational architectures and software frameworks for performance, resilience, and scalability. B6 Develop advanced predictive models and simulations to explore	Skills are developed through a combination of lectures, seminars, tutorials, independent research, and project-based learning. Lectures introduce key theoretical concepts, while seminars and practical sessions encourage students to analyse, evaluate, and apply advanced computing methodologies. Students engage in problem-based learning, working on complex, real-world scenarios that enhance critical thinking, creativity, and analytical reasoning. Practical sessions provide opportunities to apply theoretical knowledge in specialised environments, including IT labs, cloud-based platforms, and the Virtual Learning Environment (VLE), all with guidance from lecturers. Group discussions and independent research help foster intellectual curiosity, enabling students to explore emerging technologies and

3B. Cognitive skills	
complex systems, inform strategic decision-making, and anticipate emergent threats.	develop informed perspectives. Students are encouraged to experiment, challenge existing knowledge, and refine their problem-solving abilities through structured learning activities. Assessment evaluates students' ability to analyse, synthesise, and apply intellectual skills in complex computing contexts. Written assignments and technical reports assess critical thinking and the ability to develop well-reasoned arguments, while practical demonstrations and research presentations showcase analytical depth and problem-solving approaches. Project-based assessments require students to design, implement, and optimise innovative solutions, integrating computational models and predictive analytics. Case study evaluations encourage the exploration of emerging technologies, ethical considerations, and best practices in computing. Continuous formative feedback supports intellectual growth, guiding students to refine their critical analysis and decision-making skills, while summative assessments provide structured evaluations of their academic and technical competencies.

3C. Practical and professional skills	
Learning outcomes:	**Learning and teaching strategy/ assessment methods**
C1 Lead enterprise-level risk and compliance assessments (e.g., OWASP, NIST, ISO 27001), formulating strategic remediation plans. C2 Demonstrate leadership and initiative in collaborative and individual roles, managing complex cloud and security projects. C3 Implement and evaluate scalable, fault-tolerant cloud systems that meet industry and regulatory requirements. C4 Design, train, deploy, and monitor machine-learning models and serverless applications in cloud environments, assessing performance and bias. C5 Develop innovative prototypes or proof-of-concepts under real-world constraints, validating feasibility through empirical evaluation.	Practical skills are developed through structured hands-on activities, including team projects, workshops, and real-world problem-solving exercises. Project-based learning plays a central role, allowing students to design, implement, and evaluate technical solutions using industry-standard tools and methodologies. Workshops and labs focus on applying theoretical knowledge to practical scenarios, fostering adaptability and technical proficiency. Guest speakers and industry collaborations provide professional insights and contextual learning. Students engage in both independent and collaborative work, developing leadership and problem-solving skills essential for computing careers. Emphasis is placed on professional standards, self-reflection, and continuous improvement through iterative development processes. Assessment evaluates the ability to apply practical skills in real-world computing contexts. Technical reports, system implementations, and documented demonstrations assess students' ability to design, deploy, and optimise advanced computing solutions. Project-based assessments test problem-solving, risk mitigation, and audit compliance adherence. Presentations and prototype demonstrations provide opportunities to showcase innovation and critical evaluation of solutions. Formative feedback supports ongoing skill development, while summative assessment ensures that students meet industry-relevant professional and technical standards.

3D. Key/transferable skills	
Learning outcomes:	**Learning and teaching strategy/ assessment methods**
D1 Communicate complex technical strategies and findings effectively to diverse audiences using advanced written, verbal, and digital media. D2 Exhibit autonomy and responsibility in managing independent learning and professional development, demonstrating advanced time-management. D3 Anticipate and mitigate strategic risks in complex, global computing environments, incorporating contingency planning and adaptive decision-making. D4 Conceptualise and justify original solutions for emergent problems, demonstrating ethical leadership and adaptability. D5 Demonstrate advanced critical reflection and metacognitive skills, identifying learning gaps and devising bespoke growth strategies.	Transferable skills are developed through a blend of lectures, seminars, and project-based activities, where students engage in research, critical analysis, and problem-solving. Interactive discussions, presentations, and peer learning enhance communication and collaboration skills, while independent study fosters self-management and professional development. Practical learning experiences, including simulated industry projects, encourage students to apply leadership, teamwork, and decision-making strategies in real-world computing contexts. Students are expected to take ownership of their learning, set personal goals, and critically reflect on feedback to refine their skills. Creative thinking and adaptive problem-solving are embedded throughout the curriculum, ensuring students develop the ability to address complex challenges effectively. Assessment evaluates students' ability to communicate, collaborate, and solve problems effectively. Written assignments, technical reports, and oral research presentations assess their ability to convey complex ideas with clarity. Projects and leadership-focused assessments test teamwork, project management, and strategic decision-making. Problem-solving tasks and case studies challenge students to apply analytical and creative skills to unfamiliar scenarios. Continuous formative feedback supports skill development, while summative assessments ensure students meet professional standards in transferable and industry-relevant competencies.

4. Distinctive features of the programme structure

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

Programme Structure and Delivery:

The course offers both full-time (1 academic years, 2 semesters) and part-time (1.5 academic years, 3 semesters) modes of delivery. Full-time students will undertake 120 credits of study per year (across 2 semesters), while part-time students pursue 120 credits over 3 semesters.

The allocation of time for lectures, practical activities, and independent study varies for each module. Typically, students are expected to dedicate 200 hours of study per module, excluding the Individual Research Project module.

A key feature of this programme is the Individual Research Project (IRP), which serves as a capstone module, allowing students to apply their technical expertise, research skills, and problem-solving abilities to a real-world challenge within Cloud Computing, Cyber Security, or AI.

Programme Resources:

NRC consistently invests in resources for computing programmes, including physical resources and staff skill development. The college provides dedicated teaching facilities on each campus, featuring:

Dedicated computer labs across x 20 PC stations with additional collaborative off-network IT lab equipment areas. In addition, AWS and Azure cloud services and curriculum focused software applications

- Internet of Things devices and components
- 3D Printers
- Virtual Reality
- Wide range of components supporting computer technology
- Access to Azure cloud platform
- Access to AWs cloud platform
- Interactive whiteboards in teaching environments
- Dedicated IoT, Network and Cyber Security labs

Students will have full access to AWS and Azure cloud subscriptions, enabling them to:

- Develop and deploy real-world cloud-based applications
- Gain hands-on experience with cloud infrastructure, security, and AI services
- Work with industry-recognised cloud platforms, enhancing their employability

Curriculum technology needs are regularly reviewed to align with industry practices and accommodate emerging trends. The school budget allocation allows for resource procurement, and capital funds can be secured through business cases to support resource acquisition from a resource or estates perspective.

The college operates a device loan scheme to support learners lacking access to necessary technology for remote learning. All loaned devices are configured to securely connect to college platforms, including cloud-based systems.

5. Support for students and their learning
(For apprenticeships this should include details of how student learning is supported in the workplace)

The support provided to students, and their learning covers several avenues:

- A thorough programme induction for new students.
- Availability of student programme and module handbooks on the VLE for convenient reference.
- A HE Student Handbook, accessible on the college website and VLE, which outlines internal processes, codes of conduct, academic practices, support services, and general college information.
- Assignment of students to a designated year tutor.
- Accessibility to the Course Director and academic staff for student inquiries and assistance.
- Student representation on course committees and HE Review Boards.
- Opportunities for students to address general concerns through the student/staff consultative committee.
- Library and computer services offering facilities and assistance.
- Provision of student email accounts and full access to the College VLE (Canvas).
- Support services provided by the Student Support Hub, encompassing young career support, health, counselling and guidance, careers advice, financial assistance, learning support, pastoral care, access to the library and resource centre, and involvement in the Students Union.
- Dedicated support from a Work Based Learning tutor.
- Establishment of procedures for assessing and accommodating the additional support needs of students with disabilities, following DSA guidance.
- Provision of weekly timetabled tutorial sessions for all students.
- Access to the college email system for students to contact tutors for support and advice during and outside of office hours.

- Utilisation of the college Microsoft Teams system for students to communicate with tutors while working remotely.
- Implementation of a robust complaints and appeals process, available for students to utilise as needed.

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

The Level 6 Cloud Computing with Cyber Security Top-up Degree is available to candidates who meet the following criteria:

- Level 5 qualification
  240 credits from a Foundation Degree or equivalent Level 5 qualification (e.g., Pearson HND/HNC) in a computing-related discipline, with a minimum pass mark of 55 % in Level 5 modules.
- Cloud and cybersecurity modules
  The Level 5 qualification must include both cloud-related and cybersecurity-related modules.
  A minimum of 2 years' industry experience in cloud or cybersecurity may be considered in lieu of specific cloud/cyber modules.
- English and Mathematics
  GCSE English Language and Mathematics at grade 4 (C) or above, or equivalent Level 2 Essential Skills in Literacy and Numeracy.
- Right to live and work in the UK
  Candidates from the EU, EEA, Switzerland, and other third countries are eligible to apply if they meet the qualification requirements and have the right to live and work in the UK.

7. Language of study

The programme will be conducted exclusively in English. International students must meet specific English language requirements as follows:

- English proficiency must meet the Common European Framework of Reference (CEFR) level.
- A minimum B2 level IELTS score of 6.0, with at least 5.5 in all skills, is required.
- Alternatively, a PTE score of 51 or an equivalent English proficiency test approved by the institution is acceptable.

For Tier 4 students, NRC will only recognise a Secure English Language Test (SELT) as valid for issuing a Certificate of Acceptance for Studies (CAS).

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

None

9. For apprenticeships in England End Point Assessment (EPA)
(Summary of the approved assessment plan and how the academic award fits within this and the EPA)

N/A

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

The following quality assurance processes are implemented to meet the expectations set out by the Framework for Higher Education Qualifications (FHEQ) for Bachelor's degrees with honours (Level 6):

- Cross-marking, internal moderation, and external examining ensure robust and consistent assessment standards.
- Module-level student feedback is systematically reviewed by the Course Committee.
- Regular student-staff consultative meetings address course-related issues and enhance student engagement.
- Annual Course Reviews comprehensively evaluate qualitative and quantitative feedback.
- Students have representation in all relevant consultation forums.
- Annual monitoring of teaching staff performance ensures teaching quality.
- Staff appraisal occurs biennially, focusing on individual professional development needs.
- The college completes an annual Self-Evaluation and Quality Improvement Plan aligned with Awarding Organisation criteria.
- A structured Staff Development Programme supports continuous professional growth.
- Staff are encouraged to attain Information & Learning Technology competencies and relevant industry qualifications.
- External Examiner feedback, employer input, and industry standards inform ongoing quality improvements.

- Student performance metrics and career outcomes are systematically reviewed annually.
- Course Directors actively participate in Awarding Organisation or Validating Institution workshops to ensure compliance and share best practices.
- Cross-marking, internal moderation, and external examining processes are employed to ensure the validity and reliability of the assessment process.
- The Course Committee reviews student feedback from each module.
- Student/staff consultative meetings serve as a platform to address any course-related difficulties encountered by the cohort.
- Annual Course Review procedures incorporate both quantitative and qualitative feedback from each course within a subject area.
- Students have the opportunity to be represented at staff/student consultation meetings.
- Staff teaching performance undergoes annual monitoring.
- Staff appraisal is conducted on a two-year cycle, focusing on the individual development needs of staff members.
- The college annually completes a Self-Evaluation and Quality Improvement Plan for each programme in accordance with the requirements of the Awarding Organisations.
- The College offers a Staff Development Programme to facilitate specific training and development for staff.
- All staff are encouraged to pursue Information & Learning Technology and industry qualifications.
- Views of External Examiners are considered as part of the quality processes, and reporting mechanisms prescribed by Awarding Organisations are adhered to.
- Both informal views and formal written feedback from employers are taken into consideration.
- Student performance data and career progression are monitored annually.
- The Course Director attends annual meetings and workshops provided by either the Awarding Organisation or Validated Institute, contributing to the regulation of codes of practice and course management procedures.

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

N/A

Annexe 1: Curriculum map

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

Annexe 3: Notes on completing the OU programme specification template

Annexe 1 - Curriculum map

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

Programme Learning Outcomes	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5
Security Management and Consultancy in IT		✓	✓	✓									✓					✓				
Cloud Security	✓				✓							✓		✓	✓							
Serverless Development in the Cloud	✓							✓							✓		✓				✓	
Cloud AI & Machine Learning		✓						✓			✓					✓				✓		
Individual Research Project						✓	✓		✓	✓			✓				✓	✓	✓			✓

Annexe 3: Notes on completing programme specification templates

1 **-** This programme specification should be mapped against the learning outcomes detailed in module specifications.

2 – The expectations regarding student achievement and attributes described by the learning outcome in section 3 must be appropriate to the level of the award within the **QAA frameworks for HE qualifications**: http://www.qaa.ac.uk/AssuringStandardsAndQuality/Pages/default.aspx

3 – Learning outcomes must also reflect the detailed statements of graduate attributes set out in **QAA subject benchmark statements** that are relevant to the programme/award: http://www.qaa.ac.uk/AssuringStandardsAndQuality/subject-guidance/Pages/Subject-benchmark-statements.aspx

4 – In section 3, the learning and teaching methods deployed should enable the achievement of the full range of intended learning outcomes. Similarly, the choice of assessment methods in section 3 should enable students to demonstrate the achievement of related learning outcomes. Overall, assessment should cover the full range of learning outcomes.

5 - Where the programme contains validated **exit awards** (e.g. CertHE, DipHE, PGDip), learning outcomes must be clearly specified for each award.

6 - For programmes with distinctive study **routes or pathways** the specific rationale and learning outcomes for each route must be provided.

7 – Validated programmes delivered in **languages other than English** must have programme specifications both in English and the language of delivery.