



## Programme Review Report

### **Bachelor of Science (Honours) in Computing (Information Technology)**

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### **Bachelor of Science (Honours) in Computing in Digital Forensics and Cyber Security**

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### **Bachelor of Science in Computing in Secure Networking and Cloud Technologies**

<i>Version of Report</i>	<i>Author</i>	<i>Date</i>
1.0	Gráinne Hurley	11/06/2024
		Click or tap to enter a date.
		Click or tap to enter a date.

<i>Approval</i>	<i>Date</i>
Documentation for Review approved by Faculty Board	28/09/2023
Report of Programme Review Panel approved by AQAEC	19/03/2024
New Programme Title approved by University Programmes Board (if applicable)	Click or tap to enter a date.

#### **Important Note:**

This report combines the three programmes under review due to the fact that there is much commonality and overlap in the School's enhancement and restructuring of the programmes, as briefly highlighted below:

- TU757, TU860, TU758, and TU863 share a common year 1 (Bachelor of Science (Honours) in Computing (Information Technology) & Bachelor of Science (Honours) in Computing in Digital Forensics and Cyber Security)
- BSc in Computing (Information Technology) and BSc in Computing in Digital Forensics and Cyber Security split after year 1, instead of year 2;
- balancing of 5 and 10 credit modules in each semester to reduce workload and assessments;
- mapping of the programmes to UEM and Sustainability;
- Introduction of a work placement in semester 6.
- Restructuring of year 4 modules, with additional electives, to allow for specialisations.

As a result, the panel agreed that one report was appropriate, given that its commendations, conditions and recommendations were generally applicable to each of the programmes, unless otherwise specified.

The BSc in Computing in Secure Networking and Cloud Technologies is the combination of two existing programmes, Higher Certificate in Computing in Networking Technologies (Learn & Work L6) & the add-on Bachelor of Science in Computing in Cloud Networking Technologies (L7). Combining these two programmes allows for a level 7 offering on the CAO.

Section A Programme Details			
Title	Bachelor of Science (Honours) in Computing (Information Technology) TU860		
NFQ Level	8		
ECTS Credits	240		
Mode of delivery	Part-time <input type="checkbox"/> Full-time <input checked="" type="checkbox"/>		
Duration	Part-time: Full-time: 4 Years		
Modality/ies of delivery	In-person, On-campus <input checked="" type="checkbox"/> Blended <input type="checkbox"/>		
	Online <input type="checkbox"/> Hyflex <input type="checkbox"/>		
Classification of award	Classification	GPA Required	Indicative Description
	Pass	2.00	Attains all the minimum intended programme learning outcomes
	Second Class Honours Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Second Class Honours, Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	First Class Honours	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
Discipline Programmes Board	Informatics & Cybersecurity		
Faculty Board	Faculty of Computing		
Schools involved in delivery	Informatics & Cybersecurity		
Delivery location	Blanchardstown Campus		
Collaborative Partner (where applicable)	N/A		
Date of Commencement of revised programme	September 2024		

Section B Awards			
Award Title	Bachelor of Science (Honours) in Computing (Information Technology)		
NFQ Level	8		
Award Class	Major		
ECTS Credits	240		
Classification of award	Classification	GPA Required	Indicative Description
	Pass	2.00	Attains all the minimum intended programme learning outcomes
	Second Class Honours Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Second Class Honours, Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	First Class Honours	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
Award (1) Title	Bachelor of Science in Computing (Information Technology) TU757		
Exit/Embedded	Exit <input checked="" type="checkbox"/> embedded <input checked="" type="checkbox"/>		
NNFQ Level	7		
Award Class	Major		
ECTS Credits	180		
Classification of award			

	Classification	GPA Required	Indicative Description
	Pass	2.00	Attains all the minimum intended programme learning outcomes
	Merit Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Mert Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	Distinction	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
Award (2) Title	Bachelor of Science (Honours) in Computing (Information Technology) TU883 (add-on honours year for TU757)		
Exit/Embedded	Exit <input checked="" type="checkbox"/> embedded <input checked="" type="checkbox"/>		
NNFQ Level	8		
Award Class	Major		
ECTS Credits	60		
Classification of award	Classification	GPA Required	Indicative Description
	Pass	2.00	Attains all the minimum intended programme learning outcomes
	Second Class Honours Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Second Class Honours, Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	First Class Honours	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
Award (3) Title	Higher Certificate in Science in Computing in Information Technology (TU653) (No longer offered in CAO, but retained as exit award for TU757 and TU860)		
Exit/Embedded	Exit <input checked="" type="checkbox"/> embedded <input type="checkbox"/>		
NNFQ Level	6		
Award Class	Major		
ECTS Credits	120		
Classification of award	Classification	GPA Required	Indicative Description
	Pass	2.00	Attains all the minimum intended programme learning outcomes
	Merit Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Mert Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	Distinction	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects

Section A		Programme Details	
Title	Bachelor of Science (Honours) in Computing in Applied Cybersecurity and Digital Forensics (TU863) (the former title was Bachelor of Science (Honours) in Computing in Digital Forensics and Cyber Security)		
NFQ Level	8		
ECTS Credits	240		
Mode of delivery	Part-time ✓		Full-time ✓
Duration	Part-time:		Full-time: 4 Years
Modality/ies of delivery	In-person, On-campus ✓		Blended ✓
	Online <input type="checkbox"/>		Hyflex <input type="checkbox"/>
Classification of award	Classification	GPA Required	Indicative Description
	Pass	2.00	Attains all the minimum intended programme learning outcomes
	Second Class Honours Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Second Class Honours, Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	First Class Honours	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
Discipline Programmes Board	Informatics & Cybersecurity		
Faculty Board	Faculty of Computing		
Schools involved in delivery	Informatics & Cybersecurity		
Delivery location	Blanchardstown Campus		
Collaborative Partner (where applicable)	NA		
Date of Commencement of revised programme	September 2024		
Section B		Awards	
Award Title	Bachelor of Science (Honours) in Applied Cybersecurity and Digital Forensics		

NFQ Level	8		
Award Class	Major		
ECTS Credits	240		
Classification of award	Classification	GPA Required	Indicative Description
		2.00	Attains all the minimum intended programme learning outcomes
	Second Class Honours Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Second Class Honours, Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	First Class Honours	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
Award (1) Title	Bachelor of Science in Applied Cybersecurity and Digital Forensics		
Exit/Embedded	Exit <input checked="" type="checkbox"/>	embedded <input checked="" type="checkbox"/>	
NNFQ Level	7		
Award Class	Major		
ECTS Credits	180		
Classification of award	Classification	GPA Required	Indicative Description
	Pass	2.00	Attains all the minimum intended programme learning outcomes
	Merit Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Mert Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	Distinction	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
Award (2) Title	Bachelor of Science in Computing in Digital Forensics & Cyber Security		
Exit/Embedded	Exit <input checked="" type="checkbox"/>	embedded <input type="checkbox"/>	
NNFQ Level	7		
Award Class	Major		
ECTS Credits	60		
Classification of award	Classification	GPA Required	Indicative Description
	Pass	2.00	Attains all the minimum intended programme learning outcomes
	Merit Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Mert Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	Distinction	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
Award (3) Title	Bachelor of Science (Honours) in Applied Cybersecurity and Digital Forensics		

<i>Exit/Embedded</i>	Exit <input checked="" type="checkbox"/> embedded <input checked="" type="checkbox"/>															
<i>NNFQ Level</i>	8															
<i>Award Class</i>	Major															
<i>ECTS Credits</i>	60															
Classification of award																
Award (4) Title	Higher Certificate in Science in Computing in Information Technology (TU653) (No longer offered in CAO, but retained as exit award for TU757 and TU860)															
Exit/Embedded	Exit <input checked="" type="checkbox"/> embedded <input type="checkbox"/>															
NNFQ Level	6															
Award Class	Major															
ECTS Credits	120															
Classification of award	<table><tr><td>Classification</td><td>GPA Required</td><td>Indicative Description</td></tr><tr><td>Pass</td><td>2.00</td><td>Attains all the minimum intended programme learning outcomes</td></tr><tr><td>Merit Grade 2</td><td>2.50</td><td>Pass and achievement is significantly beyond pass standard in some respects</td></tr><tr><td>Mert Grade 1</td><td>3.00</td><td>Pass and achievement is significantly beyond pass standard in many respects</td></tr><tr><td>Distinction</td><td>3.25</td><td>Pass and achievement is significantly and consistently beyond pass standard in most respects</td></tr></table>	Classification	GPA Required	Indicative Description	Pass	2.00	Attains all the minimum intended programme learning outcomes	Merit Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects	Mert Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects	Distinction	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
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Pass	2.00	Attains all the minimum intended programme learning outcomes														
Merit Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects														
Mert Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects														
Distinction	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects														

Section A		Programme Details	
Title	TU7xx: B.Sc. in Computing in Secure Networking and Cloud Technologies (combination of the existing Higher Certificate in Computing in Networking Technologies (L6) & Bachelor of Science in Computing in Cloud Networking Technologies)		
NFQ Level	7		
ECTS Credits	180		
Mode of delivery	Part-time <input type="checkbox"/>		Full-time <input checked="" type="checkbox"/>
Duration	Part-time:		Full-time: 3 Years
Modality/ies of delivery	In-person, On-campus <input type="checkbox"/> Blended <input type="checkbox"/>		
	Online <input type="checkbox"/> Hyflex <input type="checkbox"/>		
Classification of award	Classification	GPA Required	Indicative Description
	Pass	2.00	Attains all the minimum intended programme learning outcomes
	Merit Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Mert Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	Distinction	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
Discipline Programmes Board	Informatics & Cybersecurity		

Faculty Board	Faculty of Computing
Schools involved in delivery	Informatics & Cybersecurity
Delivery location	Blanchardstown Campus
Collaborative Partner (where applicable)	N/A
Date of Commencement of revised programme	September 2025

Section B Awards			
Award Title	Bachelor of Science in Computing in Secure Networking and Cloud Technologies		
NFQ Level	7		
Award Class	Major		
ECTS Credits	180		
Classification of award	Classification	GPA Required	Indicative Description
	Pass	2.00	Attains all the minimum intended programme learning outcomes
	Merit Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Mert Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	Distinction	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
Award (1) Title	Higher Certificate in Science in Computing in Secure Networking Technologies		
Exit/Embedded	Exit <input checked="" type="checkbox"/>	embedded <input checked="" type="checkbox"/>	
NNFQ Level	6		
Award Class	Major		
ECTS Credits	120		
Classification of award	Classification	GPA Required	Indicative Description
	Pass	2.00	Attains all the minimum intended programme learning outcomes
	Merit Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects
	Mert Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects
	Distinction	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
Award (2) Title	Bachelor of Science in Computing in Cloud Networking Technologies		
Exit/Embedded	Exit <input type="checkbox"/>	embedded <input checked="" type="checkbox"/>	
NNFQ Level	7		
Award Class	Major		
ECTS Credits	60		
Classification of award			
Section C - Programme Derogations (if required)			

*Derogations from Assessment Regulations/Marks and Standards, requiring approval by University Programmes Board*

University Programmes Board Approval	Date
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#### Section D Review Process

Date of Programme Review	31 May 2024
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#### Context for Programme Review

How was the programme review process instigated, by whom/via which process?

The Programme Review was instigated by the School.

Please tick the type of programme review undertaken:

Full Programme Review <input checked="" type="checkbox"/>	Focused Programme Review <input type="checkbox"/>
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If a focused programme review, what is/are the area(s) of focus?

N/A

#### Transitional arrangements

How will changes to revised programme be implemented, i.e. to be implemented with immediate effect in the next academic year of delivery, or phased in on a year-by-year basis.

Phased in on a year-by-year basis

#### Panel Members

Name	Role	Affiliation
Dr Jan Guerin	Chair	Head of Discipline, Medical Science (TU Dublin)
Dr Nigel Vahey	Internal panel member	Lecturer, School of Social Sciences, Law, and Education (TU Dublin)
Dr Hazel Murray	External panel member	Cyber Security Lecturer (Munster Technological University)
Dr Enda Fallon	External panel member	Head of Department of Computer and Software Engineering (Technological University of the Shannon, Athlone Campus)
Christina Quinn	External panel member	Technical Consultant - Cyber Security Manager (Ernst & Young)
Andrew Penrose	External panel member	STSM, Data AI & Sustainability (IBM)
Dr Gráinne Hurley	Academic Representative	Affairs Academic Affairs Representative (TU Dublin)

#### Schedule of Meetings

09:00-09:00	Panel introductions
09:05-09:30	Presentation by School
09:30-10:30	Private meeting of panel
10:30-10:45	Break
10.45-12:00	Meeting with School Management and Programme Leadership Team



12:00-12.15	Break
12.15-13:00	Meeting with Student Representatives
13:00-13.45	Panel lunch
13:45-15:45	Meeting with Teaching Team
15:45-16:45	Private meeting of panel to discuss outcome
16:45	Verbal report to School
17:00	Close

## Section E Programme Evaluation

Programme Review Process		
<i>Was the programme review conducted in accordance with the Programme Review Process, i.e. were current students, graduates, employers, other appropriate stakeholders involved in the review process?</i>	Yes ✓	No <input type="checkbox"/>
<p>Comment: The School had proactively engaged with a range of stakeholders, in particular with industry and students, and it was evident that their feedback actively informed the review of the programme. In addition, the panel was provided with extensive documentation.</p>		
Governance & Management		
<i>Does the programme align with the University's Strategic Plan and the principles of the University Education Model, and relevant policies?</i>	Yes ✓	No <input type="checkbox"/>
<p>Comment:</p> <p>The programme review documentation clearly demonstrates how the programmes align to the university's Strategic Plan and the University Education Model and Graduate Attributes.</p> <p>The programmes are underpinned by the ten principles of TU Dublin's <i>Strategic Intent 2030</i>, as evidenced in the diversity of provision and focus on practice and career development (e.g. the introduction of work placement, a work-based learning project, or Erasmus in Semester 2 Year 3 of TU860 &amp; TU863); the student centred approach in providing the opportunity for teamwork, employment of authentic assessments, elective modules (including the restructuring of elective choices to provide flexible specialisations in Year 4 of TU860 &amp; TU863), flexible pathways and agile teaching and learning including multi-modal delivery; the commitment to being inclusive, global and multicultural as evidenced in its strong international cohort and participation in Women in Technology Network.</p> <p>The wider description of sustainability under the UN's 17 sustainable development goals (SDGs) was a key factor in the revision and addition of modules as part of this programmatic review which integrated sustainability at the programme level through programme learning outcomes and individual module learning outcomes.</p>		
<i>Do the Programme Management and Quality Assurance arrangements align to TU Dublin Quality Framework processes?</i>	Yes ✓	No <input type="checkbox"/>
<p>Comment:</p>		

The Programmes are being managed under the new TU Dublin quality assurance arrangements as part of the pilot implementation of Discipline Programme Boards in the Faculty of Computing, Digital and Data.		
<i>Has the Annual Monitoring/Academic Quality Enhancement process been used to identify issues and actions that continually enhance the programme and student learning experience?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comment: The new Annual Monitoring process was first completed in November 2023 as part of the pilot implementation of the new Discipline Programmes Board.		

Student Data		
<i>On consideration of student recruitment data, is there evidence that there continues to be a market demand for the programme and that the programme remains viable?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comment: TU860 and TU863 have seen a significant increase in numbers, demonstrating the high demand for the programmes. Numbers have declined on TU757 (L7), due in part to the marked increase in CAO entry points, which were raised in an effort to improve retention rates and make it a more competitive programme and an overall drop in CAO applications at level 7. TU758 has seen a slight increase overall. TU765 and TU885 have seen a decline in numbers over the last few years. The strategic choice by the School of Informatics and Cybersecurity to restrict the intake of Level 7 students in recent years is evident in the reduced enrolment figures for L7 programmes. This policy decision in addition to the growth in L8 has also led to a decrease in enrolments for the add-on L7 and L8 programs, TU765 and TU885, respectively.		
<i>On consideration of student engagement, performance and progression data, are students engaging with their programme and performing as expected? If not, has this been acknowledged and addressed through the programme review process?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comment: <b>TU860</b> Approximately 68% of students progress from Year 1 to Year 2, with external students replacing those who did not progress. There is a decline in students progressing from Year 2 to Year 3 and from Year 3 to Year 4. Approximately, 25% of students in Years 2 and 3 are repeating, dropping closer to 10% in Years 1 and 4.  <b>TU863</b> Typically, about 85% of students progress into Year 2, but this drops to 40% in Year 3 and 24% in Year 4. The drop in Year 4 reflects the shortages in labour market as many students get jobs offers after completing Year 3.  <b>TU655</b> Progression rates are high. Of the students that registered in Year 1 between 2018 and 2021, 86% progressed to year 2 of the programme.  The School has used this review as an opportunity to address the low progression rates in the later years of the programmes, as well as the number of repeats, by introducing 10 credit modules in each semester in an endeavour to balance the student workload. The introduction of work placement (or work project or Erasmus) is also an attractive draw. In addition, elective choices in Year 4 have been restructured to provide flexible specialisations.		
<i>On consideration of graduate destination data, is there evidence that students are securing employment in the field or progressing to further study in the discipline?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comment:		

Awards Standards		
<i>Are the programme aims and learning outcomes clearly written using appropriate terminology?</i>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Comment:</p> <p>The panel has made it a condition that the Programme Learning Outcomes are to be revised and rewritten for clarity, conciseness and consistency.</p>		
<i>Are the programme aims and learning outcomes aligned to the proposed level of the award on the NFQ in accordance with applicable Award Standards?</i>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<p>Comment:</p> <p>The panel has made it a condition that the Programme Learning Outcomes should map to the appropriate level on the National Framework of Qualifications,</p>		
<i>Will the curricula, teaching, learning and assessment methods enable students to reach the appropriate standard to qualify for the award(s)?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		
<i>Is ongoing programme development appropriately informed by internal and external stakeholder input (including industry/practice, professional/regulatory bodies, and community organisations)?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p> <p>The review of these programmes was greatly influenced by changes in both industry and technology and was guided and informed by industry and student feedback (including surveys and focus groups). Module offerings were updated in order to align with industry demands and technological advancements.</p> <p><b>TU860</b> Visits from institutions, such as Rathmines Further Education College, and events such as the Informatics Summer Camp, which has a special focus on coding for girls, and the Coding the Future Event for Computer Science Week, highlight the department's dedication to promoting diversity and inclusion in STEM fields while inspiring the next generation of technologists. The department's involvement in volunteering at local school STEM clubs underscores its commitment to fostering STEM education at grassroots levels and nurturing community relationships.</p> <p><b>TU863</b> The Cybersecurity Programme Team is deeply engaged with both the industry and the secondary school community in Ireland. They organise regular field trips to industry sites, host guest speakers from the industry, and conduct industry-specific sessions. Additionally, in 2023 they collaborated with APWG.eu to organise and host an eCrime conference, fostering a rich exchange of knowledge and best practices in cybersecurity. A key highlight of the discipline is their involvement in the European Cybersecurity Challenge; a member of the team coaches and selects the Irish Team that competes in this prestigious event every year. This same member also contributed to national cybersecurity strategy as a member of a Government Think Tank on Cybersecurity policy and capacity building. They host a large-scale Capture the Flag competition annually in collaboration with Microsoft and ZeroDays, offering the possibility to apply for TU Dublin digital badge to participants. They are academic partners for the ZeroDays CTF, which has attracted over 500 participants from the industry, universities, BSc (Hons) in Science in Digital Forensics and Cybersecurity: Programme Self-Evaluation Report 34 and schools annually. Furthermore, they have developed a Cybersecurity education pathway through the Microsoft Dream Space Digital Academy. The School's research partnerships extend to both industry and NGOs, including collaborations with CommSec, Microsoft, ISPC, and Hotline.ie.</p>		

<b>TU7(TBC)/TU655/TU766</b> There is a strong emphasis on industry and professional engagement on these programmes as evidenced by the 7 months of work placement in both years 1 and 2, totalling 14 months' work placement prior to graduation. A couple of modules were replaced due to demand by industry.		
<i>Does ongoing programme development take account of relevant external discipline benchmarks and Professional Statutory and Regulatory Body requirements?</i>	Yes ✓	No <input type="checkbox"/>
Comment:		

Programme Design		
<i>Is the programme design informed by current development in the discipline and associated subject areas, having taken into consideration current trends, stakeholder feedback and market analysis?</i>	Yes ✓	No <input type="checkbox"/>
<p>Comment:</p> <p>The School's module offerings were updated in order to align to the ever-changing advancements in technology and needs of industry and students.</p> <p>The School polled the electives, so they are tailored to the students' interests. The panel noted that the programme content aligns well with industry and employment needs. However, the panel felt that the soft skills need to be made more explicit and mindful of the 'real world' requirements (e.g. conflict resolution, teamwork, etc.). The panel discussed with the School how Gen AI and Sustainability have been incorporated into the curriculum and recommends that the School make these elements more explicit in the programme and module descriptors. In addition, the School proposed a title change from TU863 from Digital Forensics and Cybersecurity to Applied Cybersecurity and Digital Forensics to better reflect the increased breadth of topics and the practical hands-on nature of the teaching approach employed. Field trips to industry sites, guest speakers from industry and conduct industry-specific sessions. A couple of modules on TU7(TBC)/TU655/TU766 were replaced due to demand by industry.</p>		
<i>Is there a mechanism to ensure the input of external stakeholders in the ongoing development of the programme?</i>	Yes ✓	No <input type="checkbox"/>
<p>Comment:</p> <p>The School demonstrated that it has forged strong ties with industry and is continually engaged with and deeply committed to fostering engagement with industry stakeholders.</p>		
<i>Is the programme curriculum well-structured with a logical progression of learning and development across the modules and stages?</i>	Yes ✓	No <input type="checkbox"/>
The panel recommends that more consideration should be given to putting more structure around the co-ordination and rollout of work placements and assigning a placement organiser.		

<i>Are there appropriate opportunities for students to undertake work-based learning, through work placements or work-based projects or assignments?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p> <p>The School has introduced a work placement module in year 3 (TU860 &amp; TU863). A work-based project or Erasmus is also an option for those students who do not successfully secure a placement. The panel raised the need to ensure that students have clarity on the structure and options available to them in this regard. For TU655, students can undertake 7 months of work placement in both years 1 and 2, totalling 14 months' work placement prior to graduation. As part of this review, the School have made special provision for students who are unsuccessful in securing work placement.</p>		
<i>Are work/practice placements appropriate and fit for purpose, having regard to the requirements of professional, regulatory, and associative bodies where applicable, in the context of student achievement of learning outcomes and in the overall student experience?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p> <p>The panel recommends that the School undertake a review of module learning outcomes with a goal to making them more explicit in terms of the competencies and skills acquired, referencing the NFQ at the appropriate level.</p>		
<i>If applicable, have the relevant Blended Learning Checklists (i.e. Learning Experience Context &amp; Programme Context) been fully completed and submitted to the Panel?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		
<i>Is the required programme and module information provided in the correct format?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		

Learning, Teaching & Assessment		
<i>Is there an effective student-centred learning and teaching strategy that aligns with the University's strategies and guidelines in this regard?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		
<i>Does the assessment strategy provide an appropriate mix of assessment types that will enable students to demonstrate that they have met the module and programme learning outcomes?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		
<i>Do the learning outcomes and assessment strategy ensure that academic integrity can be maintained and attempted breaches of academic integrity are minimised/easily detected?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		
<i>Is there a comprehensive mapping of assessment methods and module learning outcomes and between module learning outcomes and programme learning outcomes?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		

The panel felt that more clarity is needed in terms of mapping learning outcomes to assessments to ensure that they are clearly communicated to students and staff and in order for students to have an understanding of what skills and knowledge they will gain.		
<i>Are there opportunities in all modules to provide students with timely and constructive feedback on their learning and development?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p> <p>Timely feedback is provided on all assessments in order that students can identify areas that have been completed satisfactorily and clearly know which sections require further study. Students can expect the return of marked assignments with feedback within two weeks. Each module leader is responsible for the type and approach taken to feedback. The vast majority of personalised feedback is provided through the VLE. Here, lecturers can comment, grade and provide detailed feedback which can be made available to the students to view online. Generalised feedback is also given during scheduled classes.</p>		
<i>Do the teaching and assessment methods consider the diversity of the student cohort?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		

Student Supports & Learning Environment		
<i>Are there sufficient and appropriate resources (e.g. human, financial and physical) to support the proposed programme aims and objectives, to deliver the programme as specified?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		
<i>Are there sufficient staff that are appropriately qualified and capable to support the programme delivery?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p> <p>The panel were impressed with the staff credentials which demonstrated a diverse range of specialist knowledge, industry experience and a strong engagement in research activities. Programme content and design has been informed and driven by the research interests of the programme team members across a variety of computing topics and disciplines including programming languages, web development, data science, human language technologies, artificial intelligence, learning analytics, computer vision and high performance computing.</p>		
<i>Are there appropriate arrangements in place to support the student experience and to monitor student performance?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		
<i>Are the access, transfer and progression arrangements including RPL clearly defined and appropriate, and aligned to TU Dublin policy/strategy in this regard?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		
<i>Do the student supports and learning environment cater for equality, diversity and inclusivity of students?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p> <p>The School has demonstrated a strong commitment to diversity and inclusivity as evidenced in strong international student enrolment, being actively involved in initiatives such as Women In Technology United (WITU) which aims to retain women, trans, and gender non-conforming students in technology courses and so increases gender diversity in technology courses. This</p>		

includes multiple WITU events through-out the year for TU Dublin students, camps for students in local primary and secondary schools, and support for scholarship applications.		
<i>Is the relevant programme information clearly communicated to the students to ensure they are informed, guided and cared for?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comment: The panel felt that more clarity was needed regarding the structure of the programme and work placement processes and other options in Year 3. The panel recommends that information on the exit awards be provided in the Student Handbook and in the Programme & Module Catalogue (Akari).		

Collaborative Provision (if applicable)		
<i>Are the roles and responsibilities of each partner clearly defined?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Comment: N/A		
<i>In the case of Joint or Multiple Awards, has due diligence on the capacity of the partner institution to meet the QA/QE requirements for the programme been undertaken?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Comment: N/A		

Section F	Overall Recommendation of the Panel
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1.	<b>Recommend continuing approval of programme as submitted, without amendment</b>	<input type="checkbox"/>
2.	<b>Recommend continuing approval of programme, subject to minor amendments/editorial changes to be completed as soon as possible and with recommendations for consideration.</b>  <b>Note:</b> recommendations are attached where it is considered that the programme would benefit from particular changes, or from a review of certain aspects of the programme over a period of time, with changes made if required. While recommendations are advisory in nature, there is an expectation that all recommendations are responded to appropriately and acted upon as appropriate.	<input type="checkbox"/>
3.	<b>Recommend continuing approval of programme subject to the fulfilment of conditions. Recommendations for consideration may also be attached.</b>  <b>Note:</b> conditions are attached where it is agreed that changes must be made to the programme / programme documentation prior to the commencement of the programme. Conditions must be set where issues are identified that relate directly to academic standards or to University regulations or procedures. It should be clear what is required in order to meet the conditions.  A new programme cannot go forward to Faculty Board for consideration unless a response to the Review Report is submitted with revised programme documentation.	<input checked="" type="checkbox"/>
4.	<b>Do not recommend continuing approval of programme.</b>	<input type="checkbox"/>



Areas for commendation	
	The panel commends the School for the amount of work that they put into the programme review process and comprehensive supporting documentation that was provided to the panel. The dedication, commitment and enthusiasm of the Programme Team was evident to the Panel.
	The School demonstrated a strong engagement with industry. Staff are research active and demonstrated a breadth of research collaborations and publications.
	The School demonstrated a clear understanding of student needs in an industrial environment and enhanced the programmes accordingly in order to better equip students for the end market.
	The panel noted the impressive feedback from students, who spoke very highly of their experience in the School, during its meeting with them.
	The panel commends the School's endeavours in supporting diversity and inclusion and its initiatives to increase participation of women and girls in technology.

Conditions of Approval	
1.	<p>Programme Handbooks require information to accurately reflect the structure of the programmes, e.g. there needs to be more clarity with regard to the work placement process, elective options available to the students and information on exit award options need to be clearly defined in both the handbooks and in the Programme Module Catalogue (Akari).</p> <p><b>Infrastructure Response:</b> Relevant sections have been added to the Student Handbook. Awards are listed in Akari for TU655 and TU766.</p>
2.	<p>Programme Learning Outcomes need to be revised and rewritten for clarity, conciseness and consistency.</p> <p><b>Infrastructure Response:</b> Programme Learning Outcomes were revised and updated for conciseness, clarity, and consistency.</p>
3.	<p>Programme Learning Outcomes should map to the appropriate level on the National Framework of Qualifications.</p> <p><b>Infrastructure Response:</b></p> <p><b>NFQ Level 6 Descriptors</b></p> <ul style="list-style-type: none"> <li>• Knowledge (Breadth): The learner will have knowledge and understanding of the basic concepts</li> <li>• Knowledge (Kind): Some theoretical concepts and abstract thinking, with significant underpinning theory</li> <li>• Know-how and skill (Range): Demonstrate comprehensive range of specialised skills and tools</li> <li>• Know-how and skill (Selectivity): Formulate responses to well-defined abstract problems Competence (Context): Act in a range of varied and specific contexts involving creative and nonroutine activities; transfer and apply theoretical concepts and/or technical or creative skills to a range of contexts</li> <li>• Competence (Role): Exercise substantial personal autonomy and often take responsibility for the work of others and/or for allocation of resources; form, and function within, multiple complex and heterogeneous groups</li> </ul>



	<ul style="list-style-type: none"> <li>• Competence (Learning to learn): Learn to evaluate own learning and identify needs within a structured learning environment; assist others in identifying learning needs</li> <li>• Competence (Insight): Express an internalised, personal world view, reflecting engagement with others</li> </ul> <p><u>Mapping of revised PLO's to NFQ Level 6</u></p> <p>1. Knowledge Breadth - Acquire knowledge and understanding of the basic concepts in the following areas: Computer Systems, Operating Systems, Virtualisation, Security, Secure IoT, Computer Networks, Network defence, Artificial Intelligence and Social and Professional Issues.</p> <p><i>This PLO aligns to the knowledge breadth descriptor as it involves acquiring basic knowledge across a broad spectrum of secure networking and cloud technologies.</i></p> <p>2. Knowledge Kind - Explain the basic concepts and theories of the core computer infrastructure and security domain; describe a range of roles and responsibilities of computing professionals; and describe best practices in computing.</p> <p><i>This PLO aligns to the knowledge kind descriptor as it emphasises the student's ability to integrate knowledge acquired across a variety of areas in secure network technologies and to recognise gaps in their understanding and seek out sources of new knowledge and adapt to emerging challenges in these fields.</i></p> <p>3. Know-how and Skill-Range - Operate and configure specialised networking equipment related systems effectively. They will have the knowledge to implement and test secure computer network systems; and identify any risks or safety issues that may be involved in the operation of them. Communication effectively orally and in writing will also be implemented.</p> <p><i>This PLO aligns to the know-how skills-range descriptor as it emphasises the student's ability to configure Routers Switches and Firewalls, integrate virtualisation, and secure and defend the network with the latest tools and strategies.</i></p> <p>4. Know-how and Skill-Selectivity - critically analyse computing requirements, technical specifications and limitations and the consequential impact on proposed solutions. Therefore, graduates must have a capacity to exercise the appropriate level of judgement in many areas. On successful completion of the programme students will have developed the ability of critical analysis and will exhibit the conceptual and practical ability to tackle cross-functional, multi-functional and specialist IT decision making in a coherent and logical manner. In so doing the student will be able to apply cognitive skills of critical thinking, troubleshooting, synthesis, and professional judgement.</p> <p><i>This PLO aligns to the know-how skills-selectivity descriptor as it emphasises the student's ability to exercise appropriate judgement in selecting the tools and technologies required for a secure network system.</i></p>
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	<p>5. Competence Context - recognise common solutions to a range of problems and implement common diagnostic techniques. They will demonstrate awareness of new technologies and will be capable of recognising and analysing problems and developing and implementing plans to diagnose and resolve those problems.</p> <p><i>This PLO aligns to the competence context descriptor as it emphasises the student's ability to use their knowledge and creative skills to diagnose and resolve common technical issues while ensuring solutions meet their requirements in a safe and ethical manner.</i></p> <p>6. Competence Role - have the competency to accept accountability for determining and achieving personal and group outcomes. They will demonstrate the capacity to take responsibility for the work of others in work or study, and interact effectively with others, including non-computing staff.</p> <p><i>This PLO aligns with the Competence Role descriptor as it requires students to take responsibility for their roles in the context of personal and group work while demonstrating effective communication skills at different levels of an organisation.</i></p> <p>7. Competence Learning to Learn - demonstrate the capacity to learn new knowledge and skills and appreciate the need for continuing professional development in recognition of the need for lifelong learning and participate in group learning activities. To successfully complete the programme a student will have to demonstrate effective self-management in terms of time, setting of goals, planning and behaviour, motivation, personal initiative and enterprise, ethical standards and professionalism. They will accept responsibility for and learn from unsuccessful outcomes in their working life, and take on responsibility for addressing gaps in their own knowledge, thus increasing their ability to adapt to change</p> <p><i>This PLO aligns with the Competence Learning to Learn descriptor as it requires students to actively engage with their studies and which allows them to stay current in their field.</i></p> <p>8. Competence Insight - Recognise group dynamics and respond appropriately and accept constructive criticism and use that feedback constructively. The project module incorporated into the work experience, the integration of both academia and work will ensure that students understand the stakeholders and communities associated with the IT industry and are also able to manage the environment and relationships encountered in working in this industry.</p> <p><i>This PLO aligns with the Competence Insight descriptor as it requires students to consider the wider implications of their environment and relationships encountered in working in the industry.</i></p> <p><u>NFQ Level 7 Descriptors</u></p> <ul style="list-style-type: none"> <li>• <i>Knowledge (Breath):</i> Specialised knowledge across a variety of areas.</li> <li>• <i>Knowledge (Kind):</i> Recognition of limitations of current knowledge and familiarity with sources of new knowledge; integration of concepts across a variety of areas.</li> <li>• <i>Know-how and skill (Range):</i> Demonstrate specialised technical, creative or conceptual skills and tools across an area of study.</li> </ul>
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	<ul style="list-style-type: none"> <li>• <i>Know-how and skill (Selectivity)</i>: Exercise appropriate judgement in planning, design, technical and/ or supervisory functions related to products, services, operations or processes.</li> <li>• <i>Competence (Context)</i>: Utilise diagnostic and creative skills in a range of functions in a wide variety of contexts.</li> <li>• <i>Competence (Role)</i>: Accept accountability for determining and achieving personal and/ or group outcomes; take significant or supervisory responsibility for the work of others in defined areas of work.</li> <li>• <i>Competence (Learning to learn)</i>: Take initiative to identify and address learning needs and interact effectively in a learning group.</li> <li>• <i>Competence (Insight)</i>: Express an internalised, personal world view, manifesting solidarity with others.</li> </ul> <p><u>Mapping of revised PLO's to NFQ Level 7</u></p> <p>1. <i>Knowledge Breadth</i> -          Demonstrate comprehensive knowledge of secure networking and cloud technologies, integrating advanced principles of network programming, Network Function Virtualization, Software Defined Networking, cloud platforms, and automation to design and manage sophisticated network solutions. Demonstrate intermediate knowledge of Computer Systems, Operating Systems, Security, Secure IoT, Artificial Intelligence, Social and Professional skills.</p> <p><i>This PLO aligns to the knowledge breadth descriptor as it involves acquiring specialized knowledge across a broad spectrum of secure networking and cloud technologies.</i></p> <p>2. <i>Knowledge Kind</i> -</p> <p>Apply theoretical and abstract concepts to develop and implement secure, programmable, and automated network and cloud environments and create new solutions that address complex problems. This also includes recognising the limitations of their areas of expertise and demonstrate familiarity with sources of new knowledge.</p> <p><i>This PLO aligns to the knowledge kind descriptor as it emphasises the student's ability to integrate knowledge acquired across a variety of areas in cloud technologies and networking and to recognise gaps in their understanding and seek out sources of new knowledge and adapt to emerging challenges in these fields.</i></p> <p>3. <i>Know-how and Skill-Range</i> - Develop and demonstrate a comprehensive range of specialized skills to design, configure, and manage secure networks using SDN controllers, automation frameworks (e.g., Ansible), and network virtualization techniques. This includes using the tools and programming languages to design, implement, and manage secure and automated network infrastructures, while testing the extent to which a Cloud-based system meets the criteria defined for its current use.</p> <p><i>This PLO aligns to the know-how skills-range descriptor as it emphasises the student's ability to configure SDN controllers, deploy VNFs, integrate cloud networking, and automate tasks using advanced scripting and orchestration tools.</i></p>
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	<p>4. <i>Know-how and Skills-Selectivity</i> - Demonstrate the ability to select and apply appropriate methodologies and tools for problem-solving in complex and unpredictable environments related to networking and cloud computing. Demonstrate awareness and understanding of the ethical, legal, and regulatory considerations in cloud computing. Evaluate the societal impact of technology decisions, promoting responsible and ethical use of Cloud systems.</p> <p><i>This PLO aligns to the know-how skills-selectivity descriptor as it emphasises the student's ability to exercise appropriate judgement in selecting the tools and technologies required for implementation of a cloud-based system.</i></p> <p>5. <i>Competence Context</i> - Recognise the best practices relevant to a range of real-world contexts, and the suitability of a given diagnostic technique or solution for that context. Demonstrate the ability to apply their skills creatively and diagnostically across various environments, including complex cloud networks, virtualized infrastructures, and programmable networks, to deliver secure and efficient solutions.</p> <p><i>This PLO aligns to the competence context descriptor as it emphasises the student's ability to use their knowledge and creative skills to diagnose and resolve complex technical issues while ensuring solutions meet their requirements in a safe and ethical manner.</i></p> <p>6. <i>Competence Role</i> - Have the competency to accept accountability for determining and achieving personal and group goals in the execution of projects. Plan and organise work and monitor progress against a plan. Graduates will be capable of leading and managing complex projects in networking and cloud technologies, exercising autonomy and taking responsibility for resource management, team leadership, and strategic decision-making within their organizations.</p> <p><i>This PLO aligns with the Competence Role descriptor as it requires students to take responsibility for their roles in the context of individual and group work while demonstrating effective communication skills at different levels of an organisation.</i></p> <p>7. <i>Competence Learning to Learn</i> - Exercise substantial personal autonomy and often take responsibility for the work of others and/or for the allocation of resources, form, and function within, multiple complex, and heterogeneous groups. Learn to evaluate own learning and identify needs within a structured learning environment; assist others in identifying learning needs. Graduates will develop the ability to continuously evaluate their own learning and stay current with advancements in networking and cloud technologies.</p> <p><i>This PLO aligns with the Competence Learning to Learn descriptor as it requires students to actively engage with their studies and identify gaps in their learning that need attention. This allows them to stay current in their field.</i></p> <p>8. <i>Competence Insight</i> - Express an internalized, personal world view, reflecting engagement with others. Develop a deep, reflective understanding of the ethical, social, and professional implications of their work in the field. Critical awareness of the ethical and security implications of cloud adoption, particularly in relation to data privacy, compliance, and the global impact of</p>
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	<p>cloud computing. Graduates will understand the need to balance innovation with ethical considerations, such as data protection and the carbon footprint of cloud services.</p> <p><i>This PLO aligns with the Competence Insight descriptor as it requires students to consider the wider implications of the decisions they take in designing, implementing, and deploying cloud solutions.</i></p>															
4.	<p>Award classifications need to be provided in the handbooks and in the Programme Module Catalogue (Akari).</p> <p><b>Infrastructure Response:</b> The award classifications listed below have been added to Akari and student handbooks.</p> <p>L6 and L7 Award Classification:</p> <table><tr><th>Classification</th><th>GPA Required</th><th>Indicative Description</th></tr><tr><td>Pass</td><td>2.00</td><td>Attains all the minimum intended programme learning outcomes</td></tr><tr><td>Merit Grade 2</td><td>2.50</td><td>Pass and achievement is significantly beyond pass standard in some respects</td></tr><tr><td>Mert Grade 1</td><td>3.00</td><td>Pass and achievement is significantly beyond pass standard in many respects</td></tr><tr><td>Distinction</td><td>3.25</td><td>Pass and achievement is significantly and consistently beyond pass standard in most respects</td></tr></table>	Classification	GPA Required	Indicative Description	Pass	2.00	Attains all the minimum intended programme learning outcomes	Merit Grade 2	2.50	Pass and achievement is significantly beyond pass standard in some respects	Mert Grade 1	3.00	Pass and achievement is significantly beyond pass standard in many respects	Distinction	3.25	Pass and achievement is significantly and consistently beyond pass standard in most respects
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Recommendations	
1.	<p>Undertake a review of module learning outcomes with a goal to making them more explicit in terms of the competencies and skills acquired, referencing the NFQ at the appropriate level.</p> <p><b>Infrastructure Response:</b> We plan to review the module learning outcomes during the 2024/2025 academic year, aiming to clarify the competencies and skills acquired, and align them with the National Framework of Qualifications at the appropriate level.</p>
2.	<p>More clarity is required in terms of mapping learning outcomes to assessments to ensure that they are clearly communicated to students so that they understand what skills and knowledge they will gain.</p> <p><b>Infrastructure Response:</b> All modules utilise Akari's native functionality to align assessments with learning outcomes. This alignment is clearly communicated to students</p>

	during the introductory lecture of each module, ensuring they understand the skills and knowledge they are expected to gain. Additional details can be found in the assessment briefs set by module leaders.
3.	<p>Incorporate soft and professional skills relevant to the graduate industry sectors throughout the years of the programmes (such as teamwork, conflict resolution, problem-solving, leadership and innovation, managing your manager, etc., and implementation of a performance improvement plan (PIP).</p> <p><b>Infrastructure Response:</b> Soft skills relevant to the programmes work placement company and industry partners, are covered extensively in our 1<sup>st</sup> year Business Communications module. This module has been updated in this review to tackle issues such as conflict resolution, problem solving in group or teams, sustainability and ethics. It is a module that prepares the student for placement interviews and how to conduct themselves in a professional manner. Applied Learning in the Workplace is another 1<sup>st</sup> year module that incorporates professional skills. Student placements provide learners with a structured method of combining academic education with practical work experience. This work placement module provides learners with experience of a business/industry setting, related to their programme of study.</p> <p>Problem-solving is also integrated across various other modules.</p> <p>Additionally, management and leadership skills are already emphasised through group work in many other modules, including the Work based learning and project module. In this module, students must solve a work-based problem with the help of an academic supervisor.</p>
4.	<p>Consideration should be given to putting more structure around the securing, co-ordination and rollout of work placements and assigning a placement coordinator. A Placement Handbook should be developed for all programmes outlining the roles and responsibilities of the placement site, the student and the School.</p> <p><b>Infrastructure Response:</b> Learn+Work course is a professional traineeship course providing a pipeline of skilled in-demand work-ready talent into STEM industries through industry partnership.</p> <ul style="list-style-type: none"> <li>• Learn+Work courses blend the strength of a university education with an apprenticeship-style work placement. This course is designed specifically to create work-ready university graduates in the shortest possible time-frame.</li> <li>• Each year Learn+Work students spend 5 months in fulltime study and then 7 months on placement with a company 4 days per week, returning to university 1 day per week during term time. Students are paid while on placement.</li> <li>• As a result this is an intensive course, that runs 12 months each year, instead of the standard 9 months, so students do not get the traditional summer break while on this course, but they are entitled to annual leave days on a pro-rata basis while on work placement.</li> </ul> <p>TU655 has been running since 2016 and has a 14-month placement over the 2-year programme. All documentation and placement handbooks are currently up to date.</p> <p>Placements have been secured with leading companies such as Citrix, Concern, Eir, EOS IT Solutions, Emerald Park, Equinix, Liberty IT, Macro Evolution Services, Microsoft, MJ Flood, Netspeed, Viatel, Vodafone and WiLine.</p>

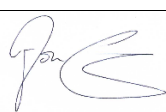
5.	Consider introducing learning outcomes which focus on the use of software development pipelines and code repositories in order to create a long term student portfolio.
	<b>Infrastructure Response:</b> Software development is not applicable for infrastructure.
6.	More explicit detail should be provided in the module descriptors with regard to how sustainability and Gen AI are considered or embedded in the modules.
	<b>Infrastructure Response:</b> AI (generative and predictive) and machine learning in network operations will be covered as part of the new CCNA certification.
7.	Clarification should be provided to students on the use of Gen AI per module and should be provided in the assessment brief. In addition, consideration should be given to and how GEN AI should form part of a student's toolkit.
	<b>Infrastructure Response:</b> AI (generative and predictive) and machine learning in network operations will be covered as part of the new CCNA certification.
8.	More detail needs to be provided on how the final project is assessed.
	<b>Infrastructure Response:</b> The project module assessment is clearly defined as part of the second-year work experience.
9.	The full module descriptors should be entered in the Student Handbook.
	<b>Infrastructure Response:</b> This has been completed.

**Other matters to be brought to the attention of Faculty Board and/or Academic Quality Assurance & Enhancement Committee**

**Section G Approvals**

**Review Report**

This Review Report has been agreed by the Review Panel and is signed on its behalf by the Panel Chair.

Signed: 

Date: 26/06/2024


**School Response**

The response to the conditions and recommendations has been agreed by the School and is signed by the Head of School.

Head of School, Informatics and Cybersecurity



Date: 26/08/2024

<b>Faculty Board</b>	
The report and response have been approved by Faculty Board	
Head of Learning Development:	
Signed: 	Date: 13/09/2024

<b>Academic Quality Assurance &amp; Enhancement Committee</b>	
The report and response have been approved by the Academic Quality Assurance & Enhancement Committee	
Head of Academic Affairs:	
Signed:	Date: Click or tap to enter a date.