QQI
Quality and Qualifications Ireland
Dearbhú Cáilíochta agus Cáilíochtaí Éireann

Independent Evaluation Report on an Application for Validation of a Programme of Education and Training

Part 1

Provider name	National College of Ireland (NCI) or *Coláiste Náisiúnta na hÉireann (CNÉ)*
Date of site visit	29 November 2019
Date of report	17 December 2019

Overall recommendations

Principal programme	**Title**	Cloud Computing
	Award	Masters of Science
	Credit	90
	Recommendation *Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory*	Satisfactory

Embedded programme	**Title**	Cloud Computing
	Award	Postgraduate Diploma in Science
	Credit	60
	Recommendation	Satisfactory

	Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory	

Embedded programme	**Title**	Not Applicable
	Award	Not Applicable
	Credit	Not Applicable
	Recommendation *Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory*	Not Applicable

Evaluators

Evaluators		
Name	**Role**	**Affiliation**
Dr Michael Hall	Chair	Head of Health and Leisure Studies, Institute of Technology Tralee
Dr Eric Derr	Recording Secretary	Quality Assurance Officer, Carlow College, St. Patrick's
Dr Ramona Trestian	Subject Matter Expert	Senior Lecturer in Computer Science, Middlesex University
Dr Joanna Kolodziej	Subject Matter Expert	Associate Professor, Department of Computer Science, Cracow University of Technology
Emma Reid	Industry Expert	Training Programme Manager, Microsoft Ireland
Achint Atri	Learner Representative	MSc Business Management, Dublin City University

Principal Programme

Names of centres where the programmes are to be provided	**Maximum number of learners** *(per centre)*	**Minimum number of learners**
National College of Ireland, IFSC Campus	150	30

Enrolment interval ***(normally 5 years)***	**Date of first intake**	September 2020
	Date of last intake	**August 2025**
Maximum number of annual intakes	2 (September and January)	
Maximum total number of learners per intake	150 (including FT and PT)	
Programme duration (months from start to completion)	12 months (FT); 24 months (PT)	
Target learner groups	The MSc in Cloud Computing is aimed at Level 8 graduates of a systems-oriented computing discipline. Namely: • Computer Engineering: Typically involves software and hardware and the development of systems that involve software, hardware, and communications. • Computer Science: Relatively broad and with an emphasis on the underlying science aspects. • Software Engineering Focuses on large-scale software systems; certain ideas from the world of engineering in building reliable software systems.	
Approved countries for provision	Republic of Ireland	
Delivery mode: Full-time/Part-time	Full-Time; Part-Time	
The teaching and learning modalities	The teaching and learning mode is face-to-face delivery via lectures, demonstrations, and tutorials. Underpinned by independent research and pre-reading, declarative and procedural learning will be addressed through activities such as formal lectures, case studies, scaffolding programming tasks, and coding tutorials. A pedagogy-centred approach will address functioning intended learning outcomes through peer collaborative learning, coding projects in novel and unfamiliar situations, systematic group work and presentations, web-enhanced learning, and research problems. Learners will also engage in a capstone research project, conducting appropriate research and undertaking the design and development of a cloud computing solution in supervision settings.	
Brief synopsis of the programme (e.g. who it is for, what is it for, what is involved for learners, what it leads to.)	This document presents a proposal for the revalidation of the 90-credit Master of Science in Cloud Computing at the National College of Ireland (NCI). It details the motivation, structure, and content of the revised programme. Upon completion, graduates are able to perform independent research that puts them into a position to make informed and critical decisions regarding requirements elicitation and analysis, implementation, evaluation and documentation in Cloud Computing.	

	The programme will run both on part-time and full-time basis, leading to a NFQ Level 9 award of Master of Science awarded by QQI. Graduates of the programme will take up roles as cloud architects, cloud engineers, full-stack cloud developers, cloud automation engineers, and cloud consultants among others.	
Summary of specifications for teaching staff	**WTE**	**Qualifications and experience**
	8	Lecturers with academic experience at Level 9 or equivalent delivering modules in cloud computing, computational science, advanced computer programming, and / or computer science.
	2	Programme Directors who are responsible for the academic management of the programme and may also be lecturers on the programme.
	2	Programme Co-ordinators who are responsible for coordinating the administration aspects of the programme.
Summary of specifications for the ratio of learners to teaching-staff	**Staff to learner ratio**	**Learning activity type**
	1:60	Lectures
	1:25	Tutorials / Labs
Overall WTE staff/learner ration	1:15	

Programmes being replaced (applicable to applications for revalidation)		
Code	**Title**	**Last enrolment date**
PG21863	Master of Science in Cloud Computing	January 2020

Embedded programme

Names of centres where the programmes are to be provided	**Maximum number of learners** *(per centre)*	**Minimum number of learners**
National College of Ireland, IFSC Campus	30	15

Enrolment interval *(normally 5 years)*	**Date of first intake**	September 2020
	Date of last intake	**August 2025**
Maximum number of annual intakes	2 (September and January)	
Maximum total number of learners per intake	30 (including FT and PT)	
Programme duration (months from start to completion)	8 months (FT); 12 months (PT)	
Target learner groups	The PGDip in Cloud Computing is aimed at Level 8 graduates of a systems-oriented computing discipline. Namely: • Computer Engineering: Typically involves software and hardware and the development of systems that involve software, hardware, and communications. • Computer Science: Relatively broad and with an emphasis on the underlying science aspects. • Software Engineering Focuses on large-scale software systems; certain ideas from the world of engineering in building reliable software systems.	
Approved countries for provision	Republic of Ireland	
Delivery mode: Full-time/Part-time	Full-Time; Part-Time	
The teaching and learning modalities	The teaching and learning mode is face-to-face delivery via lectures, demonstrations, and tutorials. Underpinned by independent research and pre-reading, declarative and procedural learning will be addressed through activities such as formal lectures, case studies, scaffolding programming tasks, and coding tutorials. A pedagogy-centred approach will address functioning intended learning outcomes through peer collaborative learning, coding projects in novel and unfamiliar situations, systematic group work and presentations, web-enhanced learning, and research problems.	
Brief synopsis of the programme (e.g. who it is for, what is it for, what is involved for learners, what it leads to.)	This document presents a proposal for the revalidation of the 60-credit Postgraduate Diploma of Science in Cloud Computing at the National College of Ireland (NCI). It details the motivation, structure, and content of the revised programme. Upon completion, graduates are able to perform independent research that puts them into a position to make informed and critical decisions regarding requirements elicitation and analysis, implementation, evaluation and documentation in Cloud Computing.	

	The programme will run both on part-time and full-time basis, leading to a NFQ Level 9 award of Postgraduate Diploma of Science awarded by QQI.	
Summary of specifications for teaching staff	**WTE**	**Qualifications and experience**
	3	Lecturers with academic experience at level 9 or equivalent delivering modules in cloud computing, computational science, advanced computer programming, and/or computer science.
	1	Programme Director who is responsible for the academic management of the programme and may also be lecturers on the programme.
	1	Programme Co-ordinator who is responsible for coordinating the administration aspects of the programme.
Summary of specifications for the ratio of learners to teaching-staff	**Staff to learner ratio**	**Learning activity type**
	1:60	Lectures
	1:25	Tutorials / Labs
Overall WTE staff/learner ration	1:7.5	

Programmes being replaced (applicable to applications for revalidation)		
Code	**Title**	**Last enrolment date**
PG21864	Postgraduate Diploma of Science in Cloud Computing	January 2020

Other noteworthy features of the application

Not Applicable

Part 1A Evaluation of the Case for an Extension of the Approved Scope of Provision (where applicable).

Not Applicable

Comment on the case for extending the applicant's Approved Scope of Provision to enable provision of this programme.

Not Applicable

Part 2 Evaluation against the validation criteria

QQI's validation criteria and sub-criteria are copied here in grey panels.

Criterion 1

The provider is eligible to apply for validation of the programme

a) The provider meets the prerequisites (section 44(7) of the 2012 Act) to apply for validation of the programme.
b) The application for validation is signed by the provider's chief executive (or equivalent) who confirms that the information provided is truthful and that all the applicable criteria have been addressed.
c) The provider has declared that their programme complies with applicable statutory, regulatory and professional body requirements.

Satisfactory (yes, no, partially)	Comment
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

National College of Ireland meets the prerequisites of Section 44(7) of the 2012 Act for validation of the programme. The President of the College has submitted the necessary letter and the provider has declared their programme complies with applicable requirements.

Postgraduate Diploma of Science in Cloud Computing

National College of Ireland meets the prerequisites of Section 44(7) of the 2012 Act for validation of the programme. The President of the College has submitted the necessary letter and the provider has declared their programme complies with applicable requirements.

Criterion 2

The programme objectives and outcomes are clear and consistent with the QQI awards sought

a) The programme aims and objectives are expressed plainly.
b) A QQI award is specified for those who complete the programme.
    (i) Where applicable, a QQI award is specified for each embedded programme.
c) There is a satisfactory rationale for the choice of QQI award(s).
d) The award title(s) is consistent with unit 3.1 of QQI's *Policy and Criteria for Making Awards.*
e) The award title(s) is otherwise legitimate for example it must comply with applicable statutory, regulatory and professional body requirements.
f) The programme title and any embedded programme titles are
    (i) Consistent with the title of the QQI award sought.
    (ii) Clear, accurate, succinct and fit for the purpose of informing prospective learners and other stakeholders.
g) For each programme and embedded programme
    (i) The minimum intended programme learning outcomes and any other educational or training objectives of the programme are explicitly specified.
    (ii) The minimum intended programme learning outcomes to qualify for the QQI award sought are consistent with the relevant QQI awards standards.

h) Where applicable, the minimum intended module learning outcomes are explicitly specified for each of the programme's modules. i) Any QQI minor awards sought for those who complete the modules are specified, where applicable. For each minor award specified, the minimum intended module learning outcomes to qualify for the award are consistent with relevant QQI minor awards standards.	
Satisfactory (yes, no, partially)	**Comment**
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

Following extensive discussion with the Programme Team regarding the overall programme aims and objectives, the Independent Panel is satisfied that this criterion has been met. The Panel queried what the 'profile or attribute' of the graduates were and what 'hard skills' the graduates had upon completion of the programme. The Programme Team noted that the programme aims were articulated as: '... to equip graduates with technical and business skillsets, including 21st century skillset, required to thrive in industry across a variety of cloud computing related roles.' (Self-Evaluation Report, page 7). Moreover, it was noted that the graduate attributes for the MSc in Cloud Computing and the Postgraduate Diploma in Cloud Computing will have different graduate attributes to reflect the two different awards.

Postgraduate Diploma of Science in Cloud Computing

The Independent Panel extensively prodded the Programme Team to expound on the overall programme aims and objectives. The Panel queried what the 'profile or attribute' of the graduates were and what 'hard skills' the graduates had upon completion of the programme. The Programme Team noted that the programme aims were articulated as: ' ... to equip graduates with technical and business skillsets, including 21st century skillset, required to thrive in industry across a variety of cloud computing related roles.' (Self-Evaluation Report, page 7). The Panel judged that the programme aims were too broad and requested that the Programme Team develop programme-specific graduate attributes that reflect the 'hard skills' graduates will have upon completion of the programme. Moreover, it was noted that the graduate attributes for the MSc in Cloud Computing and the Postgraduate Diploma in Cloud Computing will have different graduate attributes to reflect the two different awards.

Criterion 3

The programme concept, implementation strategy, and its interpretation of QQI awards standards are well informed and soundly based (considering social, cultural, educational, professional and employment objectives)

a) The development of the programme and the intended programme learning outcomes has sought out and taken into account the views of stakeholders such as learners, graduates, teachers, lecturers, education and training institutions, employers, statutory bodies, regulatory bodies, the international scientific and academic communities, professional bodies and equivalent associations, trades unions, and social and community representatives.

b) The interpretation of awards standards has been adequately informed and researched; considering the programme aims and objectives and minimum intended programme (and, where applicable, modular) learning outcomes.

(i) There is a satisfactory rationale for providing the programme.
(ii) The proposed programme compares favourably with existing related (comparable) programmes in Ireland and beyond. Comparators should be as close as it is possible to find.
(iii) There is support for the introduction of the programme (such as from employers, or professional, regulatory or statutory bodies).
(iv) There is evidence of learner demand for the programme.
(v) There is evidence of employment opportunities for graduates where relevant.
(vi) The programme meets genuine education and training needs.

c) There are mechanisms to keep the programme updated in consultation with internal and external stakeholders.
d) Employers and practitioners in the cases of vocational and professional awards have been systematically involved in the programme design where the programme is vocationally or professionally oriented.
e) The programme satisfies any validation-related criteria attaching to the applicable awards standards and QQI awards specifications.

Satisfactory (yes, no, partially)	Comment
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met.

Postgraduate Diploma of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met.

Criterion 4

The programme's access, transfer and progression arrangements are satisfactory

a) The information about the programme as well as its procedures for access, transfer and progression are consistent with the procedures described in QQI's policy and criteria for access, transfer and progression in relation to learners for providers of further and higher education and training. Each of its programme-specific criteria is individually and explicitly satisfied.
b) Programme information for learners is provided in plain language. This details what the programme expects of learners and what learners can expect of the programme and that there are procedures to ensure its availability in a range of accessible formats.
c) If the programme leads to a higher education and training award and its duration is designed for native English speakers, then the level of proficiency in English language must be greater or equal to B2+ in the Common European Framework of Reference for Languages (CEFRL) in order to enable learners to reach the required standard for the QQI award.
d) The programme specifies the learning (knowledge, skill and competence) that target learners are expected to have achieved before they are enrolled in the programme and any other assumptions about enrolled learners (programme participants).
e) The programme includes suitable procedures and criteria for the recognition of prior learning for the purposes of access and, where appropriate, for advanced entry to the programme and for exemptions.
f) The programme title (the title used to refer to the programme):-

(i) Reflects the core *intended programme learning outcomes*, and is consistent with the standards and purposes of the QQI awards to which it leads, the award title(s) and their class(es). (ii) Is learner focused and meaningful to the learners; (iii) Has long-lasting significance. g) The programme title is otherwise legitimate; for example, it must comply with applicable statutory, regulatory and professional body requirements.	
Satisfactory (yes, no, partially)	**Comment**
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met.

Postgraduate Diploma of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met.

Criterion 5

The programme's written curriculum is well structured and fit-for-purpose a) The programme is suitably structured and coherently oriented towards the achievement by learners of its intended programme learning outcomes. The programme (including any stages and modules) is integrated in all its dimensions. b) In so far as it is feasible the programme provides choice to enrolled learners so that they may align their learning opportunities towards their individual educational and training needs. c) Each module and stage is suitably structured and coherently oriented towards the achievement by learners of the intended *programme* learning outcomes. d) The objectives and purposes of each of the programme's elements are clear to learners and to the provider's staff. e) The programme is structured and scheduled realistically based on sound educational and training principles. f) The curriculum is comprehensively and systematically documented. g) The credit allocated to the programme is consistent with the difference between the entry standard and minimum intended programme learning outcomes. h) The credit allocated to each module is consistent with the difference between the module entry standard and minimum intended module learning outcomes. i) Elements such as practice placement and work based phases are provided with the same rigour and attentiveness as other elements. j) The programme duration (expressed in terms of time from initial enrolment to completion) and its fulltime equivalent contact time (expressed in hours) are consistent with the difference between the minimum entry standard and award standard and with the credit allocation.	
Satisfactory (yes, no, partially)	**Comment**
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

The Programme Team indicated that as part of the strategic strategy to reduce learner attrition rates they had developed a 'Bootcamp programme' which consist of several one-day sessions at the start of the programme to refresh key concepts in computer programming, operating systems, and research skills. The Independent Review Panel queried whether this was part of a bridging programme or part of the induction programme. The Programme Team noted that the 'Bootcamps' were mandatory, tailored to each incoming cohort and were part of the induction programme. The Independent Panel is satisfied that this criterion has been met.

Postgraduate Diploma of Science in Cloud Computing

The Programme Team indicated that as part of the strategic strategy to reduce learner attrition rates they had developed a 'Bootcamp programme' which consist of several one-day sessions at the start of the programme to refresh key concepts in computer programming, operating systems, and research skills. The Independent Review Panel queried whether this was part of a bridging programme or part of the induction programme. The Programme Team noted that the 'Bootcamps' were mandatory, tailored to each incoming cohort and were part of the induction programme. The Independent Panel is satisfied that this criterion has been met.

Criterion 6

There are sufficient qualified and capable programme staff available to implement the programme as planned

a) The specification of the programme's staffing requirements (staff required as part of the programme and intrinsic to it) is precise, and rigorous and consistent with the programme and its defined purpose. The specifications include professional and educational qualifications, licences-to practise where applicable, experience and the staff/learner ratio requirements. See also criterion 12 c).

b) The programme has an identified complement of staff (or potential staff) who are available, qualified and capable to provide the specified programme in the context of their existing commitments.

c) The programme's complement of staff (or potential staff) (those who support learning including any employer-based personnel) are demonstrated to be competent to enable learners to achieve the intended programme learning outcomes and to assess learners' achievements as required.

d) There are arrangements for the performance of the programme's staff to be managed to ensure continuing capability to fulfil their roles and there are staff development opportunities.

e) There are arrangements for programme staff performance to be reviewed and there are mechanisms for encouraging development and for addressing underperformance.

f) Where the programme is to be provided by staff not already in post there are arrangements to ensure that the programme will not enrol learners unless a complement of staff meeting the specifications is in post.

Satisfactory (yes, no, partially)	Comment
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met.

Postgraduate Diploma of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met.

Criterion 7

There are sufficient physical resources to implement the programme as planned

a) The specification of the programme's physical resource requirements (physical resources required as part of the programme and intrinsic to it) is precise, and rigorous and consistent with the programme, its defined purpose and its resource/learner-ratio requirements. See also criterion 12 d).

b) The programme has an identified complement of supported physical resources (or potential supported physical resources) that are available in the context of existing commitments on these e.g. availability of:

(i) suitable premises and accommodation for the learning and human needs (comfort, safety, health, wellbeing) of learners (this applies to all of the programme's learning environments including the workplace learning environment)
(ii) suitable information technology and resources (including educational technology and any virtual learning environments provided)
(iii) printed and electronic material (including software) for teaching, learning and assessment
(iv) suitable specialist equipment (e.g. kitchen, laboratory, workshop, studio) – if applicable
(v) technical support
(vi) administrative support
(vii) company placements/internships – if applicable

c) If versions of the programme are provided in parallel at more than one location each independently meets the location-sensitive validation criteria for each location (for example staffing, resources and the learning environment).
d) There is a five-year plan for the programme. It should address
   (i) Planned intake (first five years) and
   (ii) The total costs and income over the five years based on the planned intake.
e) The programme includes controls to ensure entitlement to use the property (including intellectual property, premises, materials and equipment) required.

Satisfactory (yes, no, partially)	Comment
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

The Independent Panel noted that NCI has a well-established history of developing and delivering programmes in the School of Computing. Moreover, as part of the NCI Cloud Competency Centre, there is a dedicated Cloud Computing datacentre to facilitate practical work and research activities. The Centre is equipped with state-of-the art software and hardware, which enables learners to carry out experimental work on the NCI private cloud facilities as well as extend their experiments onto a hybrid and public cloud infrastructures provided by a number of mainstream providers.

Postgraduate Diploma of Science in Cloud Computing

The Independent Panel noted that NCI has a well-established history of developing and delivering programmes in the School of Computing. Moreover, as part of the NCI Cloud Competency Centre, there is a dedicated Cloud Computing datacentre to facilitate practical work and research activities. The Centre is equipped with state-of-the art software and hardware, which enables learners to carry out experimental work on the NCI private cloud facilities as well as extend their experiments onto a hybrid and public cloud infrastructures provided by a number of mainstream providers.

Criterion 8

The learning environment is consistent with the needs of the programme's learners

a) The programme's physical, social, cultural and intellectual environment (recognising that the environment may, for example, be partly virtual or involve the workplace) including resources and support systems are consistent with the intended programme learning outcomes.
b) Learners can interact with, and are supported by, others in the programme's learning environments including peer learners, teachers, and where applicable supervisors, practitioners and mentors.
c) The programme includes arrangements to ensure that the parts of the programme that occur in the workplace are subject to the same rigours as any other part of the programme while having regard to the different nature of the workplace.

Satisfactory (yes, no, partially)	Comment
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met.

Postgraduate Diploma of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met.

Criterion 9

There are sound teaching and learning strategies

a) The teaching strategies support achievement of the intended programme/module learning outcomes.
b) The programme provides authentic learning opportunities to enable learners to achieve the intended programme learning outcomes.
c) The programme enables enrolled learners to attain (if reasonably diligent) the minimum intended programme learning outcomes reliably and efficiently (in terms of overall learner effort and a reasonably balanced workload).
d) Learning is monitored/supervised.
e) Individualised guidance, support and timely formative feedback is regularly provided to enrolled learners as they progress within the programme.

Satisfactory (yes, no, partially)	Comment
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

The Independent Panel sought clarification on the approach taken by the Programme Team in the development of MIMLOs across the Programme. Following these discussions, the Independent Panel is satisfied that this criterion has been met.

The Independent Panel sought clarification on the approach taken by the Programme Team in the development of MIMLOs across the Programme. Following these discussions, the Independent Panel is satisfied that this criterion has been met.

Criterion 10

There are sound assessment strategies

a) All assessment is undertaken consistently with *Assessment Guidelines, Conventions and Protocols for Programmes Leading to QQI Awards*
b) The programme's assessment procedures interface effectively with the provider's QQI approved quality assurance procedures.
c) The programme includes specific procedures that are fair and consistent for the assessment of enrolled learners to ensure the minimum intended programme/module learning outcomes are acquired by all who successfully complete the programme.
d) The programme includes formative assessment to support learning.
e) There is a satisfactory written programme assessment strategy for the programme as a whole and there are satisfactory module assessment strategies for any of its constituent modules.
f) Sample assessment instruments, tasks, marking schemes and related evidence have been provided for each award-stage assessment and indicate that the assessment is likely to be valid and reliable.
g) There are sound procedures for the moderation of summative assessment results.
h) The provider only puts forward an enrolled learner for certification for a particular award for which a programme has been validated if they have been specifically assessed against the standard for that award.

Satisfactory (yes, no, partially)	Comment
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

The Independent Panel sought clarification on the approach taken by the Programme Team in the development of MIMLOs across the Programme and how individual assessment instruments were designed in accordance with these. Following the discussions, the Independent Panel is satisfied that this criterion has been met.

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Criterion 11

Learners enrolled on the programme are well informed, guided and cared for

a) There are arrangements to ensure that each enrolled learner is fully informed in a timely manner about the programme including the schedule of activities and assessments.
b) Information is provided about learner supports that are available to learners enrolled on the programme.
c) Specific information is provided to learners enrolled on the programme about any programme-specific appeals and complaints procedures.

d) If the programme is modular, it includes arrangements for the provision of effective guidance services for learners on the selection of appropriate learning pathways.
e) The programme takes into account and accommodates to the differences between enrolled learners, for example, in terms of their prior learning, maturity, and capabilities.
f) There are arrangements to ensure that learners enrolled on the programme are supervised and individualised support and due care is targeted at those who need it.
g) The programme provides supports for enrolled learners who have special education and training needs.
h) The programme makes reasonable accommodations for learners with disabilities.
i) If the programme aims to enrol international students it complies with the *Code of Practice for Provision of Programmes to International Students* and there are appropriate in-service supports in areas such as English language, learning skills, information technology skills and such like, to address the particular needs of international learners and enable such learners to successfully participate in the programme.
j) The programme's learners will be well cared for and safe while participating in the programme, (e.g. while at the provider's premises or those of any collaborators involved in provision, the programme's locations of provision including any workplace locations or practice-placement locations).

Satisfactory (yes, no, partially)	Comment
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met. The Independent Panel commend the Learner Support Team at NCI and the different resources available to learners registered on the Programme, especially the international learners.

Postgraduate Diploma of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met. The Independent Panel commend the Learner Support Team at NCI and the different resources available to learners registered on the Programme, especially the international learners.

Criterion 12

The programme is well managed

a) The programme includes intrinsic governance, quality assurance, learner assessment, and access, transfer and progression procedures that functionally interface with the provider's general or institutional procedures.
b) The programme interfaces effectively with the provider's QQI approved quality assurance procedures. Any proposed incremental changes to the provider's QA procedures required by the programme or programme-specific QA procedures have been developed having regard to QQI's statutory QA guidelines. If the QA procedures allow the provider to approve the centres within the provider that may provide the programme, the procedures and criteria for this should be fit-for-the-purpose of identifying which centres are suited to provide the programme and which are not.
c) There are explicit and suitable programme-specific criteria for selecting persons who meet the programme's staffing requirements and can be added to the programme's complement of staff.
d) There are explicit and suitable programme-specific criteria for selecting physical resources that meet the programmes physical resource requirements, and can be added to the programme's complement of supported physical resources.

e) Quality assurance is intrinsic to the programme's maintenance arrangements and addresses all aspects highlighted by the validation criteria. f) The programme-specific quality assurance arrangements are consistent with QQI's statutory QA guidelines and use continually monitored completion rates and other sources of information that may provide insight into the quality and standards achieved. g) The programme operation and management arrangements are coherently documented and suitable. h) There are sound procedures for interface with QQI certification.

Satisfactory (yes, no, partially)	Comment
Yes	Master of Science in Cloud Computing
Yes	Postgraduate Diploma of Science in Cloud Computing

Master of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met. The Independent Panel commend the highly qualified and capable programme staff available to implement the programme as planned. This was demonstrated by the Programme Team throughout the course of the site visit, in particular, the session related to Curriculum, Teaching, Learning and Assessment.

Postgraduate Diploma of Science in Cloud Computing

The Independent Panel is satisfied that this criterion has been met. The Independent Panel commend the highly qualified and capable programme staff available to implement the programme as planned. This was demonstrated by the Programme Team throughout the course of the site visit, in particular, the session related to Curriculum, Teaching, Learning and Assessment.

Overall recommendation to QQI

Principal programme

Select one	
X	**Satisfactory (meaning that it recommends that QQI can be satisfied in the context of unit 2.3) of Core policies and criteria for the validation by QQI of programmes of education and training;**
	Satisfactory subject to proposed special conditions (specified with timescale for compliance for each condition; these may include proposed pre-validation conditions i.e. proposed (minor) things to be done to a programme that almost fully meets the validation criteria before QQI makes a determination);
	Not satisfactory.

Reasons for the overall recommendation

Embedded programme

Select one	
X	**Satisfactory (meaning that it recommends that QQI can be satisfied in the context of unit 2.3) of Core policies and criteria for the validation by QQI of programmes of education and training;**
	Satisfactory subject to proposed special conditions (specified with timescale for compliance for each condition; these may include proposed pre-validation conditions i.e. proposed (minor) things to be done to a programme that almost fully meets the validation criteria before QQI makes a determination);
	Not satisfactory.

Reasons for the overall recommendation

See conditions / recommendations presented under each criterion.

Summary of recommended special conditions of validation

All special conditions of validation made during the Independent Panel visit were subsequently addressed by the programme team and evidenced by modifications to the programme documentation.

Summary of recommendations to the provider

All recommendations to the provider made during the Independent Panel visit were subsequently addressed by the programme team and evidenced by modifications to the programme documentation.

Declarations of Evaluators' Interests

No interests have been declared by members of the revalidation panel that would affect the impartiality of the panel and its ability to make a recommendation to QQI regarding the revalidation of the primary programme and the two embedded programmes.

This report has been agreed by the evaluation panel and is signed on their behalf by the chairperson.

Panel chairperson: MICHAEL HALL Date: 1st June 2020

Signed: Michael Hall

PROPOSED PROGRAMME AND STAGE SCHEDULES - MSc in Cloud Computing

Name of Provider			National College of Ireland					
Programme Title (i.e. named award)			Master of Science in Cloud Computing					
Award Title (HETAC named award)			Master of Science in Cloud Computing					
Stage Exit Award Title			Post Graduate Diploma of Science in Cloud Computing					
Modes of Delivery (FT/PT/ACCS/BLENDED/OC etc.)			Full Time, ACCS, and Blended					
Award Class	Award NQF Level	Award EQF Level	Stage	Stage NQF Level	Stage EQF Level	Stage Credit (ECTS)	Date Effective	ISCED Subject Code
MSc	9	7	AWARD	9	7	90		432

Ref	Module Title	Term	Module Status (M/E)	NQF Level	ECTS Credit Number	Total Learner Effort: Total Hours	Contact Hours	Independent Learning	Allocation of Marks: CA %	Project %	Practical %	Final Exam %	Total %
	Cloud Architectures	1	M	9	10	250	60	190	50			50	100
	Cloud Platform Programming	1	M	9	10	250	60	190	60			40	100
	Cloud DevOpsSec	1	M	9	5	125	48	77	60			40	100
	Innovation I	1	E (g1)	9	5	125	48	77	100			0	100
	Blockchain Concepts	1	E (g2)	9	5	125	48	77	50			50	100
	Scalable Cloud Programming	2	M	9	10	250	60	190	100			0	100
	Research in Computing	2	M	9	5	125	36	89	100			0	100
	Fog and Edge Computing	2	M	9	10	250	48	202	40			60	100
	Innovation II	2	E (g1)	9	5	125	48	77	100			0	100
	Cloud Machine Learning	2	E (g2)	9	5	125	48	77	50			50	100
	Quantum Computing	2	E (g2)	9	5	125	48	77	40			60	100
	Research Project	3	M	9	25	625	12	613	12	88		0	100
	Data Governance, Compliance and Ethics	3	M	9	5	125	36	89	40			60	100

Special Regulations: i) Elective modules are divided into two groups (g1 and g2). Each student must undertake 10 ECTS credits in elective modules: either from g1 or g2. Modules from g1 and g2 cannot be mixed. ii) To be registered in the capstone Research Project module, a student must pass Research in Computing, and be resitting at most one module (5 or 10-credit ECTS). iii) The Research Project module cannot be compensated and can only be repeated once.

Name of Provider			National College of Ireland					
Programme Title (i.e. named award)			Master of Science in Cloud Computing					
Award Title (HETAC named award)			Master of Science in Cloud Computing					
Stage Exit Award Title			Post Graduate Diploma of Science in Cloud Computing					
Modes of Delivery (FT/PT/ACCS/BLENDED/OC etc.)			Part Time, ACCS, and Blended					
Award Class	Award NQF Level	Award EQF Level	Stage	Stage NQF Level	Stage EQF Level	Stage Credit (ECTS)	Date Effective	ISCED Subject Code
MSc	9	7	AWARD	9	7	90		432

Ref	Module Title	Term	Module Status (M/E)	NQF Level	ECTS Credit Number	Total Learner Effort			Allocation of Marks				
						Total Hours	Contact Hours	Independent Learning	CA %	Project %	Practical %	Final Exam %	Total %
	Cloud Architectures	1	M	9	10	250	60	190	50			50	100
	Cloud Platform Programming	1	M	9	10	250	60	190	60			40	100
	Cloud DevOpsSec	2	M	9	5	125	48	77	60			40	100
	Innovation I	2	E (g1)	9	5	125	48	77	100			0	100
	Blockchain Concepts	2	E (g2)	9	5	125	48	77	50			50	100
	Scalable Cloud Programming	2	M	9	10	250	60	190	100			0	100
	Research in Computing	3	M	9	5	125	36	89	100			0	100
	Fog and Edge Computing	3	M	9	10	250	48	202	40			60	100
	Innovation II	3	E (g1)	9	5	125	48	77	100			0	100
	Cloud Machine Learning	3	E (g2)	9	5	125	48	77	50			50	100
	Quantum Computing	3	E (g2)	9	5	125	48	77	40			60	100
	Research Project	4	M	9	25	625	12	613	12	88		0	100
	Data Governance, Compliance and Ethics	4	M	9	5	125	36	89	40			60	100

Special Regulations: i) Elective modules are divided into two groups (g1 and g2). Each student must undertake 10 ECTS credits in elective modules: either from g1 or g2. Modules from g1 and g2 cannot be mixed. ii) To be registered in the capstone Research Project module, a student must pass Research in Computing, and be resitting at most one module (5 or 10-credit ECTS). iii) The Research Project module cannot be compensated and can only be repeated once.

PROPOSED PROGRAMME AND STAGE SCHEDULES - PGDip in Cloud Computing

Name of Provider			National College of Ireland					
Programme Title (i.e. named award)			Postgraduate Diploma of Science in Cloud Computing					
Award Title (HETAC named award)			Postgraduate Diploma of Science in Cloud Computing					
Stage Exit Award Title			N/A					
Modes of Delivery (FT/PT/ACCS/BLENDED/OC etc.)			Full Time, ACCS, and Blended					
Award Class	Award NQF Level	Award EQF Level	Stage	Stage NQF Level	Stage EQF Level	Stage Credit (ECTS)	Date Effective	ISCED Subject Code
PGDip	9	7	AWARD	9	7	60		432

Ref	Module Title	Term	Module Status (M/E)	NQF Level	ECTS Credit Number	Total Learner Effort			Allocation of Marks				
						Total Hours	Contact Hours	Independent Learning	CA %	Project %	Practical %	Final Exam %	Total %
	Cloud Architectures	1	M	9	10	250	60	190	50			50	100
	Cloud Platform Programming	1	M	9	10	250	60	190	60			40	100
	Cloud DevOpsSec	1	M	9	5	125	48	77	60			40	100
	Innovation I	1	E (g1)	9	5	125	48	77	100			0	100
	Blockchain Concepts	1	E (g2)	9	5	125	48	77	50			50	100
	Scalable Cloud Programming	2	M	9	10	250	60	190	100			0	100
	Data Governance, Compliance and Ethics	2	M	9	5	125	36	89	40			60	100
	Fog and Edge Computing	2	M	9	10	250	48	202	40			60	100
	Innovation II	2	E (g1)	9	5	125	48	77	100			0	100
	Cloud Machine Learning	2	E (g2)	9	5	125	48	77	50			50	100
	Quantum Computing	2	E (g2)	9	5	125	48	77	40			60	100

Special Regulations: i) Elective modules are divided into two groups (g1 and g2). Each student must undertake 10 ECTS credits in elective modules: either from g1 or g2. Modules from g1 and g2 cannot be mixed.

Name of Provider			National College of Ireland					
Programme Title (i.e. named award)			Postgraduate Diploma of Science in Cloud Computing					
Award Title (HETAC named award)			Postgraduate Diploma of Science in Cloud Computing					
Stage Exit Award Title			N/A					
Modes of Delivery (FT/PT/ACCS/BLENDED/OC etc.)			Part Time, ACCS, and Blended					
Award Class	Award NQF Level	Award EQF Level	Stage	Stage NQF Level	Stage EQF Level	Stage Credit (ECTS)	Date Effective	ISCED Subject Code
PGDip	9	7	AWARD	9	7	60		432

Ref	Module Title	Term	Module Status (M/E)	NQF Level	ECTS Credit Number	Total Learner Effort			Allocation of Marks				
						Total Hours	Contact Hours	Independent Learning	CA %	Project %	Practical %	Final Exam %	Total %
	Cloud Architectures	1	M	9	10	250	60	190	50			50	100
	Cloud Platform Programming	1	M	9	10	250	60	190	60			40	100
	Cloud DevOpsSec	2	M	9	5	125	48	77	60			40	100
	Innovation I	2	E (g1)	9	5	125	48	77	100			0	100
	Blockchain Concepts	2	E (g2)	9	5	125	48	77	50			50	100
	Scalable Cloud Programming	2	M	9	10	250	60	190	100			0	100
	Data Governance, Compliance and Ethics	3	M	9	5	125	36	89	40			60	100
	Fog and Edge Computing	3	M	9	10	250	48	202	40			60	100
	Innovation II	3	E (g1)	9	5	125	48	77	100			0	100
	Cloud Machine Learning	3	E (g2)	9	5	125	48	77	50			50	100
	Quantum Computing	3	E (g2)	9	5	125	48	77	40			60	100

Special Regulations: i) Elective modules are divided into two groups (g1 and g2). Each student must undertake 10 ECTS credits in elective modules: either from g1 or g2. Modules from g1 and g2 cannot be mixed.