



# CERTIFICATE OF VALIDATION

## Extension #1

<b>Provider name</b>	National College of Ireland
<b>Date of validation</b>	08-Apr-20

<b>Enrolment interval</b>	<b>First intake</b>	<b>Last intake</b>
	September 2020	August 2026

	Code	Title	Award	Duration (Full Time)	Duration (Part Time)	Exit
<b>Principal programme</b>	PG24337	Master of Science in Cloud Computing	Master of Science (Major Award at NFQ Level 9) 9M20938 90 credits	1 year	2 years	
<b>Embedded Programme</b>	PG24338	Postgraduate Diploma in Science in Cloud Computing	Postgraduate Diploma in Science (Major Award at NFQ Level 9) 9M20940 60 credits	8 months	1 year	No

## Principal Programme

	Full Time	Part Time
Maximum Intakes per annum:	2	2
Minimum Learners per Intake:	30	30
Maximum Learners per Intake:	150	150

<b>Target learner groups</b>	<p>The MSc in Cloud Computing is aimed at Level 8 graduates of a systems-oriented computing discipline. Namely:</p> <ul style="list-style-type: none"> <li>•Computer Engineering: Typically involves software and hardware and the development of systems that involve software, hardware, and communications.</li> <li>•Computer Science: Relatively broad and with an emphasis on the underlying science aspects.</li> <li>•Software Engineering Focuses on large-scale software systems; certain ideas from the world of engineering in building reliable software systems.</li> </ul>
------------------------------	---



<b>Approved countries for provision (i.e. where enrolled learners will be based)</b>	Ireland	
<b>Delivery mode: Full-time/part-time</b>	Full Time and Part Time	
<b>List the teaching and learning modes<sup>1</sup></b>	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.	
<b>Does the blend of modalities predominantly involve remote e-learning (Yes/No)</b>		
<b>Brief synopsis of the programme (e.g. who it is for, what is it for, what is involved for learners, what it leads to.)</b>	This document presents a proposal for the extension 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.	
<b>Summary of staffing requirements (the details are provided in the module descriptors)</b>	<b>WTE<sup>2</sup></b>	<b>Qualifications and experience</b>
	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
<b>Outline the physical resource requirements (the details are provided in the module descriptors)</b>	The programme requires appropriate learning spaces to facilitate the teaching, learning & assessment strategy of the programme. Learning spaces should accommodate traditional classrooms, spaces for collaborative learning and access to appropriate technologies and cloud infrastructure as required by individual module curriculum e.g. public cloud offerings (e.g. AWS or Azure),	

<sup>1</sup> Defined later in this document.

<sup>2</sup> WTE is the whole-time equivalent number. The number 1 indicates a fulltime person fully dedicated to the programme.



	private cloud (e.g. OpenStack), virtualisation software (e.g. VMware), and other software as available via the NCI Cloud portal <a href="https://cloud.ncirl.ie">https://cloud.ncirl.ie</a> .	
Outline specifications for the ratio of learners to teaching staff	Staff to learner ratio	Learning activity type
	1:25	Tutorials/Labs
	1:60	Lectures



## Embedded Programme

	Full Time	Part Time
Maximum Intakes per annum:	2	2
Minimum Learners per Intake:	15	15
Maximum Learners per Intake:	30	30

<b>Target learner groups</b>	<p>The PGDip in Cloud Computing is aimed at Level 8 graduates of a systems-oriented computing discipline. Namely:</p> <ul style="list-style-type: none"><li>•Computer Engineering: Typically involves software and hardware and the development of systems that involve software, hardware, and communications.</li><li>•Computer Science: Relatively broad and with an emphasis on the underlying science aspects.</li><li>•Software Engineering Focuses on large-scale software systems; certain ideas from the world of engineering in building reliable software systems.</li></ul>	
<b>Approved countries for provision (i.e. where enrolled learners will be based)</b>	Ireland	
<b>Delivery mode: Full-time/part-time</b>	Full Time and Part Time	
<b>List the teaching and learning modes<sup>3</sup></b>	<p>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.</p>	
<b>Does the blend of modalities predominantly involve remote e-learning (Yes/No)</b>		
<b>Brief synopsis of the programme (e.g. who it is for, what is it for, what is involved for learners, what it leads to.)</b>	<p>This document presents a proposal for the extension 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.</p>	
<b>Summary of staffing requirements (the details are provided in the module descriptors)</b>	<b>WTE<sup>4</sup></b>	<b>Qualifications and experience</b>
	3	Lecturers with academic experience at level 9 or equivalent delivering modules in cloud computing, computational science, advanced computer programming, and/or computer science.

<sup>3</sup> Defined later in this document.

<sup>4</sup> WTE is the whole-time equivalent number. The number 1 indicates a fulltime person fully dedicated to the programme.



	1	Programme Directors who are responsible for the academic management of the programme and may also be lecturers on the programme
	1	Programme Co-ordinators who are responsible for coordinating the administration aspects of the programme
<b>Outline the physical resource requirements (the details are provided in the module descriptors)</b>	The programme requires appropriate learning spaces to facilitate the teaching, learning & assessment strategy of the programme. Learning spaces should accommodate traditional classrooms, spaces for collaborative learning and access to appropriate technologies and cloud infrastructure as required by individual module curriculum e.g. public cloud offerings (e.g. AWS or Azure), private cloud (e.g. OpenStack), virtualisation software (e.g. VMware), and other software as available via the NCI Cloud portal <a href="https://cloud.ncirl.ie">https://cloud.ncirl.ie</a> .	
<b>Outline specifications for the ratio of learners to teaching staff</b>	Staff to learner ratio	Learning activity type
	1:25	Tutorials/Labs
	1:60	Lectures



# Conditions of Validation of the Programmes Covered by this Certificate of Validation

## Part 1: Statutory Conditions of validation

The statutory (section 45(3) of the 2012 Act) conditions of validation are that the provider of the programme shall:

1. co-operate with and assist QQI in the performance of QQI's functions in so far as those functions relate to the functions of the provider,
2. establish procedures which are fair and consistent for the assessment of enrolled learners to ensure the standards of knowledge, skill or competence determined by QQI under section 49 (1) are acquired, and where appropriate, demonstrated, by enrolled learners,
3. continue to comply with section 65 of the 2012 Act in respect of arrangements for the protection of enrolled learners, if applicable, and
4. provide to QQI such information as QQI may from time to time require for the purposes of the performance of its functions, including information in respect of completion rates.

## Part 2 Conditions of Validation Established by QQI Under section 45(4)(b) of the 2012 Act

### Part 2.1 Condition of Validation Concerning a Change in the QQI Award or Award Standard

1. Where QQI changes an award title, an award specification or an award standard that a programme depends upon, the provider shall not enrol any further learners on the affected programmes unless informed otherwise in writing by QQI (e.g. by the issue of a revised certificate of validation). The programme is considered validated for learners already enrolled on the affected programme.

### Part 2.2 Condition of Validation Concerning the Duration of Enrolment

1. The duration of enrolment is the interval during which learners may be enrolled on the validated programme.

Validation is determined by QQI for a specified number of years of enrolment appropriate to the particular programme as indicated on the certificate on validation subject to unit 9.2.1. It is a condition of validation that the programme does not enrol any new learners outside this interval. A typical duration would be five years.

If a provider wishes to continue to enrol learners to the programme beyond this interval the provider must arrange in good time for it to be validated again by QQI, or exceptionally the provider may apply for extension of the duration of enrolment (unit (14)). In this context the provider may apply for validation of the programme from first principles or, alternatively, the provider may avail of the process for revalidation (unit (13)) by QQI.

### Part 2.3 General Condition of Validation

The provider of the programme shall:

1. Ensure that the programme as implemented does not differ in a material way from the programme as validated; differing in a material way is defined as differing in any aspect of the programme or its implementation that was material to QQI's validation criteria.
2. Ensure that the programme is provided with the appropriate staff and physical resources as validated.
3. Implement in respect of the programme its written quality assurance procedures (as approved by QQI).
4. Make no significant change to the programme without the prior approval of QQI. (See unit (8)).



5. Unless otherwise agreed by QQI in writing, start implementing the programme as validated and enrol learners within 18 months of validation.
6. Continue in respect of the validated programme to comply with section 56 of the 2012 Act in respect of procedures for access, transfer and progression.
7. Implement the programme and procedures for assessment of learners in accordance with the Approved Programme Schedule and notify QQI in writing of any amendments to this arising from changes to the programme; see unit (9).
8. When advertising and promoting the programme and awards, use the programme title as validated, and the correct QQI award title(s), award type(s) and award class(es) indicating the level of the award(s) on the National Framework of Qualifications.
9. Adhere to QQI regulations and procedures for certification.
10. Notify QQI in writing without delay of:
  - a. any material change to the programme;
  - a. anything that impacts on the integrity or reputation of the programme or the corresponding QQI awards;
  - b. anything that infringes the conditions of validation; or
  - c. anything that would be likely to cause QQI to consider reviewing the validation.
11. Notify QQI in writing to determine the implications for the provider's validated programmes, where the provider is likely to, or planning to, merge (amalgamate) with another entity or to acquire, or be acquired by, another entity (see unit (12.5)).
12. Report to QQI, when required or requested, on its implementation of the programme and compliance with the conditions of validation.

#### **Part 2.4 General Condition of Validation Arising from Specialised Validation Policy and Criteria**

1. N/A

#### **Part 2.5 Special Condition of Validation**

1. N/A





## Approved Programme Schedule(s)

### MSc 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					Postgraduate Diploma of Science in Cloud Computing																				
Modes of Delivery (FT/PT/ACCS/BLENDED/OC etc.)					Full-time/part-time																				
Award Class		Award Level	NQF Level	Award Level	EQF Level	Stage	Stage Level	NQF Level	Stage Level	EQF Level	Stage Credit (ECTS)	Date Effective	ISCED Subject Code												
MSc		9		7		AWARD	9		7		90	Sept. 2020	432												
Ref	Module Title				Term	Module		ECTS Credit Number	Total Learner Effort			Allocation of Marks													
	Status (M/E)		NQF Level	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
	Research in Computing													2	M	9	5	125	48	77	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	100			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.																									





## Postgraduate Diploma of Science 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											
Award Class		Award Level	NQF Level	Award EQF Level	Stage	Stage NQF Level	Stage EQF Level	Stage Credit (ECTS)	Date Effective		ISGED Subject Code					
PGDip		9		7	AWARD	9	7	60	Sept 2020		432					
Ref	Module Title				Term	Module		ECTS Credit Number	Total Learner Effort			Allocation of Marks				
	Status (M/E)	NQF Level	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										
Award Class	Award Level	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	Sept 2020		432					
Ref	Module Title			T	Module		ECTS	Total Learner Effort			Allocation of Marks				
		Status (M/E)	NQF Level		Credit Number	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.															