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

Part 1 A

Provider name	National College of Ireland
Date of site visit	14th – 15th February 2019
Date of report	17th April 2019
Is this a re-validation report (Yes/No)	No

Overall recommendations

Principal programme	Title	Certificate in Introductory Data Science
	Award	Special Purpose Award (Level 6)
	Credit[1]	10
	Recommendation *Satisfactory OR Satisfactory subject to proposed conditions[2] OR Not Satisfactory*	Satisfactory subject to proposed conditions

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[1] Specify the credit units because more than one system of units is in use. E.g. 20 (ECTS).

[2] Normally an application that fails to meet the criteria in any of its aspects will be considered as not satisfactory. Nevertheless, so as to ensure that the validation process will not be implemented unreasonably, if an independent evaluation finds that a programme virtually meets the validation criteria but needs some minor modifications, the independent evaluation could conclude "Satisfactory subject to recommended special conditions" where the special conditions prescribe the defects that require to be corrected.

Further, in exceptional cases the 'special conditions' may be used to identify parts of the application that are considered satisfactory on a stand-alone basis. For example, an application might propose a programme to be provided at two locations but the independent evaluation report may find the application satisfactory on condition that it be provided only at one specified location and not at the other. These conditions will not however be used to recommend that QQI can be satisfied with a programme conditional on a different QQI award (e.g. at a lower NFQ level or having a different CAS award title) being sought than the one identified in the application.

Evaluators

Evaluators		
Name	**Role**	**Principal occupation**
Dr Áine Ní Shé	Chair	Registrar & Vice President (Acting), Cork IT
Dr Dermot Douglas	Recording Secretary	Higher Education Consultant Former Director of Academic Affairs IOTI (now THEA)
Dr Matteo Magnani	Subject Expert	Senior Lecturer (lektor), Dept of Computer Science, Uppsala University, Sweden.
Prof Vasilis Argyriou	Subject Expert	Professor , School of Computer Science and Mathematics , Kingston University, London
Dr Fiona Boland	Subject Expert	Lecturer Biostatistics & Research Methods, Data Science Centre, RCSI, Dublin
Clara Killeen	Learner	BSc Hons Financial Mathematics and Actuarial Science graduate and current MSc Data Analytics learner at UCC
Dr Claire Jordan	Employer/Sectoral Expert	Senior Analytics Consultant, Presidion

Part 1 B
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	60	15

Enrolment interval *(normally 5 years)*	Date of first intake	September 2019
	Date of last intake	September 2023
Maximum number of annual intakes	1	
Maximum total number of learners per intake (over all centres)	60	
Programme duration (<u>months</u> from start to completion)	3	
Target learner groups	The Certificate in Introductory Data Science is aimed at Learners who have completed Level 5 (5M0529) and Level 6 (6M0691) qualifications in software development (or equivalent) at Further education and Training Colleges with a view to pursuing further education in the field. The programme may also serve as an exit award for learners on the Higher Certificate in Science in Data Science, BSc Honours in Data Science or Certificate in Data Science should the successfully complete the module Introduction to Data Science and not complete their intended award.	
Approved countries for provision	Republic of Ireland	
Delivery mode: Full-time/Part-time	Full-time and part-time	
The teaching and learning modalities	Blended learning combining different strategies, including traditional classroom lectures, tutorials and seminars, flipped classroom, problem and project-based learning, team work and work-based learning. Synchronous Online delivery may also be used in some cases.	
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 programme is a 1-semester Certificate programme at Level 6 aimed at students attending Further Education and Training colleges. The learners will have to attend classroom lectures and tutorials, as well as to study independently. Learners will study introduction to data science in this programme. The programme leads to a 10 credit Special Purpose Award at Level 6 in Introductory Data Science awarded by QQI. Graduates may progress directly to year 2 of the BSc. In Data Science or Higher Certificate in Data Science at NCI.	
Summary of <u>specifications</u> for teaching staff	**WTE**	**Qualifications and experience**
	1	Lecturer with a Masters or PhD level qualification in computing or a related discipline with academic experience delivering

		modules in ICT, Maths and Statistics, Programming, and Data Analytics at Level 8.
	1	Programme Director who is responsible for the academic management of the programme and may also be a lecturer on the programme. The programme director will have at least a Masters or PhD qualification in computing or a related discipline.
	1	Programme Co-ordinator with experience in relationship management and programme coordination
Summary of specifications for the ratio of learners to teaching-staff	**Lectures**	**Tutorials/Labs**
	1:100	1:25
Overall WTE staff/learner ratio.[3]	3:60	

Programmes being replaced by the [principal programme]

Programmes being replaced (applicable to applications for revalidation)			Arrangement for enrolled learners	Date when replaced programme is planned to cease completely
Code	Title	Last enrolment date	Indicate whether "Teach out" or "Transfer to replacement programme"	
	Not Applicable			

Other noteworthy features of the application

The evaluation panel wishes to commend the programme team and NCI for the high quality of the documentation provided and the comprehensive suite of supporting appendices, handbooks, and policy documents.

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[3] This is the total whole time equivalent number of staff dedicated exclusively to this programme divided by the maximum number of learners that can be enrolled with that complement of staff.

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

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

Not Applicable

Part 2A Evaluation against the validation criteria

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

Criterion 1

<table>
<tr>
<td colspan="2">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.[4]</td>
</tr>
<tr>
<td>Satisfactory (yes, no, partially)</td>
<td>Comment</td>
</tr>
<tr>
<td>Yes</td>
<td>Certificate in Introductory Data Science (Level 6) Special Purpose Award</td>
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</table>

The panel has evaluated the programme having regard to criterion 1 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion.

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[4] This criterion is to ensure the programme can actually be provided and will not be halted on account of breach of the law. The declaration is sought to ensure this is not overlooked but QQI is not responsible for verifying this declaration of enforcing such 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.[5]
   (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.[6]

Satisfactory (yes, no, partially)	Comment
Yes	*Certificate in Introductory Data Science (Level 6) Special Purpose Award*

The panel has evaluated the programme having regard to criterion 2 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion.

The panel notes that

1. This programme has a clear and limited aim to provide students with the foundation knowledge necessary to pursue further education in data science. In particular, this programme will facilitate advanced entry to the programme for graduates of the QQI Advanced Cert in Software Development and Cert in Software & Data Analytics as offered by colleges of further education such as Rathmines College. The rationale for the choice of a QQI award is to encourage an additional stream of students to progress from colleges of Further Education to join Higher Certificate and BSc. Programmes in Data Science at NCI. As this is a single module, Special Purpose Award worth 10 ECTS credits, the programme name "Introductory Data Science" has been chosen to reflect the single module upon which it is based.

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[5] Other programme objectives, for example, may be to meet the educational or training requirements of a statutory, regulatory or professional body.
[6] Not all modules will warrant minor awards. Minor awards feature strongly in the QQI common awards system however further education and training awards may be made outside this system.

2. The Programme title is consistent with the content that would be expected of a Certificate in Introductory Data Science and is fit for purpose in informing prospective learners and other stakeholders.

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.[7]

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[8] of learner demand for the programme.
    (v) There is evidence of employment opportunities for graduates where relevant[9].
    (vi) The programme meets genuine education and training needs.[10]

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	*Certificate in Introductory Data Science (Level 6) Special Purpose Award*

The panel has evaluated the programme having regard to criterion 3 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion

The panel notes that

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[7] Awards standards however detailed rely on various communities for their interpretation. This consultation is necessary if the programme is to enable learners to achieve the standard in its fullest sense.

[8] This might be predictive or indirect.

[9] It is essential to involve employers in the programme development and review process when the programme is vocationally or professionally oriented.

[10] There is clear evidence that the programme meets the **target learners'** education and training needs and that there is a clear demand for the programme.

1. The programme development team consulted widely with stakeholders, in particular, with Education and Training Boards and Further Education and Training colleges. There is no evidence that it consulted beyond the education sector in the context of this programme.
2. There is evidence of learner demand for this programme, particularly from the FE sector.
3. The programme development team note that there are no comparable programmes in Ireland.

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[11].
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[12]) 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	*Certificate in Introductory Data Science (Level 6) Special Purpose Award*

The panel has evaluated the programme having regard to criterion 4 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion

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[11] Each of the detailed criteria set out in the Policy and criteria for access, transfer and progression in relation to learners for providers of further and higher education and training must be addressed in the provider's evaluation report. The detailed criteria are (QQI, restated 2015) arranged under the headings
- Progression and transfer routes
- Entry arrangements
- Information provision

[12] http://www.coe.int/t/dg4/linguistic/Source/Framework_EN.pdf (accessed 26/09/2015)

1. The programme is specifically designed to provide access for learners who have completed the QQI FE Level 5 (5M0529) award and are enrolled on the QQI FE Level 6 (6M0691) programme in software development (or equivalent) at a Further education and Training College.

2. At present, NCI have an agreed progression arrangement with the Further Education College in Rathmines and successful completion of this programme will provide advanced entry to the Higher Certificate, BSc (ordinary) or BSc (Honours) – should they receive validation - at second year level.

3. NCI stressed that they had cooperated with Rathmines College of Further Education to ensure that learners gaining advanced entry to its suite of higher education Data Science programmes would have at least the same level of mathematics knowledge, skill and competency as learners who passed these programmes at first year level. This is essential if FE students are to have the capacity to succeed. It is proposed as **a special condition of validation** that further agreements with the Further Education and Training sector are based on learners having the same level of mathematics as students who followed the first year of one of NCIs suite of major awards in Data Science and that where necessary NCI facilitate such prospective partners in modifying their programmes to ensure this.

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[13].
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.

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[13] This applies recursively to each and every element of the programme from enrolment through to completion.
In the case of a modular programme, the pool of modules and learning pathway constraints (such as any prerequisite and co-requisite modules) is explicit and appropriate to the intended programme learning outcomes.

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.[14]	
Satisfactory (yes, no, partially)	**Comment**
Yes	*Certificate in Introductory Data Science (Level 6) Special Purpose Award*

The panel has evaluated the programme having regard to criterion 5 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion

The panel notes that

1. The programme is well structured and is clearly oriented towards the achievement by learners of the programme learning outcomes.
2. The credit allocated to the programme is consistent with the difference between the entry standard and minimum intended programme learning outcomes.

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[15] (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[16] opportunities[17].

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

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[14] If the duration is variable, for example, when advanced entry is available, this should be explained and justified

[15] Staff here means natural persons required as part of the programme and accountable (directly or indirectly) to the programme's provider, it may for example, include contracted trainers and workplace supervisors.

[16] Development here is for the purpose of ensuring staff remain up-to-date on the discipline itself, on teaching methods or on other relevant skills or knowledge, to the extent that this is necessary to ensure an adequate standard of teaching.

[17] Professional or vocational education and training requires that teaching staff's professional/vocation knowledge is up to date. Being qualified in a discipline does not necessarily mean that a person is currently competent in that discipline. Therefore, performance management and development of professional and vocational staff needs to focus on professional/vocational competence as well as pedagogical competence. Professional development may include placement in industry, for example. In regulated professions it would be expected that there are a suitable number of registered practitioners involved.

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	*Certificate in Introductory Data Science (Level 6) Special Purpose Award*

The panel has evaluated the programme having regard to criterion 6 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion

The panel notes that

1. It is evident that NCI has sufficiently qualified and experienced staff to deliver the programme. However, the information in the submission fails to detail how many WTE staff will be required should maximum numbers be enrolled in any year and whether these are available from the current complement of staff or are included in new hires. The panel proposes as **a special condition of validation** that a revised programme document clearly specifies the number of WTE staff required to teach on this programme. The Module staff requirements simply state the level of qualification and experience required.
2. The panel proposes **as a special condition of validation** that NCI ensures that staff teaching on this programme in Rathmines, in the first instance, and any other Further Education and Training College, or equivalent, have the same level of qualifications and experience as the staff delivering the programme in NCI.
3. At centres where the programme is to be provided by qualified staff not already in post, it is a proposed as a **special condition of validation** that NCI has in place arrangements to ensure that the programme will not enrol learners unless a complement of staff meeting the specifications is in post.

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	*Certificate in Introductory Data Science (Level 6) Special Purpose Award*

The panel has evaluated the programme having regard to criterion 7 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion

The panel notes that

1. The programme relies on existing resources that are also available to other programmes. The sample list of IT resources provides examples of software used throughout the programmes offered by the College. The existence of a Cloud Competency Centre is noted by the panel as a very positive development in the College.

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	*Certificate in Introductory Data Science (Level 6) Special Purpose Award*

The panel has evaluated the programme having regard to criterion 8 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion

The panel notes that

1. The description of the learning environment focuses on existing resources. There is no information on anticipated resource needs over a five year validation period or the pressure

that will be placed on existing resources as the number of both students and programmes increase.

2. NCI provides assurance in the submission document that it will undertake due diligence in respect of staffing, resources and facilities in any participating Further Education and Training College, or equivalent institution.

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[18] and timely formative feedback is regularly provided to enrolled learners as they progress within the programme.**

Satisfactory (yes, no, partially)	Comment
Yes	*Certificate in Introductory Data Science (Level 6) Special Purpose Award*

The panel has evaluated the programme having regard to criterion 9 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion

The panel notes that

1. The approach adopted is learner centred and provides opportunities for learners to achieve the IPLOs.

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[19]* b) The programme's assessment procedures interface effectively with the provider's QQI approved quality assurance procedures.

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[18] Support and feedback concerns anything material to learning in the context of the programme. For the avoidance of doubt it includes among other things any course-related language, literacy and numeracy support.

[19] See the section on transitional arrangements.

Satisfactory (yes, no, partially)	Comment
	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.[20]
	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.[21]
	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.[22]
Yes	*Certificate in Introductory Data Science (Level 6) Special Purpose Award*

The panel has evaluated the programme having regard to criterion 10 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion

The panel notes that

1. The overall assessment strategy is documented in Section 5.10. Assessment modalities are given with the module descriptors but the basis for the choice made (30% CA; 70% project) is not described. The assessment of modules needs to be more granular to include why particular modalities were adopted and the elements of each assessment method that will be marked. This is necessary in the interest of transparency and to underpin the fairness, validity, reliability and consistency of the assessment instruments used.
2. There is a constructive alignment between the modules' Learning outcomes and assessment. The, MIMLOS, in the case of this single module programme, are the MIPLOS.
3. It is important in the assessment strategy of each module to make it clear why the same learning outcome may be assessed several times. The QQI Document '*Assessment and Standards (Revised 2013)* on page 12 warns of the danger thus "*contradictory assessment findings can emerge when the same learning outcomes are assessed by continuous assessment and written examinations. This can create dilemmas unless the potential for such contradictions is foreseen and provided for in the programme and module assessment strategies*". It is clear in the documentation received by the panel that the same learning outcomes are assessed several times. It needs to be made clear in the module learning strategies why the same learning outcome is being assessed more than once. For example CA covers theory, comprehension and knowledge, while project covers the practical application of these domains; OR assessments cover different and specific elements of a learning outcome. In the interest of transparency, reliability, fairness and consistency it is important to explain why individual learning outcomes are assessed more than once.

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[20] This assumes the minimum intended programme/module learning outcomes are consistent with the applicable awards standards.

[21] The programme assessment strategy is addressed in the Assessment Guidelines, Conventions and Protocols for Programmes Leading to QQI Awards. See the section on transitional arrangements.

[22] If the award is a QQI CAS compound award it is not necessarily sufficient that the learner has achieved all the components specified in the certification requirements unless at least one of those components is a capstone component (i.e. designed to test the compound learning outcomes).

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[23].

    i) If the programme aims to enrol international students it complies with the *Code of Practice for Provision of Programmes to International Students*[24] 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	*Certificate in Introductory Data Science (Level 6) Special Purpose Award*

The panel has evaluated the programme having regard to criterion 11 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion

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[23] For more information on making reasonable accommodations see www.AHEAD.ie and QQI's Policies, Actions and Procedures for Access, Transfer and Progression for Learners (QQI, restated 2015).

[24] See Code of Practice for Provision of Programmes to International Students (QQI, 2015)

1. The College has collaborated with the Education and Training Boards and with Rathmines Further Education College to provide progression pathways for students studying on Further Education programmes. This initiative is both positive and welcome. NCI plans to extend this level of collaboration to other FE providers in the future.

Criterion 12

<table>
<tr><td colspan="2">

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[25] 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.

</td></tr>
<tr><td>**Satisfactory (yes, no, partially)**</td><td>**Comment**</td></tr>
<tr><td>Yes</td><td>*Certificate in Introductory Data Science (Level 6) Special Purpose Award*</td></tr>
</table>

The panel has evaluated the programme having regard to criterion 12 and its sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion

The panel notes that

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[25] See also QQI's Policy on Monitoring (QQI, 2014)

1. The Programme is governed, managed and provided under academic governance and quality assurance policies and procedures approved by QQI under the Qualifications and Quality Assurance (Education and Training) Act 2012.
2. The programme development team has identified criteria for the selection and appointment of new staff on this programme and currently has a complement of staff who are qualified and experienced to teach on it. The programme development team have assessed the physical resources necessary to provide the programme and are satisfied that they are all currently available.
3. The programme specific quality assurance arrangements are consistent with QQIs statutory guidelines.
4. NCI has clear and suitably documented policy and procedure for the management of this programme.
5. NCI has the policy, procedures and mechanisms in place that provide for it interfacing with QQI certification.

Part 2B Overall recommendation to QQI

Principal programme

Yes	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);

Reasons[26] for the overall recommendation

The programme represents a valuable initiative in recognising the achievement of learners in Further Education and Training at Level six and in the cooperation between NCI and Rathmines FE college ensures that identified gaps in the knowledge, skill or competence of learners on these programmes can be bridged to provide them with the opportunity of advanced entry into designated higher education programmes. The panel recommends that QQI can be satisfied that this programme meets the criteria for validation as a Level 6, 10 credit Special Purpose award. For other FE Colleges to join in this initiative, NCI must ensure that the issues of competence in mathematics to the same level as learners progressing to second year of its higher education programmes in Data Science are addressed.

Summary of recommended special conditions of validation

1. It is proposed as **a special condition of validation** that further agreements with the Further Education and Training sector are based on learners having the same level of mathematics as students who followed the first year of one of NCIs suite of major awards in Data Science and that where necessary NCI facilitate such prospective partners in modifying their programmes to ensure this.

2. The panel proposes as **a special condition of validation** that a revised programme document clearly specifies the number of WTE staff required to teach on this programme. The Module staff requirements simply state the level of qualification and experience required.

3. The panel proposes **as a special condition of validation** that NCI ensures that staff teaching on this programme in Rathmines, in the first instance, and any other Further Education and Training College, or equivalent, have the same level of qualifications and experience as the staff delivering the programme in NCI.

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[26] Give precise reasons for the conclusions organised under each of the 12 criteria (for the programme and each embedded programme and any modules proposed to lead to QQI awards) citing supporting evidence. If any criteria or sub-criteria are not met by the application this must be stated explicitly giving precise reasons with evidence. A "Not Satisfactory" recommendation may be justified if any one of the applicable criteria or sub-criteria are not demonstrated to be satisfied.

Commendation

The panel commends NCI on this initiative. It provides an example of good practice in fostering cooperation between the Further Education and Training sector and the Higher Education and Training sector. Additionally, it provides a mechanism whereby fair value can be given to prior attainment by graduates of the FE sector wishing to enter HE without having to repeat material they have already learned.

Declarations of Evaluators' Interests

No interests have been declared.

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

Panel chairperson: Dr Áine Ní Shé   Date: 8 March 2019

Signed:

Addendum

On behalf of the panel, I confirm that the programme team has responded appropriately to the special conditions of validation and the recommendations as set out in the report.

Panel chairperson: Dr Áine Ní Shé   Date: 17/4/2019

Signed:

Disclaimer

The Report of the External Review Panel contains no assurances, warranties or representations express or implied, regarding the aforesaid issues, or any other issues outside the Terms of Reference.

While QQI has endeavoured to ensure that the information contained in the Report is correct, complete and up-to-date, any reliance placed on such information is strictly at the reader's own risk, and in no event will QQI be liable for any loss or damage (including without limitation, indirect or consequential loss or damage) arising from, or in connection with, the use of the information contained in the Report of the External Evaluation Panel.

Part 3: Proposed programme schedules

Name of Provider:	National College of Ireland
Programme Title	Certificate in Introductory Data Science
Award Title	Certificate in Introductory Data Science
Stage Exit Award Title[3]	N/A
Modes of Delivery (FT/PT):	FT/PT
Teaching and learning modalities	Direct contact via lectures and demonstrations, Blended e-learning

Award Class[4]	Award NFQ level	Award EQF Level	Stage (1, 2, 3, 4, …, or Award Stage):	Stage NFQ Level[2]	Stage EQF Level[2]	Stage Credit (ECTS)	Date Effective	ISCED Subject code
Special Purpose	6		Award	6		10	Sept 2019	

Module Title (Up to 70 characters including spaces)	Semester no where applicable. (Semester 1 or Semester2)	Module		Credit Number [5]		Total Student Effort Module (hours)							Allocation Of Marks (from the module assessment strategy)				
		Status	NFQ Level[1] where specified	Credit Units / ECTS		Total Hours	Class (or equiv) Contact Hours	Directed e-learning	Hours of Independent Learning	Work-based learning effort		C.A. %	Supervised Project %	Proctored practical demonstration %	Proctored written exam %	
Introduction to Data Science	1	M	6	10		250	48		202			30	70			
Special Regulations (Up to 280 characters)																

Part 4: Appendices

NCI Attendees

NCI Management and Support Staff

Ms Gina Quin	President
Mr John McGarrigle	Registrar
Ms Sinéad O'Sullivan	Director of Quality Assurance & Statistical Services
Dr David McCarthy	Quality Officer
Mr Jonathan Lambert	Maths Support & Development Officer
Ms Catherine Elliot	Learning Support
Mr Keith Brittle	Information Project Officer, NCI Library
Ms Helen Conway	Careers Advisor

Programme Team

Dr Pramod Pathak	Dean of School of Computing
Dr Paul Stynes	Vice Dean Undergraduate Programmes, School of Computing
Dr Arghir-Nicolae Moldovan	Programme Director, BSc Hons/BSc Ordinary Data Science
Dr Sachin Sharma	Programme Director, Higher Certificate in Science in Data Science
Prof Cristos Grecos	Vice Dean, Postgraduate Programmes, School of Computing
Mr Michael Bradford	Lecturer, School of Computing
Dr Horacio Gonzalez-Velez	Head of Cloud Competency Centre
Dr Cristina Hava Muntean	Senior Lecturer, School of Computing
Dr Dominic Carr	Lecturer, School of Computing
Dr Anu Sahni	Lecturer, School of Computing
Dr Adriana Chis	Lecturer, School of Computing
Dr Eugene O'Loughlin	Lecturer, School of Computing
Mr Tony Delaney	Associate Lecturer, School of Computing
Mr Victor Del Rosal	Associate Lecturer, School of Computing
Dr Evgeniia Volokitina	Lecturer, School of Computing

Ms Lisa Murphy	Lecturer, School of Computing
Mr Sam Cogan	Computer Support Officer, School of Computing
Dr Keith Maycock	Lecturer, School of Computing
Dr Ade Fajemisin	Lecturer, School of Computing

Agenda

New Programme Validation

1. **BSc Honours in Data Science**
2. **BSc Ordinary in Data Science (exit award)**
3. **Higher Certificate in Science in Data Science**
4. **Certificate in Data Science (Special Purpose Award)**
5. **Certificate in Introductory Data Science (Special Purpose Award)**

Time	Location	Item	Note
9.00am	Exec 1, NCI	**Evaluation of Programmes Proposed for Validation against QQI validation criteria**	Dean of School, Registrar Director QASS, Programme Director, Programme Team
		1. Programme Rationale and overall structure (all programmes)	
		Criterion 3: Programme concept, implementation strategy and interpretation of QQI award standards are well informed and soundly based	
		Criterion 2: Programme objectives and outcomes are clear and consistent with QQI awards sought	
		Criterion 4: Access Transfer & Progression arrangements are satisfactory	
10.30		**Break**	
10.45 am	Exec 1, NCI	**2. Curriculum, Learning Teaching & Assessment (all programmes)**	Dean of School, Registrar Director QASS, Programme Director, Programme Team
		Criterion 5: Written curriculum is well structured and fit for purpose	
		Criterion 9: There are sound learning and teaching strategies	
		Criterion 10: There are sound assessment strategies	
1pm		**Lunch**	
1.45-3pm	Exec 1, NCI	**Curriculum, Learning Teaching & Assessment (all programmes) continued**	
3.00pm	Exec 1, NCI	**3. Resourcing and Supports for Learners**	Dean of School, Director QASS, Programme Director, Programme Team

Time	Location	Item	Note
			Representatives from support services
		Criterion 6: There are sufficient qualified and capable programme staff available to implement the programme as planned	
		Criterion 7: The are sufficient physical resources available to implement the programme as planned	
		Criterion 8: The learning environment is consistent with the needs of the programme learners	
		Criterion 11: Learners enrolled on the programme are well informed and cared for	
		Criterion 12: The programme is well managed	
4.30pm	Exec 1, NCI	**Deliberation**	
4.45pm	Exec 1, NCI	**Oral feedback**	