

**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 A

<b>Provider name</b>	National College of Ireland
<b>Date of site visit</b>	31 <sup>st</sup> October 2018
<b>Date of report</b>	30 <sup>th</sup> May 2019
<b>Is this a re-validation report (Yes/No)</b>	Yes

## Overall recommendations

<b>Principal programme</b>	<b>Title</b>	Master of Science in Data Analytics
	<b>Award</b>	Master of Science in Data Analytics
	<b>Credit</b>	90 ECTS Credits
	<b>Recommendation</b> <i>Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory</i>	Satisfactory

<b>Embedded programme</b>	<b>Title</b>	Postgraduate Diploma in Science in Data Analytics
	<b>Award</b>	Postgraduate Diploma in Science in Data Analytics
	<b>Exit award (Yes/No)</b>	Exit Award and ab initio
	<b>Credit</b>	60 ECTS Credits
	<b>Recommendation</b> <i>Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory</i>	Satisfactory

<b>Module</b>	<b>Title</b>	N/A
	<b>Award</b>	N/A
	<b>Credit</b>	N/A
	<b>Recommendation</b> <i>Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory</i>	N/A

## Evaluators

<b>Evaluators</b>		
<b>Name</b>	<b>Role</b>	<b>Principal occupation</b>
Dr. Yvonne Kavanagh	Chair	Assistant Registrar, IT Carlow
Ms. Caitríona Kearns	Secretary	Director of Registry & Operations, IICP
Prof. Sarah Jane Delany	Subject Expert	Assistant Head, School of Computing, DIT; PI Centre for Applied Data Analytics Research
Dr. Paul Buitelaar	Subject Expert	Senior Lecturer at the National University of Ireland, Galway (NUIG), vice-director of the Insight Centre for Data Analytics at NUIG
Ms. Aryana Collins Jackson	Learner Representative	Learner, MSc in Data Analytics, Cork IT
Mr. Dean Savery	Employer Representative	Chief Analytics Officer, Ding.

## Part 1 B

### Principal Programme

Names of centres where the programmes are to be provided	Maximum number of learners ( <i>per centre</i> )	Minimum number of learners
National College of Ireland	100	15

<b>Enrolment interval (<i>normally 5 years</i>)</b>	<b>Date of first intake</b>	September 2019
	<b>Date of last intake</b>	August 2024
<b>Maximum number of annual intakes</b>	2 (Multiple cohorts may be recruited depending on demand, but it is expected that they will commence at the same time)	
<b>Maximum total number of learners per intake (over all centres)</b>	120 per cohort	
<b>Programme duration (<u>months</u> from start to completion)</b>	MSc in Data Analytics F/T = 1 Calendar Year (3 Semesters) MSc in Data Analytics P/T = 2 Calendar Years (4 Semesters)	
<b>Target learner groups</b>	The MSc in Data Analytics is intended for graduate students who have attained a minimum 2.2 in a Honours Bachelors Degree (Level 8 NFQ or equivalent) in a numerate discipline, e.g., Computing, Engineering, Economics, Business, Accounting, etc.	
<b>Approved countries for provision</b>	Republic of Ireland	
<b>Delivery mode: Full-time/Part-time</b>	Full-time & Part-time	
<b>The teaching and learning modalities</b>	Blended learning combining different strategies, including traditional classroom lecturers, tutorials and seminars, flipped classroom, problem and project-based learning, teamwork and work-based learning. Synchronous online delivery.	
<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 programme is a 1-year MSc degree aimed at graduate students who have attained a minimum 2.2 in a Honours Bachelors Degree (Level 8 NFQ or equivalent) in a numerate discipline. It will run on both a part-time and full-time basis. The programme leads to a NFQ level 9 award of MSc in Data Analytics awarded by QQI. Graduates of the programme take up roles as data scientists and data analysts.	
<b>Summary of <u>specifications</u> for teaching staff</b>	Lecturers qualified to a minimum Masters Level (Level 9 NFQ or equivalent) in a numerate discipline with experience delivering modules in ICT, Maths and Statistics, Programming, and Data Analytics at Level 9.	
<b>Summary of specifications for the ratio of learners to teaching-staff</b>	1:60 Lectures 1:25 Tutorials/Labs	
<b>Overall WTE staff/learner ratio.</b>	<b>WTE</b>	<b>Role</b>
	12	Lecturers
	2	Programme Directors
	2	Programme Coordinators

## Programmes being replaced by the MSc in Data Analytics

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"	
PG20835	MSc in Data Analytics	Jan 2019	Teach Out	Dec 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	100	15

<b>Enrolment interval (normally 5 years)</b>	<b>Date of first intake</b>	September 2019
	<b>Date of last intake</b>	August 2024
<b>Maximum number of annual intakes</b>	2 (Multiple cohorts may be recruited depending on demand, but it is expected that they will commence at the same time)	
<b>Maximum total number of learners per intake</b>	120 per cohort	
<b>Programme duration (months from start to completion)</b>	F/T – One calendar year P/T - Two calendar years	
<b>Target learner groups</b>	The Postgraduate Diploma in Data Analytics is intended for graduate students who have attained a minimum 2.2 Honours Bachelors Degree (Level 8 NFQ or equivalent) in a numerate discipline, e.g., Computing, Engineering, Economics, Business, Accounting, etc.	
<b>Approved countries for provision</b>	Republic of Ireland	
<b>Delivery mode: Full-time/Part-time</b>	Full-time & Part-time	
<b>The teaching and learning modalities</b>	Blended learning combining different strategies, including traditional classroom lectures, tutorials and seminars, flipped classroom, problem and project-based learning, teamwork and work-based learning. Synchronous Online delivery.	
<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 programme is a 1-year Postgraduate Diploma degree aimed at graduate students who have attained a minimum 2.2 in a Honours Bachelors Degree (Level 8 NFQ or equivalent) in a numerate discipline. It will run on both a part-time and full-time basis. The programme leads to a NFQ level 9 award of Postgraduate Diploma in Science in	

	Data Analytics awarded by QQI. Graduates of the programme take up roles as data scientists and data analysts.								
<b>Summary of specifications for teaching staff</b>	Lecturers qualified to a minimum Masters Level (Level 9 NFQ or equivalent) in a numerate discipline with experience delivering modules in ICT, Maths and Statistics, Programming, and Data Analytics at Level 9.								
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12	Lecturers								
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### Programmes being replaced by the Postgraduate Diploma in Science in Data Analytics

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”	
PG20843	Postgraduate Diploma in Science in Data Analytics	Jan 2019	Teach Out	Dec 2020

### Other noteworthy features of the application

This is a revalidation of the Master of Science in Data Analytics and the Postgraduate Diploma in Science in Data Analytics. Having reviewed the self-evaluation of the programme review and having met with the staff and graduates/students of the programmes, the panel considers that the provider has utilised the review process effectively to enhance and modify the original programmes. The Independent Programme Review Report contained an array of both qualitative and quantitative data in relation to application, enrolment, retention and performance. This evidence was utilised by the provider to inform their review of the programmes. The provider consulted widely with graduates, current learners, faculty, industry and employers as part of the review process and this stakeholder feedback was reviewed by the provider. The panel examined the documented evidence and discussed the programme with the provider.

Further detail can be found in the Provider Evaluation Report submitted as part of the application for validation.

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.

N/A

## Part 2A Evaluation against the validation criteria

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

### Criterion 1

<b>The provider is eligible to apply for validation of the programme</b>	
The provider meets the prerequisites (section 44(7) of the 2012 Act) to apply for validation of the programme. 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. The provider has declared that their programme complies with applicable statutory, regulatory and professional body requirements.	
<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
Yes	<b>Master of Science in Data Analytics &amp; Postgraduate Diploma in Science in Data Analytics</b>
Yes	<b>Postgraduate Diploma in Science in Data Analytics</b>

#### Postgraduate Diploma in Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 1 with regard to the award of Post Graduate Diploma in Science in Data Analytics.*

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

#### Master of Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 1 with regard to the award of MSc in Data Analytics.*

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

The programme aims and objectives are expressed plainly.

A QQI award is specified for those who complete the programme.

Where applicable, a QQI award is specified for each embedded programme.

There is a satisfactory rationale for the choice of QQI award(s).

The award title(s) is consistent with unit 3.1 of QQI's *Policy and Criteria for Making Awards*.

The award title(s) is otherwise legitimate for example it must comply with applicable statutory, regulatory and professional body requirements.

The programme title and any embedded programme titles are

Consistent with the title of the QQI award sought.

Clear, accurate, succinct and fit for the purpose of informing prospective learners and other stakeholders.

For each programme and embedded programme

The **minimum intended programme learning outcomes** and any other educational or training objectives of the programme are explicitly specified.<sup>1</sup>

The minimum intended programme learning outcomes to qualify for the QQI award sought are **consistent with** the relevant QQI awards standards.

Where applicable, the **minimum intended module learning outcomes** are explicitly specified for each of the programme's modules.

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.<sup>2</sup>

Satisfactory (yes, no, partially)	Comment
Yes	Master of Science in Data Analytics
Yes	Postgraduate Diploma in Science in Data Analytics

### Postgraduate Diploma in Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 2 with regard to the award of PGDip in Data Analytics.*

In the documentation provided to the panel, the aims and objectives of the programme are presented in clear, understandable English, and it is explicit that learners who complete the embedded award will obtain the Level 9 Postgraduate Diploma in Data Analytics. The choice of award title is consistent with the subject and the fact that the programme is written to the Science Awards Standards. The length of the named award is less than 43 characters and uses a 'standardised' award stem name, and the award title is legitimate and clearly communicates the topic being studied, and is consistent with the Science Award standards and the QQI award sought. It also complies with the statutory, regulatory requirements, and clearly informs prospective learners and stakeholders about the award. The award does not confer professional body membership.

The MIPLOs and aims and objectives are clearly stated and the provider has mapped the MIPLOs to the QQI Science Awards Standards. The panel considers that the MIPLOs meet the requirements of

<sup>1</sup> Other programme objectives, for example, may be to meet the educational or training requirements of a statutory, regulatory or professional body.

<sup>2</sup> 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.

the award type descriptors issued by QQI. The provider has explicitly specified the MIMLOs for each of the programme's modules. There are no minor awards being sought for this programme.

### Master of Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 2 with regard to the award of MSc in Data Analytics.*

In the documentation provided to the panel, the aims and objectives of the programme are presented in clear, understandable English, and it is explicit that learners who complete the programme will obtain the Level 9 QQI award MSc in Data Analytics. The choice of award title is consistent with the subject and the fact that the programme is written to the Science Awards Standards. The length of the named award is less than 43 characters and uses a 'standardised' award stem name, and the award title is legitimate and clearly communicates the topic being studied, and is consistent with the Science Award standards and the QQI award sought. It also complies with the statutory, regulatory requirements, and clearly informs prospective learners and stakeholders about the award. The award does not confer professional body membership.

The MIPLOs and aims and objectives are clearly stated and the provider has mapped the MIPLOs to the QQI Science Awards Standards. The panel considers that the MIPLOs meet the requirements of the award type descriptors issued by QQI. The provider has explicitly specified the MIMLOs for each of the programme's modules. There are no minor awards being sought for this programme.

## 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)**

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.<sup>3</sup>

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.

There is a satisfactory rationale for providing the programme.

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.

There is support for the introduction of the programme (such as from employers, or professional, regulatory or statutory bodies).

There is evidence<sup>4</sup> of learner demand for the programme.

There is evidence of employment opportunities for graduates where relevant<sup>5</sup>.

The programme meets genuine education and training needs.<sup>6</sup>

There are mechanisms to keep the programme updated in consultation with internal and external stakeholders.

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.

The programme satisfies any validation-related criteria attaching to the applicable awards standards and QQI awards specifications.

<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
<b>Yes</b>	<b>Master of Science in Data Analytics</b>
<b>Yes</b>	<b>Postgraduate Diploma in Science in Data Analytics</b>

### Postgraduate Diploma in Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 3 with regard to the award of Post Graduate Diploma in Science in Data Analytics.*

The panel considers that the provider has engaged in a genuine and rigorous review process. The views of current students, graduates, faculty and employers have been included in the programme revalidation documentation. Clear engagement with a range of stakeholders, using a range of methods was presented. The programme team consulted with a range of stakeholders, utilising both quantitative and qualitative data.

<sup>3</sup> 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.

<sup>4</sup> This might be predictive or indirect.

<sup>5</sup> It is essential to involve employers in the programme development and review process when the programme is vocationally or professionally oriented.

<sup>6</sup> 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.

The interpretation of the award standards was made in light of the research described above. This is reflected in both the MIPLOs and the MIMLOs where outcomes have been written in line with the standards required.

The provider has outlined the research underpinning the rationale for providing the programme. The provided research was current, relevant and showcases a need for the production of data analysts and scientists. The panel considers that the provider has presented a strong, evidence-based rationale for the on-going provision of the programme.

The provider has presented an analysis of how the programme compares to six similar programmes. The panel considers that the provider has evaluated this programme against others in terms of content, outcomes, entry requirements etc. The provider has examined the support for the programme from industry experts. Likewise, graduate destination statistics demonstrates that employers will recruit graduates of the programme.

The provided documentation showcases that learner demand for the programme has increased as the programme has developed. Likewise, there is significant demand from international students. The feedback from industry representatives has indicated that the knowledge, skills and competencies gained by graduates who have undertaken this programme are in high demand. Furthermore, the rates of successful employment by graduates in the surveys indicate that there are employment opportunities. The demand for the programme has grown, as evidence by the current student numbers versus the initial eight students who enrolled in the programme at intake 1.

The provider has established feedback mechanisms in place. The providers approach to feedback is multi-faceted, involving both surveys and meetings with learners. Likewise, there is an established industry panel that is utilised to ensure that the programme is up to date and relevant to industry. The programme is not vocational or professional.

### Master of Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 3 with regard to the award of MSc in Data Analytics.*

The panel considers that the provider has engaged in a genuine and rigorous review process. The views of current students, graduates, faculty and employers have been included in the programme revalidation documentation. Clear engagement with a range of stakeholders, using a range of methods was presented. The programme team consulted with a range of stakeholders, utilising both quantitative and qualitative data.

The interpretation of the award standards was made in light of the research described above. This is reflected in both the MIPLOs and the MIMLOs where outcomes have been written in line with the standards required.

The provider has outlined the research underpinning the rationale for providing the programme. The provided research was current, relevant and showcases a need for the production of data analysts and scientists. The panel considers that the provider has presented a strong, evidence-based rationale for the on-going provision of the programme.

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The provider has established feedback mechanisms in place. The providers approach to feedback is multi-faceted, involving both surveys and meetings with learners. Likewise, there is an established industry panel that is utilised to ensure that the programme is up to date and relevant to industry. The programme is not vocational or professional.

## Criterion 4

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

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.

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.

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 (CEFR) in order to enable learners to reach the required standard for the QQI award.

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).

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.

The programme title (the title used to refer to the programme):-

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).

Is learner focused and meaningful to the learners;

Has long-lasting significance.

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 Data Analytics
Yes	Postgraduate Diploma in Science in Data Analytics

### Postgraduate Diploma in Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 4 with regard to the award of Post Graduate Diploma in Science in Data Analytics.*

The programme team has provided detailed information about the programme as well as the College's procedures for Access, Transfer and Progression. The panel considers that the provider, as part of the review, has considered the entry requirements. Section 4.2 outlines the arrangements for ATP; however, as the review of the programme highlighted the potential impact of accepting learners without programming experience, the panel recommends that the provider explicitly state that learners should evidence programming knowledge and skills before being accepted onto the programme.

Information about the programme is available in multiple formats (website, hard copy) prior to commencement. The panel considers that this information is provided in a clear manner. The provider has also indicated that it can be made available in large print and braille if necessary. Once learners have commenced the programme information about all aspects of the programme is available in their Programme Handbook and the Moodle pages for the programme and module.

The School of Computing requires evidence of proficiency in English for all international applicants by possession of an IELTS score at level 6.5 for the PGDip in Data Analytics. The programme documentation specifies the learning that target learners are expected to have. There is a tiered approach described, whereby applicants are prioritised based on their previous qualifications (Section 4.2.2). The programme team identified the need to ensure that all applicants have the necessary programming skills prior to coming onto the programme and the panel recommends that this be included, more explicitly, in the 'Minimum requirements for general Learning' section of the programme document and in all information about the programme. In light of the provider's self-evaluation regarding the difficulties they have encountered with learners who are not as strong on programming skills upon entry, it would be useful, in the supporting documentation, to include detail about the interview process, to include questions and the scoring system utilised.

The programme documentation includes relevant procedures and criteria related to RPL. The panel does recommend that the provider detail the specific arrangements for transfer from the embedded PG Diploma to the MSc, should a learner return to complete this award at a later stage.

The panel considers that the MIPLOs are consistent with the awards to which it leads. The programme is clearly aligned to the Science Award Standards, and this has been mapped out. The title is focused and meaningful to the learners. The panel considers that learners who enrol on this programme will clearly understand the scope and purpose of the programme. This is a growing field of practice and there appears to be a high demand for graduates in this area. The panel considers that the provider has undertaken a rigorous analysis of this, from both a book-based and a dialogical perspective.

The panel recommended that the provider should explain more fully the interview process, to include questions and scoring system. The programme team have provided further information in Section 4.2.2 of the validation document and the panel is satisfied that they have considered and acted upon this recommendation in their response. The panel also recommended that the provider more fully articulate the specific change to entry requirements so that is clear what changes have been applied. The programme team provided further details and clarifications with respect to entry requirements in Section 4.2.2 of the updated revalidation documents. The panel, therefore, is satisfied that the programme team has acted upon this recommendation.

The panel recommended that the programme team articulate the Access, Progression and Transfer details related to progression to the MSc from the PG Routes so that learners can clearly ascertain what they must achieve in order to progress to the MSc. The programme team confirmed that Learners who enrol on the Postgraduate Diploma programme and complete the 60 ECTS associated with the Postgraduate Diploma are directly eligible to enrol on the MSc in Data Analytics programme. Sections 4.4 and 5.2 of the revalidation document for the Postgraduate Diploma programme includes a note indicating that learners advancing to complete the MSc programme will be required to complete the Research in Computing and Research Project modules. The panel, therefore, is satisfied that the programme team has considered and acted upon this recommendation.

### Master of Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 4 with regard to the award of MSc in Data Analytics.*

The programme team has provided detailed information about the programme as well as the College's procedures for Access, Transfer and Progression. The panel considers that the provider, as part of the review, has considered the entry requirements. Section 4.2 outlines the arrangements for ATP; however, as the review of the programme highlighted the potential impact of accepting learners

without programming experience, the panel recommends that the provider explicitly state that learners should evidence programming knowledge and skills before being accepted onto the programme.

Information about the programme is available in multiple formats (website, hard copy) prior to commencement. The panel considers that this information is provided in a clear manner. The provider has also indicated that it can be made available in large print and braille if necessary. Once learners have commenced the programme information about all aspects of the programme is available in their Programme Handbook and the Moodle pages for the programme and module.

The School of Computing requires evidence of proficiency in English for all international applicants by possession of an IELTS score at level 6.5 for the MSc in Data Analytics. The programme documentation specifies the learning that target learners are expected to have. There is a tiered approach described, whereby applicants are prioritised based on their previous qualifications (Section 4.2.2). The programme team identified the need to ensure that all applicants have the necessary programming skills prior to coming onto the programme and the panel recommends that this be included, more explicitly, in the 'Minimum requirements for general Learning' section of the programme document and in all information about the programme. In light of the provider's self-evaluation regarding the difficulties they have encountered with learners who are not as strong on programming skills upon entry, it would be useful, in the supporting documentation, to include detail about the interview process, to include questions and the scoring system utilised.

The panel considers that the MIPLOs are consistent with the awards to which it leads. The programme is clearly aligned to the Science Award Standards, and this has been mapped out. The title is focused and meaningful to the learners. The panel considers that learners who enrol on this programme will clearly understand the scope and purpose of the programme. This is a growing field of practice and there appears to be a high demand for graduates in this area. The panel considers that the provider has undertaken a rigorous analysis of this, from both a book-based and a dialogical perspective.

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## Criterion 5

### **The programme's written curriculum is well structured and fit-for-purpose**

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.

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.

Each module and stage is suitably structured and coherently oriented towards the achievement by learners of the intended *programme* learning outcomes.

The objectives and purposes of each of the programme's elements are clear to learners and to the provider's staff.

The programme is structured and scheduled realistically based on sound educational and training principles. The curriculum is comprehensively and systematically documented.

The credit allocated to the programme is consistent with the difference between the entry standard and minimum intended programme learning outcomes.

The credit allocated to each module is consistent with the difference between the module entry standard and minimum intended module learning outcomes.

Elements such as practice placement and work based phases are provided with the same rigour and attentiveness as other elements.

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.

<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
<b>Yes</b>	<b>Master of Science in Data Analytics</b>
<b>Yes</b>	<b>Postgraduate Diploma in Science in Data Analytics</b>

### Postgraduate Diploma in Science in Data Analytics

In general, the provider has given a clear overview of the structure. There are mandatory modules and electives. During the review process, the panel identified some areas for enhancement related to data wrangling and cleaning. These matters were addressed in the programme team's response document, which the panel have agreed.

The inclusion of electives allows for some choice for enrolled learners. Learners on the programme can select modules that are of particular interest to them, and the 'streaming' of the modules allows for a deeper knowledge in a particular area. While the programme team did a good job of justifying this at the panel meeting, the panel recommends that the provider clearly explain the manner in which learners will be supported in selecting their 'elective stream', as once chosen, a dependency occurs whereby a learner is committed to a first and second semester module that are linked. The panel recommended that further information be provided to learners about how to choose electives. This was addressed in the response document and final programme documentation.

In the main, the panel considers that the modules presented are oriented towards the achievement by learners of the MIPOs. The panel proposed a change to the placement of the Data Governance module. This change was included in the final documentation that the panel reviewed.

The rationale for inclusion of each module has been included in the documentation. Module objectives and rationales are provided in language suited to the needs of both learners and the relevant programme level information is available within the Programme Handbook provided for all learners. These will also be made publicly available through the College's web-based information system upon

approval of the programme. In discussion with the programme team at the site visit, it was clear that each module lecturer understood the elements of the programme they were responsible for, as well as how that integrated with the programme in general. In addition, the panel considers that the programme team have well-developed strategies for ensuring consistency in instances where different lecturers are teaching the same content.

When examining the module 'Innovation', it emerged that the content and purpose of the module was far greater than what was documented. The programme team addressed this in the reviewed documentation, and the panel consider that the information provision in the final documentation accurately reflects the module content.

The programme documentation includes a clear structure. The programme team provides the structures for both part time and full time options. The panel considers that the structures outlined compare favourably to similar programmes offered in DCU, UCC, UCD and DIT. In discussing the programme with graduates, the panel is satisfied that, while challenging, the programme structure is achievable in the durations proposed.

The provider has comprehensively and systematically documented the curriculum of the programme. Each module descriptor sets out the module's aims and MIMLOs, and the content is clearly explicated in the documentation.

The credit allocated to the programme is consistent with other PGDip programmes of a similar nature. The provider is utilising the standard 60 Credit PG Diploma. The panel considers that the credit allocation is consistent with the difference between the entry standard and the programme outcomes. This is evidenced in the revalidation document at Section 2.6, Table 2 which systematically compares MIPLOs at level 9 with the requirement of Level 8 for Science Award Type Descriptors.

The panel considers that the credit allocated to each module is consistent with that required for a PGDip programme at level 9. The programme team, as part of the review, has changed the credit allocation of the elective modules to 5 ECTS credits. The panel considers that this is appropriate, as it allows for a more generalised learning in the broader data analytics field, and a focus amount (10 ECTS between two modules) on an area of specialisation.

The full-time option is delivered over one calendar years equating to 2 x 3 month semesters. Each semester equates to 30 ECTS credits, meaning there is a balance in terms of workload. The part-time programme is delivered across two calendar years running across 4 x 3 month semester periods. Each semester equates to 15 ECTS credits. The panel considers that the provider has mapped this out to a strong degree and the programme team has developed a programme that is balanced.

As per the provided documentation, 1 credit equates to 25 hours of student effort. The panel considers that the provider is compliant with the requirements of the ECTS Credit system. All credit allocation is clearly documented at both programme and modular level.

**The panel proposed as special conditions of validation that:**

- **the programme includes a specific Minimum Intended Module Learning Outcome related to Data Cleaning, Wrangling, Preparation, Validation and specify explicitly where the content is included in the programme where it is assessed;**
- **the provider moves the Data Governance and Ethics module into the earlier (first 60 credits) of the programme so that all learners, regardless of MSc or PG status, can access the necessary knowledge, skills and competencies to support the attainment of MIPLO6. If the**

duration is variable, for example, when advanced entry is available, this should be explained and justified;

- the language in the 'Innovation' elective stream be reworked so that it clearly communicates that the module is not just about start up, but innovation and user centric problem solving; and
- the 'Research in Computing' Module should explicitly include "Research Methodology" in the Module Content *and* the Reading List.

The programme team made the following modifications to the programme to address the above special conditions of validation:

- The Database and Analytics Programming module has been updated to include the following MIMLO 3: Evaluate tools and techniques for managing the data pipeline and preparing data for further analysis through data wrangling, cleaning, and validation. Topical coverage associated with this learning outcome is included in Week 7 of the module. The project assessment has been revised to specifically include '...utilising appropriate programming languages, tools and techniques (e.g., data wrangling) for data preparation ...'.
- The Module Objectives for the Innovation I module have been revised to state that the module '... aims to give the learner practical experience of creating an innovative project that addresses real-world problems' rather than '... aims to give the learner practical experience of creating a startup that addresses real-world problems'. Additionally, the following sentence has also been added to the Module Objectives: 'This approach may be utilised to launch innovative projects within firms as well as to launch a startup enterprise.' Week 11 of the Innovation I module now includes topical coverage of Organisational innovation readiness relating to how to incentivise innovation in organisations. Similarly, the Module Objectives for the Innovation II module have been revised to state 'Using methodologies such as the lean canvas and the business model canvas, learners learn what it entails to define sales channels, define revenue streams and cost structure and identify key metrics to assess project performance' rather than 'Using methodologies such as the lean canvas and the business model canvas, learners learn what it entails to define sales channels, define revenue streams and cost structure and identify key metrics to assess startup performance'. Additionally, the following sentence has also been added to the Module Objectives: 'This approach may be utilised to launch innovative projects within firms as well as to launch a startup enterprise'. The Innovation II module will explore methodologies associated with startup enterprises, however, the module descriptor's Teaching and Learning Strategy section now also indicates that 'Consideration will also be given to how similar methodologies can be applied within organisations to successfully bring innovative ideas to fruition'.
- The Research in Computing module has been revised to include Research Methodology as topical content covered in Week 2 and has included additional recommended reading material.

The programme team attempted to find an accommodation for Data Governance and Ethics through an alteration of the programme structure for the Postgraduate Diploma in Science in Data Analytics. The main problem faced by the team was to identify a way in which the Data Governance and Ethics module could be moved to either semester 1 or semester 2 without having a major impact on the cohesive nature of the programme design in terms of the schedule of modules. The best candidate module to shift, as part of restructuring the programmes' schedules, was identified to be the Research in Computing module.

When considering the Postgraduate Diploma programme, however, the programme team believes that the Data Governance and Ethics module could replace the Research in Computing module in

semester 2. In many ways, this makes good sense as it also responds to student feedback that questioned the necessity of the Research in Computing module as part of the Postgraduate Diploma programme in the first instance. Research will remain an integral part of the Postgraduate Diploma programme as students engage in research activities across a number of modules whilst completing projects and assignments.

The programme team believes that such an approach will work effectively as students progressing from the Postgraduate Diploma would enrol to complete the remaining modules (i.e., Research in Computing and the Research Project) over a 6 month period. With this proposed solution to address Condition 1 there still remains the question of students enrolled on the MSc programme who request to exit with a Postgraduate Diploma at the end of semester 2. The programme team have conducted a review of modules with respect to MIPLO6 of the programmes. As part of this review further coverage of ethics, data security, and data governance has been incorporated more explicitly into a number of modules. E.g., the Statistics for Data Analytics module includes Ethics in the use of data; the Database and Analytics Programming module includes Data Security as part of the Productionalizing Data Analytics topic; the Data Mining and Machine Learning I module now also incorporates Data Security whilst covering methodologies associated with knowledge discovery; the Business Intelligence and Business Analytics module includes Data protection, security and ethical considerations with respect to implementing CRM systems; the Innovation I module includes Ethical considerations of customer segmentation; the Data Mining and Machine Learning II module includes Ethically assessing biases; the Domain Applications of Predictive Analytics includes topics such as Civil Rights and Big Data.

Notwithstanding that the programme team have reviewed each of the modules with respect to MIPLO6, it will be necessary that learners requesting to exit the MSc programme must successfully complete the Data Governance and Ethics module in order to qualify for the Postgraduate Diploma as an exit award. It should also be noted that learners requesting to exit the MSc programme should be the exception rather than the rule. Section 4.4 of the MSc programme document now specifies that for a learner to qualify for a Postgraduate Diploma qualification as an exit award that 60 ECTS associated with the Postgraduate Diploma in Data Analytics must be completed (i.e., successful completion of the Data Governance and Ethics module is necessary).

The panel is satisfied with the response of the programme team and that these special conditions of validation have been satisfied through the modifications discussed above.

The panel recommended that the provider clearly explain the manner in which learners will be supported in selecting their 'elective stream', as once chosen, a dependency occurs whereby a learner is committed to a first and second semester module that are linked. The programme team has provided additional information in Section 5.4.1 of each of the revalidation document relating to process that will be followed to ensure that students are provided with adequate and appropriate information and supports with respect to their choice of elective modules.

### Master of Science in Data Analytics

In general, the provider has given a clear overview of the structure. There are mandatory modules and electives.

The inclusion of electives allows for some choice for enrolled learners. Learners on the programme can select modules that are of particular interest to them, and the 'streaming' of the modules allows for a deeper knowledge in a particular area. While the programme team did a good job of justifying this at the panel meeting, the panel recommends that the provider clearly explain the manner in which

learners will be supported in selecting their 'elective stream', as once chosen, a dependency occurs whereby a learner is committed to a first and second semester module that are linked.

In the main, the panel considers that the modules presented are oriented towards the achievement by learners of the MIPLOs.

The rationale for inclusion of each module has been included in the documentation. Module objectives and rationales are provided in language suited to the needs of both learners and the relevant programme level information is available within the Programme Handbook provided for all learners. These will also be made publicly available through the College's web-based information system upon approval of the programme. In discussion with the programme team at the site visit, it was clear that each module lecturer understood the elements of the programme they were responsible for, as well as how that integrated with the programme in general. In addition, the panel considers that the programme team have well-developed strategies for ensuring consistency in instances where different lecturers are teaching the same content.

The programme documentation includes a clear structure. The programme team provides the structures for both part time and full time options. The panel considers that the structures outlined compare favourably to similar programmes offered in DCU, UCC, UCD and DIT. In discussing the programme with graduates, the panel is satisfied that, while challenging, the programme structure is achievable in the durations proposed.

The provider has comprehensively and systematically documented the curriculum of the programme. Each module descriptor sets out the module's aims and MIMLOs, and the content is clearly explicated in the documentation.

The credit allocated to the programme is consistent with other MSc programmes of a similar nature. The provider is utilising the standard 90 Credit Master of Science. The panel considers that the credit allocation is consistent with the difference between the entry standard and the programme outcomes. This is evidenced in the revalidation document at Section 2.6, Table 2 which systematically compares MIPLOs at level 9 with the requirement of Level 8 for Science Award Type Descriptors.

The panel considers that the credit allocated to each module is consistent with that required for a MSc programme at level 9. The programme team, as part of the review, has changed the credit allocation of the elective modules to 5 ECTS credits. The panel considers that this is appropriate, as it allows for a more generalised learning in the broader data analytics field, and a focus amount (10 ECTS between two modules) on an area of specialisation.

The full-time option is delivered over one calendar years equating to 3 x 3 month semesters. Each semester equates to 30 ECTS credits, meaning there is a balance in terms of workload. The part-time programme is delivered across two calendar years running across 3 x 3 month semester periods and a 1 x 6 month semester period. The first 3 semester periods provide 20 ECTS credits each. The final 4<sup>th</sup> semester period provides 30 ECTS credits. The panel considers that the provider has mapped this out to a strong degree and the programme team has developed a programme that is balanced.

As per the provided documentation, 1 credit equates to 25 hours of student effort. The panel considers that the provider is compliant with the requirements of the ECTS Credit system. All credit allocation is clearly documented at both programme and modular level.

**The panel proposed as special conditions of validation that:**

- the programme includes a specific Minimum Intended Module Learning Outcome related to Data Cleaning, Wrangling, Preparation, Validation and specify explicitly where the content is included in the programme where it is assessed;
- the provider moves the Data Governance and Ethics module into the earlier (first 60 credits) of the programme so that all learners, regardless of MSc or PG status, can access the necessary knowledge, skills and competencies to support the attainment of MIPLO6. If the duration is variable, for example, when advanced entry is available, this should be explained and justified;
- the language in the 'Innovation' elective stream be reworked so that it clearly communicates that the module is not just about start up, but innovation and user centric problem solving; and
- the 'Research in Computing' Module should explicitly include "Research Methodology" in the Module Content *and* the Reading List.

The programme team made the following modifications to the programme to address the above special conditions of validation:

- The Database and Analytics Programming module has been updated to include the following MIMLO 3: Evaluate tools and techniques for managing the data pipeline and preparing data for further analysis through data wrangling, cleaning, and validation. Topical coverage associated with this learning outcome is included in Week 7 of the module. The project assessment has been revised to specifically include '...utilising appropriate programming languages, tools and techniques (e.g., data wrangling) for data preparation ...'.
- The Module Objectives for the Innovation I module have been revised to state that the module '... aims to give the learner practical experience of creating an innovative project that addresses real-world problems' rather than ' ... aims to give the learner practical experience of creating a startup that addresses real-world problems'. Additionally, the following sentence has also been added to the Module Objectives: 'This approach may be utilised to launch innovative projects within firms as well as to launch a startup enterprise.' Week 11 of the Innovation I module now includes topical coverage of Organisational innovation readiness relating to how to incentivise innovation in organisations. Similarly, the Module Objectives for the Innovation II module have been revised to state 'Using methodologies such as the lean canvas and the business model canvas, learners learn what it entails to define sales channels, define revenue streams and cost structure and identify key metrics to assess project performance' rather than 'Using methodologies such as the lean canvas and the business model canvas, learners learn what it entails to define sales channels, define revenue streams and cost structure and identify key metrics to assess startup performance'. Additionally, the following sentence has also been added to the Module Objectives: 'This approach may be utilised to launch innovative projects within firms as well as to launch a startup enterprise'. The Innovation II module will explore methodologies associated with startup enterprises, however, the module descriptor's Teaching and Learning Strategy section now also indicates that 'Consideration will also be given to how similar methodologies can be applied within organisations to successfully bring innovative ideas to fruition'.
- The Research in Computing module has been revised to include Research Methodology as topical content covered in Week 2 and has included additional recommended reading material.

For students enrolled on the MSc in Data Analytics, the programme team believes that the best place for the Research in Computing module is still semester 2, as this module allows students to develop a research question which can then be carried forward to the final semester's research

project. For full-time MSc students the final semester is 13 weeks – the programme team does not believe it is viable for both Research in Computing and the Research Project module to both run in the final semester for full-time learners. For students who complete the Postgraduate Diploma and decide to enrol to complete the MSc programme, it would be necessary to first complete the Research in Computing module and then proceed to complete the Research Project module. This is illustrated in section 5.1.1 and 5.1.2 in the programme document for the Postgraduate Diploma in Science in Data Analytics where the Data Governance & Ethics module is core. This is also reflected in the programme schedule at section 5.11.

The programme team believes that such an approach will work effectively as students progressing from the Postgraduate Diploma would enrol to complete the remaining modules (i.e., Research in Computing and the Research Project) over a 6 month period. With this proposed solution to address Condition 1 there still remains the question of students enrolled on the MSc programme who request to exit with a Postgraduate Diploma at the end of semester 2. The programme team have conducted a review of modules with respect to MIPLO6 of the programmes. As part of this review further coverage of ethics, data security, and data governance has been incorporated more explicitly into a number of modules. E.g., the Statistics for Data Analytics module includes Ethics in the use of data; the Database and Analytics Programming module includes Data Security as part of the Productionalizing Data Analytics topic; the Data Mining and Machine Learning I module now also incorporates Data Security whilst covering methodologies associated with knowledge discovery; the Business Intelligence and Business Analytics module includes Data protection, security and ethical considerations with respect to implementing CRM systems; the Innovation I module includes Ethical considerations of customer segmentation; the Data Mining and Machine Learning II module includes Ethically assessing biases; the Domain Applications of Predictive Analytics includes topics such as Civil Rights and Big Data.

Notwithstanding that the programme team have reviewed each of the modules with respect to MIPLO6, it will be necessary that learners requesting to exit the MSc programme must successfully complete the Data Governance and Ethics module in order to qualify for the Postgraduate Diploma as an exit award. It should also be noted that learners requesting to exit the MSc programme should be the exception rather than the rule. Section 4.4 of the MSc programme document now specifies that for a learner to qualify for a Postgraduate Diploma qualification as an exit award that 60 ECTS associated with the Postgraduate Diploma in Data Analytics must be completed (i.e., successful completion of the Data Governance and Ethics module is necessary).

The panel is satisfied with the response of the programme team and that these special conditions of validation have been satisfied through the modifications discussed above.

The panel recommended that the provider clearly explain the manner in which learners will be supported in selecting their 'elective stream', as once chosen, a dependency occurs whereby a learner is committed to a first and second semester module that are linked. The programme team has provided additional information in Section 5.4.1 of each of the revalidation document relating to process that will be followed to ensure that students are provided with adequate and appropriate information and supports with respect to their choice of elective modules.

## Criterion 6

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

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).

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.

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.

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.

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

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.

<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
<b>Yes</b>	<b>Master of Science in Data Analytics</b>
<b>Yes</b>	<b>Postgraduate Diploma in Science in Data Analytics</b>

### Postgraduate Diploma in Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 6 with regard to the award of Postgraduate Diploma in Science in Data Analytics.*

The programme documentation clearly explains the specification of the staffing requirements for delivery of the programme. The Provider employs a range of staff to deliver the programme (permanent, associate faculty etc.). There are clearly defined minimum education requirements for faculty presented, and CVs were provided for the panel. Appendix 2 of the programme revalidation document identifies the complement of staff that is available, qualified and capable of delivering the programme. The provider outlined how additional staff has been recruited to support the delivery of the programme as it has grown and developed. In addition, the provider met with support staff (i.e. maths tutor) who is available to support this particular programme, where statistics and numeracy are vital competencies that learners are required to evidence.

Along with additions to the teaching team, there is an existing complement of faculty and associate faculty who have been directly involved in the teaching of the original MSc in Data Analytics. At the panel visit, it was clear that the programme team operated as a cohesive unit, each able to speak to their own modules, but also how the programme integrates as a whole. The panel considers that there are sufficient, appropriate arrangements in place for the performance of the programme's staff.

As per the provider's agreed QA procedures, there are performance systems in place to monitor performance and encourage staff development. In addition, as per the validation document (p.191) learner feedback is provided at the end of each module and this information is utilised in the faculty member's ongoing review process.

Appointments to this programme are made by the dean of the school or delegated to the vice dean. That said, this programme is to be provided by existing faculty members and the utilisation of any associated faculty members that are necessary. The school of computing will retain control over ensuring that staffing and other resource provision matters are adequate to provide the programme as described in the documentation.

### Master of Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 6 with regard to the award of MSc in Data Analytics.*

The programme documentation clearly explains the specification of the staffing requirements for delivery of the programme. The Provider employs a range of staff to deliver the programme (permanent, associate faculty etc.). There are clearly defined minimum education requirements for faculty presented, and CVs were provided for the panel. Appendix 2 of the programme revalidation document identifies the complement of staff that is available, qualified and capable of delivering the programme. The provider outlined how additional staff has been recruited to support the delivery of the programme as it has grown and developed. In addition, the provider met with support staff (i.e. maths tutor) who is available to support this particular programme, where statistics and numeracy are vital competencies that learners are required to evidence.

Along with additions to the teaching team, there is an existing complement of faculty and associate faculty who have been directly involved in the teaching of the original MSc in Data Analytics. At the panel visit, it was clear that the programme team operated as a cohesive unit, each able to speak to their own modules, but also how the programme integrates as a whole. The panel considers that there are sufficient, appropriate arrangements in place for the performance of the programme's staff.

As per the provider's agreed QA procedures, there are performance systems in place to monitor performance and encourage staff development. In addition, as per the validation document (p.191) learner feedback is provided at the end of each module and this information is utilised in the faculty member's ongoing review process.

Appointments to this programme are made by the dean of the school or delegated to the vice dean. That said, this programme is to be provided by existing faculty members and the utilisation of any associated faculty members that are necessary. The school of computing will retain control over ensuring that staffing and other resource provision matters are adequate to provide the programme as described in the documentation.

## Criterion 7

### **There are sufficient physical resources to implement the programme as planned**

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).

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: 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)

suitable information technology and resources (including educational technology and any virtual learning environments provided)

printed and electronic material (including software) for teaching, learning and assessment

suitable specialist equipment (e.g. kitchen, laboratory, workshop, studio) – if applicable

technical support

administrative support

company placements/internships – if applicable

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).

There is a five-year plan for the programme. It should address

Planned intake (first five years) and

The total costs and income over the five years based on the planned intake.

The programme includes controls to ensure entitlement to use the property (including intellectual property, premises, materials and equipment) required.

<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
<b>Yes</b>	<b>Master of Science in Data Analytics</b>
<b>Yes</b>	<b>Postgraduate Diploma in Science in Data Analytics</b>

### Postgraduate Diploma in Science in Data Science

*The panel considers that the provider has evidenced compliance to all components of Criterion 7 with regard to the award of Postgraduate Diploma in Science in Data Analytics.*

Each module descriptor details the physical resources required for the programme. These resources are clearly defined and consistent with the programme. It is worth noting that each learner is required to Bring [their] own device (BYOD) and the learners are given specific detail as to the necessary specifications of this device. The panel considers that the physical resources available at the provider's campus are ample to deliver this programme.

The programme will be delivered onsite in the campus that the panel visited. These premises have undergone institutional approval with QQI. Due consideration is given to the needs of learners, and on-site supports around health, safety and well-being are evidenced.

The College utilises Moodle as a learning tool. Likewise, if necessary, Adobe Connect can be utilised. As standard at the College, learners on this programme can access the library (both hard copy and digital), Moodle and all other learning supports. Moodle typically carries, as a minimum, details of how the module timetable and curriculum will be delivered, lecture notes and / or other appropriate learning materials, lecturer contact details and links to other relevant College-based pages and outside

sources. Assessments (other than exams) are submitted through Moodle and Turnitin (anti-plagiarism software), and results and individual feedback are available through these systems. Additionally, all learners are provided with the programme handbook.

Although learners are required to bring their own device, college provides any specialist equipment that may be necessary. Learners on this programme can access the colleges OpenStack cloud resources, as well as a range of public cloud resources. The provider has a range of technical supports on offer. The learners and graduates the panel met described a strong support system around IT and technical matters.

The programme has clear leadership in place, with a programme coordinator appointed. Likewise, both faculty and graduates separately described an 'open door' policy whereby faculty are available to meet formally and informally with learners. There is a range of support staff in place, and learners on this course can access administration support from the college's Student Support and Exams Offices. Company placements and internships do not apply to this programme.

The programme will run at the provider's campus and the provider does not plan to deliver it in alternative locations. The submitted documentation includes a five-year plan for the programme and the planned intake for the programme is detailed in the documentation; page 49 details both 'planned' and 'projected intakes' over the coming five years. Section 3.13 of the documentation includes a five-year financial plan for the programme.

The provider's policy includes controls to ensure entitlements to use the property (including intellectual property, premises, materials and equipment) are in place and that all staff is aware of their obligations in respect of the same.

### Master of Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 7 with regard to the award of MSc in Data Analytics.*

Each module descriptor details the physical resources required for the programme. These resources are clearly defined and consistent with the programme. It is worth noting that each learner is required to Bring [their] own device (BYOD) and the learners are given specific detail as to the necessary specifications of this device. The panel considers that the physical resources available at the provider's campus are ample to deliver this programme.

The programme will be delivered onsite in the campus that the panel visited. These premises have undergone institutional approval with QQI. Due consideration is given to the needs of learners, and on-site supports around health, safety and well-being are evidenced.

The College utilises Moodle as a learning tool. Likewise, if necessary, Adobe Connect can be utilised. As standard at the College, learners on this programme can access the library (both hard copy and digital), Moodle and all other learning supports. Moodle typically carries, as a minimum, details of how the module timetable and curriculum will be delivered, lecture notes and / or other appropriate learning materials, lecturer contact details and links to other relevant College-based pages and outside sources. Assessments (other than exams) are submitted through Moodle and Turnitin (anti-plagiarism software), and results and individual feedback are available through these systems. Additionally, all learners are provided with the programme handbook.

Although learners are required to bring their own device, college provides any specialist equipment that may be necessary. Learners on this programme can access the colleges OpenStack cloud resources, as well as a range of public cloud resources. The provider has a range of technical supports on offer. The learners and graduates the panel met described a strong support system around IT and technical matters.

The programme has clear leadership in place, with a programme coordinator appointed. Likewise, both faculty and graduates separately described an 'open door' policy whereby faculty are available to meet formally and informally with learners. There is a range of support staff in place, and learners on this course can access administration support from the college's Student Support and Exams Offices. Company placements and internships do not apply to this programme.

The programme will run at the provider's campus and the provider does not plan to deliver it in alternative locations. The submitted documentation includes a five-year plan for the programme and the planned intake for the programme is detailed in the documentation; page 49 details both 'planned' and 'projected intakes' over the coming five years. Section 3.13 of the documentation includes a five-year financial plan for the programme.

The provider's policy includes controls to ensure entitlements to use the property (including intellectual property, premises, materials and equipment) are in place and that all staff is aware of their obligations in respect of the same.

## Criterion 8

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

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.

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.

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.

<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
<b>Yes</b>	<b>Master of Science in Data Analytics</b>
<b>Yes</b>	<b>Postgraduate Diploma in Science in Data Analytics</b>

### **Postgraduate Diploma in Science in Data Analytics**

*The panel considers that the provider has evidenced compliance to all components of Criterion 8 with regard to the award of Postgraduate Diploma in Science in Data Analytics.*

The programme will be delivered in the provider's campus, which has an existing array of supports and learner amenities. Learners on this programme have access to all resources available to any student who attends the College.

The panel met with faculty, learners and support staff as part of the panel meetings. The panel considers that a high level of learner support is provided. This support spans every facet of the student experience, from pastoral care to additional support with regard to maths and statistics. Learners have timetabled supervision built into their programme to support them as they undertake their research project. The college has a counselling service.

This programme does not involve a work placement.

### **Master of Science in Data Analytics**

*The panel considers that the provider has evidenced compliance to all components of Criterion 8 with regard to the award of MSc in Data Analytics.*

The programme will be delivered in the provider's campus, which has an existing array of supports and learner amenities. Learners on this programme have access to all resources available to any student who attends the College.

The panel met with faculty, learners and support staff as part of the panel meetings. The panel considers that a high level of learner support is provided. This support spans every facet of the student experience, from pastoral care to additional support with regard to maths and statistics. Learners have timetabled supervision built into their programme to support them as they undertake their research project. The college has a counselling service.

This programme does not involve a work placement.

## Criterion 9

### There are sound teaching and learning strategies

The teaching strategies support achievement of the intended programme/module learning outcomes. The programme provides authentic learning opportunities to enable learners to achieve the intended programme learning outcomes.

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).

Learning is monitored/supervised.

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 Data Analytics
Yes	Postgraduate Diploma in Science in Data Analytics

### Postgraduate Diploma in Science in Data Analytics

This programme is situated within the context of the provider's own Learning, Teaching and Assessment Strategy. There is a primary "Focus on the Learner". Along with the presentation of an overall programme teaching and learning strategy, each module descriptor presented in the documentation outlines how the teaching strategies for that module support the attainment of the learning outcomes for the programme and module. Formative assessment is inherent in each module.

The programme has a range of theoretical and practical elements. This is mirrored in the teaching and learning strategy. It is a clear intention of the programme team to provide learners with contextually relevant content, problems, tools, methodologies etc. There is also a good mix of knowledge-based activities and skills-based activities evident in the programme. For instance, in module 6.1, learners will examine theoretical matter and then use a problem-based learning approach in the practical group exercises. That said, the panel recommends that the programme team reflect upon the manner in which teaching and learning occurs across the elective stream 'Data Intensive Architectures and Scalable Systems Programming'. In reviewing the documentation and discussing it with the provider, it appears that the learners do the majority of the theory in the first module and the majority of the practical work in the second module. The panel recommends that this be reworked so that the learners are able to apply theoretical learning in both modules, while the knowledge is fresh.

In general, the panel considers that the programme's structure is balanced and spread out across a calendar year and three semesters (in the case of the full time programme) or two calendar years and four semesters in the case of the part-time programme. There is a balance in the number of credits allocated to each semester of the programme.

The panel proposed a reduction in the number of overall assessments, and the programme documentation and response document prepared by the programme team clearly demonstrated where this reduction had occurred.

There are clear formative assessment strategies described in the module descriptors. Faculty appear to take a hands-on approach, and this was echoed by the feedback from learners and graduates. For the Research project, a supervisor is assigned to each student and his or her supervision groups and one-to-one meetings take place weekly over an appropriate duration. The panel considers that a high

level of support is evident. Formative feedback strategies are embedded in the programme, and learners have access to faculty and additional supports as required.

**The panel proposed, as a special condition of validation, that the programme team review the assessment strategy with a view to reducing the number of assignments. The programme team made a number of modifications to the assessment strategy associated with a number of module modules to allow for a more balanced workload for students throughout each of the semesters. In general, an attempt has been made to limit the number of assessment elements per module to two pieces of assessment; however, even after review of the assessment strategies associated with the modules, there are still some instances where this general guideline has been violated. These are detailed in the indicative assessment schedule in both programme documents reference sections 5.10. The panel is satisfied with the response of the programme team and that this special condition of validation has been satisfied.**

### Master of Science in Data Analytics

This programme is situated within the context of the provider's own Learning, Teaching and Assessment Strategy. There is a primary "Focus on the Learner". Along with the presentation of an overall programme teaching and learning strategy, each module descriptor presented in the documentation outlines how the teaching strategies for that module support the attainment of the learning outcomes for the programme and module. Formative assessment is inherent in each module.

The programme has a range of theoretical and practical elements. This is mirrored in the teaching and learning strategy. It is a clear intention of the programme team to provide learners with contextually relevant content, problems, tools, methodologies etc. There is also a good mix of knowledge-based activities and skills-based activities evident in the programme. For instance, in module 6.1, learners will examine theoretical matter and then use a problem-based learning approach in the practical group exercises. That said, the panel recommends that the programme team reflect upon the manner in which teaching and learning occurs across the elective stream 'Data Intensive Architectures and Scalable Systems Programming'. In reviewing the documentation and discussing it with the provider, it appears that the learners do the majority of the theory in the first module and the majority of the practical work in the second module. The panel recommends that this be reworked so that the learners are able to apply theoretical learning in both modules, while the knowledge is fresh.

In general, the panel considers that the programme's structure is balanced and spread out across a calendar year and three semesters (in the case of the full time programme) or two calendar years and four semesters in the case of the part-time programme. There is a balance in the number of credits allocated to each semester of the programme.

The panel proposed a reduction in the number of overall assessments, and the programme documentation and response document prepared by the programme team clearly demonstrated where this reduction had occurred.

There are clear formative assessment strategies described in the module descriptors. Faculty appear to take a hands-on approach, and this was echoed by the feedback from learners and graduates. For the Research project, a supervisor is assigned to each student and his or her supervision groups and one-to-one meetings take place weekly over an appropriate duration. The panel considers that a high level of support is evident. Formative feedback strategies are embedded in the programme, and learners have access to faculty and additional supports as required.

The panel proposed, as a special condition of validation, that the programme team review the assessment strategy with a view to reducing the number of assignments. The programme team made a number of modifications to the assessment strategy associated with a number of module modules to allow for a more balanced workload for students throughout each of the semesters. In general, an attempt has been made to limit the number of assessment elements per module to two pieces of assessment; however, even after review of the assessment strategies associated with the modules, there are still some instances where this general guideline has been violated. These are detailed in the indicative assessment schedule in both programme documents reference sections 5.10. The panel is satisfied with the response of the programme team and that this special condition of validation has been satisfied.

## Criterion 10

<b>There are sound assessment strategies</b>	
All assessment is undertaken consistently with <i>Assessment Guidelines, Conventions and Protocols for Programmes Leading to QQI Awards</i>	
The programme's assessment procedures interface effectively with the provider's QQI approved quality assurance procedures.	
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.	
The programme includes formative assessment to support learning.	
There is a satisfactory written <b>programme assessment strategy</b> for the programme as a whole and there are satisfactory module assessment strategies for any of its constituent modules.	
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.	
There are sound procedures for the moderation of summative assessment results.	
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.	
<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
Yes	<b>Master of Science in Data Analytics</b>
Yes	<b>Postgraduate Diploma in Science in Data Analytics</b>

### Postgraduate Diploma in Science in Data Analytics

The provider has adhered to all Assessment Guidelines, Conventions and Protocols for Programmes Leading to QQI Awards. The assessment strategy for the programme is outlined in section 5.9. The provider has confirmed that the programme strategy is underpinning by the agreed QA procedures that exist.

A broad mix of assessment approaches are utilised in the programme. In the main, these are designed to be fair, consistent and to ensure that the outcomes of the modules/programmes are assessed.

Each module descriptor includes a description of the formative assessment methods utilised to support learning. Learners, when engaging with new tools, are supervised and given feedback in the moment. The provider has submitted a satisfactory written assessment strategy for the programme. This includes modular assessment strategies as well as strategies for repeat assessments.

Along with the revalidation document, the provider has submitted sample assessment instruments, tasks and marking schemes. There are clear procedures for second marking included. The provider has a clearly mapped out mechanism for ensuring that there is moderation of summative assessment results. A visual graph detailing the steps in this process was provided.

The Provider's Examinations Office holds ultimate responsibility for ensuring that only learners who have been specifically assessed against the standard for that award are put forward for the award at certification.

The panel recommended that the programme team reflect upon the manner in which teaching and learning occurs across the elective stream 'Data Intensive Architectures and Scalable Systems Programming'. The panel recommends that this be reworked so that the learners are able to apply theoretical learning in both modules, while the knowledge is fresh.

The panel recommended that the programme team reflect upon the manner in which teaching and learning occurs across the elective stream 'Data Intensive Architectures and Scalable Systems Programming'. The panel recommends that this be reworked so that the learners are able to apply theoretical learning in both modules, while the knowledge is fresh. The programme team revised the assessment strategy for the Data Intensive Architectures module to incorporate a project (100%) in place of the previous assessment which was based solely on a final exam (100%). The panel is satisfied, therefore, that this recommendation has been acted upon by the programme team.

### Master of Science in Data Analytics

The provider has adhered to all Assessment Guidelines, Conventions and Protocols for Programmes Leading to QQI Awards. The assessment strategy for the programme is outlined in section 5.9. The provider has confirmed that the programme strategy is underpinning by the agreed QA procedures that exist.

A broad mix of assessment approaches are utilised in the programme. In the main, these are designed to be fair, consistent and to ensure that the outcomes of the modules/programmes are assessed.

Each module descriptor includes a description of the formative assessment methods utilised to support learning. Learners, when engaging with new tools, are supervised and given feedback in the moment. The provider has submitted a satisfactory written assessment strategy for the programme. This includes modular assessment strategies as well as strategies for repeat assessments.

Along with the revalidation document, the provider has submitted sample assessment instruments, tasks and marking schemes. There are clear procedures for second marking included. The provider has a clearly mapped out mechanism for ensuring that there is moderation of summative assessment results. A visual graph detailing the steps in this process was provided.

The Provider's Examinations Office holds ultimate responsibility for ensuring that only learners who have been specifically assessed against the standard for that award are put forward for the award at certification.

The panel recommended that the programme team reflect upon the manner in which teaching and learning occurs across the elective stream 'Data Intensive Architectures and Scalable Systems Programming'. The panel recommends that this be reworked so that the learners are able to apply theoretical learning in both modules, while the knowledge is fresh. The programme team revised the assessment strategy for the Data Intensive Architectures module to incorporate a project (100%) in

place of the previous assessment which was based solely on a final exam (100%). The panel is satisfied, therefore, that this recommendation has been acted upon by the programme team.

## Criterion 11

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

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.

Information is provided about learner supports that are available to learners enrolled on the programme. Specific information is provided to learners enrolled on the programme about any programme-specific appeals and complaints procedures.

If the programme is modular, it includes arrangements for the provision of effective guidance services for learners on the selection of appropriate learning pathways.

The programme takes into account and accommodates to the differences between enrolled learners, for example, in terms of their prior learning, maturity, and capabilities.

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.

The programme provides supports for enrolled learners who have special education and training needs.

The programme makes reasonable accommodations for learners with disabilities.

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.

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).

<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
<b>Yes</b>	<b>Master of Science in Data Analytics</b>
<b>Yes</b>	<b>Postgraduate Diploma in Science in Data Analytics</b>

### **Postgraduate Diploma in Science in Data Analytics**

*The panel considers that the provider has evidenced compliance to all components of Criterion 11 with regard to the award of Postgraduate Diploma in Science in Data Analytics.*

Learners have visibility of the assessment schedules, class timetable and activities etc. from the outset of the programme. This information is provided in the programme handbook and on Moodle. Learners have access to a range of learner support services at the college. The information about these services is provided to learners in the handbook and on Moodle. In addition, there are clear signposts to a range of supports evident throughout the building. For example, posters about the 'Getting to Grips' programme were clearly visible in reception and various spaces around the college premises. This information is available to learners in the programme handbook and on Moodle.

50 ECTS credits are mandatory. As stated above, the teaching, learning and assessment strategy for the programme is one that is learner centred and designed to accommodate a diverse learner group. Additional support services are available for learners to facilitate such differences.

Learners on this programme are supervised during learning and individualised supports are available as required, and these have been detailed in the programme handbook. One notable support described by the provider and by current students was the 'Boot camp' offered in advance of programme commencement. An overview of this extra support is not fully document and the panel

recommends that the provider detail what is included and the rationale for what appears to be an excellent resource.

The provider described an array of supports for learners with special education and training needs. A high level of support was outlined and confirmed by learners with whom the panel met on the day. The provider has a dedicated Student Support team, and a range of additional supports are available, to include, signing, note taking, IT supports etc. The panel considered that the degree of supports available to learners was note-worthy.

Learners with special education and needs can avail of assessments at the provider. Following assessment, required accommodations are identified and communicated to the faculty team and administration team as required. One-to-one sessions are available with library officer to support learners (all learners) in attaining skills such as literature searches, reading, use of keywords, academic writing skills etc.

Along with all the general student support services, the college has a dedicated International Office, which supports learners who are international students. There are appropriate services such as language, academic writing, ICT skills and pastoral care available to international studies. The panel considers that the provider has evidenced a high level of student support across all domains of learning. There is no work place practice placement element to this programme.

The panel recommended that the provider articulate exactly what is included in the Boot Camp that is offered as an additional pre-commencement support to learners. Further information has been provided by the programme team in Section 4.7 of the validation documents for the MSc and PGDip in Data Analytics, which provides a description of sample boot camp sessions and the motivating factors for running the boot camp sessions prior to the commencement of taught modules in semester 1.

### Master of Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 11 with regard to the award of MSc in Data Analytics.*

Learners have visibility of the assessment schedules, class timetable and activities etc. from the outset of the programme. This information is provided in the programme handbook and on Moodle. Learners have access to a range of learner support services at the college. The information about these services is provided to learners in the handbook and on Moodle. In addition, there are clear signposts to a range of supports evident throughout the building. For example, posters about the 'Getting to Grips' programme were clearly visible in reception and various spaces around the college premises. This information is available to learners in the programme handbook and on Moodle.

80 ECTS credits on the MSc) that are mandatory. As stated above, the teaching, learning and assessment strategy for the programme is one that is learner centred and designed to accommodate a diverse learner group. Additional support services are available for learners to facilitate such differences.

Learners on this programme are supervised during learning and individualised supports are available as required, and these have been detailed in the programme handbook. One notable support described by the provider and by current students was the 'Boot camp' offered in advance of programme commencement. An overview of this extra support is not fully document and the panel

recommends that the provider detail what is included and the rationale for what appears to be an excellent resource.

The provider described an array of supports for learners with special education and training needs. A high level of support was outlined and confirmed by learners with whom the panel met on the day. The provider has a dedicated Student Support team, and a range of additional supports are available, to include, signing, note taking, IT supports etc. The panel considered that the degree of supports available to learners was note-worthy.

Learners with special education and needs can avail of assessments at the provider. Following assessment, required accommodations are identified and communicated to the faculty team and administration team as required. One-to-one sessions are available with library officer to support learners (all learners) in attaining skills such as literature searches, reading, use of keywords, academic writing skills etc.

Along with all the general student support services, the college has a dedicated International Office, which supports learners who are international students. There are appropriate services such as language, academic writing, ICT skills and pastoral care available to international studies. The panel considers that the provider has evidenced a high level of student support across all domains of learning. There is no work place practice placement element to this programme.

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## Criterion 12

### **The programme is well managed**

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.

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.

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.

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.

Quality assurance is intrinsic to the programme's maintenance arrangements and addresses all aspects highlighted by the validation criteria.

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.

The programme operation and management arrangements are coherently documented and suitable.

There are sound procedures for interface with QQI certification.

Satisfactory (yes, no, partially)	Comment
Yes	Master of Science in Data Analytics
Yes	Postgraduate Diploma in Science in Data Analytics

### Postgraduate Diploma in Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 12 with regard to the award of Postgraduate Diploma in Science in Data Analytics.*

The programme has been running for the past five years, and the provider has clearly developed procedures around governance, Quality Assurance, assessment, Access, Transfer and Progression etc. The programme will be managed in accordance with College policy and the commitments made in the revalidation document and memoranda of agreement, which are themselves in compliance with College regulations.

This programme will be managed according to the Quality Assurance procedures of the College. The Programme Committee is responsible for seeking approval to any changes through the School of Computing, and the Quality Assurance Department applies periodic compliance checks to all the School's activities. The constitution of the Programme committee is clearly identified, as are the mechanisms for keeping the programme updated (section 9.2)

The staffing requirements for the programme are clearly outlined. While there is currently a full complement of staff available to deliver the programme, the provider has specified 'an ongoing commitment to recruit faculty as required over the next four years to deliver on the MSc in Data Analytics' if necessary. The qualifications and experience of such faculty members is detailed and the recruitment process comes in under the Quality Assurance procedures of the college. The Dean of School is ultimately responsible for the appointment of staff to the programme.

According to the provider "The annual planning and resourcing process is undertaken at an Executive Level. This includes physical, IT resources, licensing agreements and manpower planning. These requirements are also included in the programme development process." The panel considers that there are currently the necessary physical resources to support the programme, and considers that the provider is committed to expanding these should the need arise. There are appropriate teaching rooms available along with necessary IT systems and supports.

There is a strong focus on quality assurance and enhancement throughout the programme documentation. A high level of monitoring and evaluation is evident throughout. In listening to learner and graduate feedback, it emerged that feedback offered by graduates that the panel met had been implemented, and current students confirmed this.

In general, the programme quality assurance arrangements are consistent with QQI's statutory QA guidelines and the programme is continuously monitored across a range of Key Performance Indicators. The provider has analysed learner feedback, grade trends, and graduate destinations for example. As the provider has indicated that it may deliver some inputs of this programme through blended learning, the panel recommends that the provider outline what elements, specifically of the programme will be delivered in this manner.

The documentation clearly outlines the operational and management arrangements for the programme. Relevant staff and boards are identified in the documentation. There is a clear leadership

for the programme. Learner, programme and module data are held on the College's enterprise student record system. Data structures have been tailored to interface with QQI systems. This is managed via the Examinations/ Registrar's Office.

### Master of Science in Data Analytics

*The panel considers that the provider has evidenced compliance to all components of Criterion 12 with regard to the award of MSc in Data Analytics.*

The programme has been running for the past five years, and the provider has clearly developed procedures around governance, Quality Assurance, assessment, Access, Transfer and Progression etc. The programme will be managed in accordance with College policy and the commitments made in the revalidation document and memoranda of agreement, which are themselves in compliance with College regulations.

This programme will be managed according to the Quality Assurance procedures of the College. The Programme Committee is responsible for seeking approval to any changes through the School of Computing, and the Quality Assurance Department applies periodic compliance checks to all the School's activities. The constitution of the Programme committee is clearly identified, as are the mechanisms for keeping the programme updated (section 9.2)

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The documentation clearly outlines the operational and management arrangements for the programme. Relevant staff and boards are identified in the documentation. There is a clear leadership for the programme. Learner, programme and module data are held on the College's enterprise

student record system. Data structures have been tailored to interface with QQI systems. This is managed via the Examinations/ Registrar's Office.

## Part 2B Overall recommendation to QQI

### Embedded programme

Select one	
<b>X</b>	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 ( <b>minor</b> ) 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

Evidence for the validation recommendation is provided in the notes attached to each of the criteria. Based on the evidence supplied in the programme documentation and discussions at the site visit, the panel is satisfied that the programme learning outcomes will provide learners with the knowledge, skill and competence required to gain employment or continue with a research career in the data analytics sector.

### Principal programme

Select one	
<b>X</b>	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 ( <b>minor</b> ) things to be done to a programme that almost fully meets the validation criteria before QQI makes a determination);
	Not satisfactory.

#### Reason for the overall recommendation

Evidence for the validation recommendation is provided in the notes attached to each of the criteria. Based on the evidence supplied in the programme documentation and discussions at the site visit, the panel is satisfied that the programme learning outcomes will provide learners with the knowledge, skill and competence required to gain employment or continue with a research career in the data analytics sector.

## Summary of recommended special conditions of validation

None

## Summary of recommendations to the provider

None

## 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 Yvonne Kavanagh

Date: 30/5/2019

Signed: *Yvonne Kavanagh*

## 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

### MSc in Data Analytics (Full-time Delivery Schedule)

<b>Name of Provider:</b>		National College of Ireland															
<b>Programme Title</b>		MSc in Data Analytics															
<b>Award Title</b>		MSc in Data Analytics															
<b>Stage Exit Award Title<sup>3</sup></b>																	
<b>Modes of Delivery (FT/PT):</b>		FT															
<b>Teaching and learning modalities</b>		Direct contact via lectures and demonstrations, Blended e-learning															
<b>Award Class<sup>4</sup></b>	<b>Award NFQ level</b>	<b>Award EQF Level</b>	<b>Stage (1, 2, 3, 4, ..., or Award Stage):</b>	<b>Stage NFQ Level<sup>2</sup></b>	<b>Stage EQF Level<sup>2</sup></b>	<b>Stage Credit (ECTS)</b>	<b>Date Effective</b>	<b>ISCED code</b>	<b>Subject</b>								
Major	9	7	1	9	7	90	Sept 2019	0610									
<b>Module Title</b> (Up to 70 characters including spaces)	<b>Semester no where applicable. (Semester 1 or Semester2)</b>	<b>Module</b>		<b>Credit Number<sup>5</sup></b>	<b>Total Student Effort Module (hours)</b>						<b>Allocation Of Marks (from the module assessment strategy)</b>						
		<b>Status</b>	<b>NFQ Level<sup>1</sup> where specified</b>	<b>Credit Units</b> ECTS	<b>Hours Total</b>	<b>Contact</b>	<b>Class (or equiv)</b>	<b>e-learning</b>	<b>Directed Learning</b>	<b>Independent Learning</b>	<b>Hours of learning</b>	<b>Work-based</b>	<b>C.A. %</b>	<b>Supervised Project</b>	<b>practical demonstr</b>	<b>proctored exam %</b>	<b>proctored written</b>
Statistics for Data Analytics	1	M	9	10	250	48		202				35				65	
Database and Analytics Programming	1	M	9	10	250	48		202				100					
Data Mining and Machine Learning I	1	M	9	5	125	48		77				100					
Business Intelligence and Business Analytics	1	E	9	5	125	36		89				100					
Data Intensive Architectures	1	E	9	5	125	48		77				100					
Innovation I	1	E	9	5	125	36		89				100					
Modelling, Simulation, and Optimization	2	M	9	10	250	48		202				60				40	
Data Mining and Machine Learning II	2	M	9	10	250	48		202				50				50	
Research In Computing	2	M	9	5	125	36		89				100					
Domain Applications of Predictive Analytics	2	E	9	5	125	36		89				100					
Scalable Systems Programming	2	E	9	5	125	48		77				50				50	
Innovation II	2	E	9	5	125	36		89				100					
Data Governance and Ethics	3	M	9	5	100	30		70				100					
Research Project	3	M	9	25	625	12		588					100				
<b>Special Regulations</b> (Up to 280 characters): Availability of elective modules will be conditional on i) timetable arrangements, and ii) that the number of students electing to take the module exceeds a given minimum number. In both semester 1 and semester 2, learners must complete an elective module (or elective modules) that account for 10 ECTS credits ( 5 ECTS per semester). A student must pass Research in Computing and not repeat more than 10 ECTS credits to be eligible to register for the Research Project elective. In semester 3, learners must complete and pass either the Research Project.																	

## MSc in Data Analytics (Part-time Delivery Schedule)

<b>Name of Provider:</b>		<b>National College of Ireland</b>													
<b>Programme Title</b>		MSc in Data Analytics													
<b>Award Title</b>		MSc in Data Analytics													
<b>Stage Exit Award Title<sup>3</sup></b>		Postgraduate Diploma in Science in Data Analytics													
<b>Modes of Delivery (FT/PT):</b>		<b>PT</b>													
<b>Teaching and learning modalities</b>		Direct contact via lectures and demonstrations, Blended e-learning													
<b>Award Class<sup>4</sup></b>	<b>Award NFQ level</b>	<b>Award EQF Level</b>	<b>Stage (1, 2, 3, 4, ..., or Award Stage):</b>	<b>Stage NFQ Level<sup>2</sup></b>	<b>Stage EQF Level<sup>2</sup></b>	<b>Stage Credit (ECTS)</b>	<b>Date Effective</b>	<b>ISCED code</b>	<b>Subject</b>						
Major	9		1	9		90	Sept 2019								
<b>Module Title</b> (Up to 70 characters including spaces)	<b>Semester no where applicable. (Semester 1 or Semester2)</b>	<b>Module</b>		<b>Credit Number<sup>5</sup></b>	<b>Total Student Effort Module (hours)</b>						<b>Allocation Of Marks (from the module assessment strategy)</b>				
		<b>Status</b>	<b>NFQ Level<sup>1</sup> where specified</b>	<b>Credit Units</b>	<b>Hours Total</b>	<b>Contact</b>	<b>Class (or equiv)</b>	<b>e-learning</b>	<b>Directed Learning</b>	<b>Independent Learning</b>	<b>Hours of learning based Work-</b>	<b>C.A. %</b>	<b>Supervised Project %</b>	<b>Proctored practical demonstr</b>	<b>Proctored written exam %</b>
				ECTS											
Statistics for Data Analytics	1	M	9	10	250	48		202			35				65
Database and Analytics Programming	1	M	9	10	250	48		202			30	70			
Data Mining and Machine Learning I	2	M	9	5	125	48		77			100				
Business Intelligence and Business Analytics	2	E	9	5	125	36		89			100				
Data Intensive Architectures	2	E	9	5	125	48		77			100				
Innovation I	2	E	9	5	125	36		89			100				
Modelling, Simulation, and Optimization	2	M	9	10	250	48		202			60				40
Data Mining and Machine Learning II	3	M	9	10	250	48		202			50				50
Research In Computing	3	M	9	5	125	36		89			100				
Domain Applications of Predictive Analytics	3	E	9	5	125	36		89			100				
Scalable Systems Programming	3	E	9	5	125	48		77			50				50
Innovation II	3	E	9	5	125	36		89			100				
Data Governance and Ethics	4	M	9	5	100	30		70			100				
Research Project	4	M	9	10	600	12		588				100			
<b>Special Regulations</b> (Up to 280 characters): Availability of elective modules will be conditional on i) timetable arrangements, and ii) that the number of students electing to take the module exceeds a given minimum number. In both semester 2 and semester 3, learners must complete an elective module (or elective modules) that account for 10 ECTS credits per semester. A student must pass Research in Computing and not repeat more than 10 ECTS credits to be eligible to register for the Research Project elective. In semester 3, learners must complete and pass either the Research Project.															

**PGDip in Data Analytics (Full-time Delivery Schedule)**

<b>Name of Provider:</b>		<b>National College of Ireland</b>																
<b>Programme Title</b>		Postgraduate Diploma in Data Analytics																
<b>Award Title</b>		Postgraduate Diploma in Science in Data Analytics																
<b>Stage Exit Award Title<sup>3</sup></b>																		
<b>Modes of Delivery (FT/PT):</b>		<b>FT</b>																
<b>Teaching and learning modalities</b>		Direct contact via lectures and demonstrations, Blended e-learning																
<b>Award Class<sup>4</sup></b>	<b>Award NFQ level</b>	<b>Award EQF Level</b>	<b>Stage (1, 2, 3, 4, ..., or Award Stage):</b>	<b>Stage NFQ Level<sup>2</sup></b>	<b>Stage EQF Level<sup>2</sup></b>	<b>Stage Credit (ECTS)</b>	<b>Date Effective</b>	<b>ISCED code</b>	<b>Subject</b>									
Major	9	7	Award	9	7	60	Sept 2019	0610										
<b>Module Title</b> (Up to 70 characters including spaces)	<b>Semester no where applicable. (Semester 1 or Semester2)</b>	<b>Module</b>		<b>Credit Number<sup>5</sup></b>	<b>Total Student Effort Module (hours)</b>						<b>Allocation Of Marks (from the module assessment strategy)</b>							
		<b>Status</b>	<b>NFQ Level<sup>1</sup> where specified</b>	<b>Credit Units</b>	<b>Hours Total</b>	<b>Contact</b>	<b>Class (or equiv)</b>	<b>learning</b>	<b>e-</b>	<b>Directed</b>	<b>Learning</b>	<b>Independent</b>	<b>Hours of learning</b>	<b>Work-based learning</b>	<b>C.A. %</b>	<b>% Project Supervised</b>	<b>Proctored practical demonstr</b>	<b>Proctored written exam %</b>
				ECTS														
Statistics for Data Analytics	1	M	9	10	250	48				202				35				65
Database and Analytics Programming	1	M	9	10	250	48				202				30	70			
Data Mining and Machine Learning I	1	M	9	5	125	48				77				100				
Business Intelligence and Business Analytics	1	E	9	5	125	36				89				100				
Data Intensive Architectures	1	E	9	5	125	48				77				100				
Innovation I	1	E	9	5	125	36				89				100				
Modelling, Simulation, and Optimization	2	M	9	10	250	48				202				60				40
Data Mining and Machine Learning II	2	M	9	10	250	48				202				50				50
Data Governance and Ethics	2	M	9	5	100	30				70				100				
Domain Applications of Predictive Analytics	2	E	9	5	125	36				89				100				
Scalable Systems Programming	2	E	9	5	125	48				77				50				50
Innovation II	2	E	9	5	125	36				89				100				
<b>Special Regulations</b> (Up to 280 characters): Availability of elective modules will be conditional on i) timetable arrangements, and ii) that the number of students electing to take the module exceeds a given minimum number. In both semester 1 and semester 2, learners must complete an elective module (or elective modules) that account for 10 ECTS credits ( 5 ECTS per semester).																		

## PGDip in Data Analytics (Part-time Delivery Schedule)

<b>Provider:</b>		College of Ireland																		
<b>Programme Title</b>		Postgraduate Diploma in Data Analytics																		
<b>Award Title</b>		Postgraduate Diploma in Science in Data Analytics																		
<b>Stage Exit Award Title<sup>3</sup></b>																				
<b>Modes of Delivery (FT/PT):</b>		PT																		
<b>Teaching and learning modalities</b>		Direct contact via lectures and demonstrations, Blended e-learning																		
Award Class <sup>4</sup>	Award NFQ level	Award EQF Level	Stage (1, 2, 3, 4, ..., or Award Stage):	Stage NFQ Level <sup>2</sup>	Stage EQF Level <sup>2</sup>	Stage Credit (ECTS)	Date Effective	ISCED code	Subject											
Major	9		Award	9		60	Sept 2019													
Module Title (Up to 70 characters including spaces)	Semester no where applicable. (Semester 1 or Semester2)	Module		Credit Number <sup>5</sup>	Total Student Effort Module (hours)							Allocation Of Marks (from the module assessment strategy)								
		Status	NFQ Level <sup>1</sup> where specified	Credit Units ECTS	Total Hours	Contact	Class (or equiv)	e-learning	Directed Learning	Independent Learning	Hours of learning	Work-based learning	Work-based learning	CA. %	Supervised Project %	Practical demonstration	Proctored practical exam %	Written exam %	Proctored	
Statistics for Data Analytics	1	M	9	10	250	48		202					35						65	
Database and Analytics Programming	1	M	9	10	250	48		202					30	70						
Data Mining and Machine Learning I	2	M	9	5	125	48		77					100							
Business Intelligence and Business Analytics	2	E	9	5	125	36		89					100							
Data Intensive Architectures	2	E	9	5	125	48		77					100							
Innovation I	2	E	9	5	125	36		89					100							
Modelling, Simulation, and Optimization	2	M	9	10	250	48		202					60						40	
Data Mining and Machine Learning II	3	M	9	10	250	48		202					50						50	
Data Governance and Ethics	3	M	9	5	100	30		70					100							
Domain Applications of Predictive Analytics	3	E	9	5	125	36		89					100							
Scalable Systems Programming	3	E	9	5	125	48		77					50						50	
Innovation II	3	E	9	5	125	36		89					100							
<b>Special Regulations</b> (Up to 280 characters): Availability of elective modules will be conditional on i) timetable arrangements, and ii) that the number of students electing to take the module exceeds a given minimum number. In both semester 2 and semester 3, learners must complete an elective module (or elective modules) that account for 10 ECTS credits per semester.																				

## Part 4: Appendices

N/A