QQI
Quality and Qualifications Ireland
Dearbhú Cáilíochta agus Cáilíochtaí Éireann

Extension #1

CERTIFICATE OF VALIDATION

Provider name	National College of Ireland
Date of validation	13-Jun-19

Enrolment interval	**First intake**	**Last intake**
	September 2019	September 2024

	Code	**Title**	**Award**	**Duration (Full Time)**	**Duration (Part Time)**	**Exit**
Principal programme	PG24074	Bachelor of Science (Honours) in Data Science	Bachelor of Science (Honours) (Major Award at NFQ Level 8) 8M20730 240 Credits	4 years	4 years	
Embedded Programme	PG24075	Bachelor of Science in Data Science	Bachelor of Science (Major Award at NFQ Level 7) 7M20731 180 Credits	3 years	3 years	Yes

	Full Time	Part Time
Maximum Intakes per annum:	1	1
Minimum Learners per Intake:	15	15
Maximum Learners per Intake:	130	130

Principal Programme

5 Year Plan: Planned total enrolment i.e. aggregated across all intakes in all approved centres.					
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Minimum intake into first year	15				
Maximum intake into first year	260				

Target learner groups	The Bachelor of Science (Hons) in Data Science is aimed at full time and part time students. There are a number of different categories of potential students that have been identified as suitable candidates for this course: - Students who have their Leaving Certificate complete and who wish to pursue a career as a Data Scientist.

<table>
<tr><td></td><td colspan="2">- Part-time students who are currently working in IT or science sectors and don't have the relevant academic experience and are looking for a progression path in their current working environment or are looking to up-skill and move to a new job in Data Science.</td></tr>
<tr><td>Approved countries for provision (i.e. where enrolled learners will be based)</td><td colspan="2">Ireland</td></tr>
<tr><td>Delivery mode: Full-time/part-time</td><td colspan="2">Full and Part Time</td></tr>
<tr><td>List the teaching and learning modes[1]</td><td colspan="2">Blended learning combining different strategies, including traditional classroom lectures, tutorials and seminars, flipped classroom, problem and project-based learning, team work and work-based learning. Synchronous Online delivery may also be used in some cases.</td></tr>
<tr><td>Does the blend of modalities predominantly involve remote e-learning (Yes/No)</td><td colspan="2">No</td></tr>
<tr><td>Brief synopsis of the programme (e.g. who it is for, what is it for, what is involved for learners, what it leads to.)</td><td colspan="2">This programme is a 4-year Bachelor of Science (Hons) degree aimed at Leaving Certificate graduates or mature applicants who wish to follow a career in data science. The programme will run both on part-time and full-time basis in order to cater to the different types of students. The students will have to attend lectures and tutorials in the classroom or online over the academic year, as well as to study independently. Students will study for 4 stages taking modules that cover topics such as Mathematics, Statistics, Programming, Problem Solving, Computing Systems, Databases, Machine Learning, Data Visualisation, Modelling and Optimisation, Business Intelligence, Artificial Intelligence, Data Security and Ethics. An important component of the programme will be the 6 months Work Placement in stage 3, as well as the capstone Data Science Project in stage 4. The programme leads to a level 8 academic award Bachelor of Science (Hons) in Data Science awarded by QQI. Graduates of this programme may pursue further education or employment in data science.</td></tr>
<tr><td rowspan="6">Summary of staffing requirements (the details are provided in the module descriptors)</td><td>WTE[2]</td><td>Qualifications and experience</td></tr>
<tr><td>4</td><td>Lecturers with a Masters or PhD level qualification in computing or a related discipline with academic experience delivering modules in ICT, Maths and Statistics, Programming, and Data Analytics at Level 8.</td></tr>
<tr><td>1</td><td>Programme Director who is responsible for the academic management of the programme and may also be a lecturer on the programme. The programme director will have at least a Masters or PhD qualification in computing or a related discipline.</td></tr>
<tr><td>1</td><td>Programme Co-ordinator with experience in relationship management and programme coordination.</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
<tr><td>Outline the physical resource requirements (the details are</td><td colspan="2">The programme requires appropriate learning spaces to facilitate the teaching, learning & assessment strategy of the programme. Learning spaces should accommodate traditional classrooms, spaces for collaborative learning and</td></tr>
</table>

[1] Defined later in this document.

[2] WTE is the whole-time equivalent number. The number 1 indicates a fulltime person fully dedicated to the programme.

<table>
<tr><td>provided in the module descriptors)</td><td colspan="2">access to appropriate technologies as required by individual module curriculum (e.g., Word, Excel, PowerPoint, R/RStudio, SPSS, or similar products). Students must also have access to appropriate personal study space. Access to appropriate recreation and dining spaces are also required.</td></tr>
<tr><td rowspan="5">Outline specifications for the ratio of learners to teaching staff</td><td>Staff to learner ratio</td><td>Learning activity type</td></tr>
<tr><td>1:100</td><td>Lectures</td></tr>
<tr><td>1:25</td><td>Tutorial/Labs</td></tr>
<tr><td>6:130</td><td>Overall WTE/staff learning ratio</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td colspan="2"></td></tr>
</table>

Embedded Programme

	Code	Title	Award	Duration (Full Time)	Duration (Part Time)	Exit
Embedded Programme	PG24075	Bachelor of Science in Data Science	Bachelor of Science (Major Award at NFQ Level 7) 7M20731 180 Credits	3 years	3 years	Yes

Target learner groups	The Bachelor of Science in Data Science is an exit award only. Learners cannot directly enrol onto this programme.	
Approved countries for provision (i.e. where enrolled learners will be based)	Ireland	
Delivery mode: Full-time/part-time	Full and Part Time	
List the teaching and learning modes[3]	Blended learning combining different strategies, including traditional classroom lectures, tutorials and seminars, flipped classroom, problem and project-based learning, team work and work-based learning. Synchronous Online delivery may also be used in some cases.	
Does the blend of modalities predominantly involve remote e-learning (Yes/No)	No	
Brief synopsis of the programme (e.g. who it is for, what is it for, what is involved for learners, what it leads to.)	The Bachelor of Science (Ord) in Data Science is an exit award only, and is aimed at full time and part time students who may opt to leave the BSc Hons in Data Science early.	
Summary of staffing requirements (the details are provided in the module descriptors)	WTE[4]	Qualifications and experience
	4	Lecturers with a Masters or PhD level qualification in computing or a related discipline with academic experience delivering modules in ICT, Maths and Statistics, Programming, and Data Analytics at Level 8.
	1	Programme Director who is responsible for the academic management of the programme and may also be a lecturer on the programme. The programme director will have at least a Masters or PhD qualification in computing or a related discipline.
	1	Programme Co-ordinator with experience in relationship management and programme coordination.

[3] Defined later in this document.

[4] WTE is the whole-time equivalent number. The number 1 indicates a fulltime person fully dedicated to the programme.

<table>
<tr><td></td><td></td><td></td></tr>
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<tr><td>Outline the physical resource requirements (the details are provided in the module descriptors)</td><td colspan="2">The programme requires appropriate learning spaces to facilitate the teaching, learning & assessment strategy of the programme. Learning spaces should accommodate traditional classrooms, spaces for collaborative learning and access to appropriate technologies as required by individual module curriculum (e.g., Word, Excel, PowerPoint, R/RStudio, SPSS, or similar products). Students must also have access to appropriate personal study space. Access to appropriate recreation and dining spaces are also required.</td></tr>
<tr><td rowspan="5">Outline specifications for the ratio of learners to teaching staff</td><td>Staff to learner ratio</td><td>Learning activity type</td></tr>
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</table>

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

Part 1: Statutory Conditions of validation

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

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

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

[The PAEC must endorse all the conditions in Part 2. These lists of potential conditions must be checked for each programme. Delete any that do not apply.]

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

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

Part 2.2 Condition of Validation Concerning the Duration of Enrolment

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

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

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

Part 2.3 General Condition of Validation

The provider of the programme shall:

1. Ensure that the programme as implemented does not differ in a material way from the programme as validated; differing in a material way is defined as differing in any aspect of the programme or its implementation that was material to QQI's validation criteria.
2. Ensure that the programme is provided with the appropriate staff and physical resources as validated.
3. Implement in respect of the programme its written quality assurance procedures (as approved by QQI).
4. Make no significant change to the programme without the prior approval of QQI. (See unit (8)).
5. Unless otherwise agreed by QQI in writing, start implementing the programme as validated and enrol learners within 18 months of validation.
6. Continue in respect of the validated programme to comply with section 56 of the 2012 Act in respect of procedures for access, transfer and progression.
7. Implement the programme and procedures for assessment of learners in accordance with the Approved Programme Schedule and notify QQI in writing of any amendments to this arising from changes to the programme; see unit (9).
8. When advertising and promoting the programme and awards, use the programme title as validated, and the correct QQI award title(s), award type(s) and award class(es) indicating the level of the award(s) on the National Framework of Qualifications.
9. Adhere to QQI regulations and procedures for certification.
10. Notify QQI in writing without delay of:
    a. any material change to the programme;
    a. anything that impacts on the integrity or reputation of the programme or the corresponding QQI awards;
    b. anything that infringes the conditions of validation; or
    c. anything that would be likely to cause QQI to consider reviewing the validation.
11. Notify QQI in writing to determine the implications for the provider's validated programmes, where the provider is likely to, or planning to, merge (amalgamate) with another entity or to acquire, or be acquired by, another entity (see unit (12.5)).
12. Report to QQI, when required or requested, on its implementation of the programme and compliance with the conditions of validation.

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

Part 2.5 Special Condition of Validation

Approved Programme Schedule(s)

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

Award Class[4]	**Award NFQ level**	**Award EQF Level**	**Stage** (1, 2, 3, 4, …, or Award Stage):	**Stage NFQ Level**[2]	**Stage EQF Level**[2]	**Stage Credit (ECTS)**	**Date Effective**	**ISCED Subject code**
Major	8		1	6		60	Sept 2019	

Module Title (Up to 70 characters including spaces)	**Semester no where applicable. (Semester 1 or Semester2)**	**Module**		**Credit Numbers**	**Total Student Effort Module (hours)**					**Allocation Of Marks (from the module assessment strategy)**			
		Status	**NFQ Level**[1] **where specified**	**Credit Units** ECTS	**Total Hours**	**Class (or equiv) Contact Hours**	**Directed e-learning**	**Hours of Independent Learning**	**Work-based learning effort**	**C.A. %**	**Supervised Project %**	**Proctored practical demonstration %**	**Proctored written exam %**
Computational Thinking	1	M	6	5	125	24		101		100			
Discrete Mathematics	1	M	6	5	125	60		65		40			60
The Computing Industry	1	M	6	5	125	24		101		100			
Problem Solving & Programming Concepts	1	M	6	5	125	36		89		100			
Introduction to Data Science	1	M	6	10	250	48		202		30	70		
Programming I	2	M	6	5	125	48		77		50		50	
Introduction to Data Modelling and Databases	2	M	6	10	250	48		202		40			60
Statistics I	2	M	6	10	250	60		190		100			
Computing Systems	2	M	6	5	125	36		89		40			60
Special Regulations (Up to 280 characters)													

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

Award Class[4]	**Award NFQ level**	**Award EQF Level**	**Stage** (1, 2, 3, 4, …, or Award Stage):	**Stage NFQ Level[2]**	**Stage EQF Level[2]**	**Stage Credit (ECTS)**	**Date Effective**	**ISCED Subject code**
Major	8		2	6		60	September 2019	

Module Title (Up to 70 characters including spaces)	**Semester no where applicable. (Semester 1 or Semester2)**	**Module**		**Credit Numbers**	**Total Student Effort Module (hours)**					**Allocation Of Marks (from the module assessment strategy)**				
		Status	**NFQ Level[1] where specified**	**Credit Units** ECTS	**Total Hours**	**Class (or equiv) Contact Hours**	**Directed e-learning**	**Hours of Independent Learning**	**Work-based learning effort**	**C.A. %**	**Supervised Project %**	**Proctored practical demonstration %**	**Proctored written exam %**
Data Visualisation	1	M	6	5	125	36		89		100			
Programming II	1	M	6	5	125	48		77		50		50	
Advanced Databases	1	M	6	10	250	48		202		40			60
Statistics II	1	M	6	10	250	48		202		50			50
Linear Algebra	2	M	6	5	125	36		89		40			60
IT Project Management	2	M	6	5	125	36		89		40			60
Programming III	2	M	6	10	250	60		190		50		50	
Data Mining and Machine Learning	2	M	6	10	250	48		202		40	60		

Special Regulations (Up to 280 characters)

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

Award Class[4]	**Award NFQ level**	**Award EQF Level**	**Stage** (1, 2, 3, 4, ..., or Award Stage):	**Stage NFQ Level[2]**	**Stage EQF Level[2]**	**Stage Credit (ECTS)**	**Date Effective**	**ISCED Subject code**
Major	8		3	7		60	September 2019	

Module Title (Up to 70 characters including spaces)	**Semester no where applicable. (Semester 1 or Semester2)**	**Module**		**Credit Numbers**	**Total Student Effort Module (hours)**					**Allocation Of Marks (from the module assessment strategy)**			
		Status	**NFQ Level[1] where specified**	**Credit Units** ECTS	**Total Hours**	**Class (or equiv) Contact Hours**	**Directed e-learning**	**Hours of Independent Learning**	**Work-based learning effort**	**C.A. %**	**Supervised Project %**	**Proctored practical demonstration %**	**Proctored written exam %**
Data Architecture	1	M	6	5	125	36		89			60		40
Scalable Data Analytics	1	M	7	5	125	36		89		50			50
Advanced Machine Learning	1	M	7	10	250	48		202			50	50	
Data Warehousing & Business Intelligence	1	E	7	10	250	48		202			40		60
Artificial Intelligence	1	E	7	10	250	48		202			40		60
Work Placement	2	E	7	30	750				750	100			
Academic Internship	2	E	7	30	750	504		246			100		
Special Regulations (Up to 280 characters)													

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

Award Class[4]	**Award NFQ level**	**Award EQF Level**	**Stage** (1, 2, 3, 4, …, or Award Stage):	**Stage NFQ Level**[2]	**Stage EQF Level**[2]	**Stage Credit (ECTS)**	**Date Effective**	**ISCED Subject code**
Major	8	6	Award	8	6	60	September 2019	

Module Title (Up to 70 characters including spaces)	**Semester no where applicable. (Semester 1 or Semester2)**	**Module**		**Credit Numbers**	**Total Student Effort Module (hours)**					**Allocation Of Marks (from the module assessment strategy)**			
		Status	**NFQ Level**[1] **where specified**	**Credit Units** ECTS	**Total Hours**	**Class (or equiv) Contact Hours**	**Directed e-learning**	**Hours of Independent Learning**	**Work-based learning effort**	**C.A. %**	**Supervised Project %**	**Proctored practical demonstration %**	**Proctored written exam %**
Data Science Project	1, 2	M	8	20	500	48		452			100		
Systems Modelling, Simulation & Optimization for Analytics	1	E	8	10	250	48		202			60		40
Strategic Data Analysis	1	E	8	10	250	48		202		30			70
Neural Networks & Prescriptive Analytics	1	E	8	10	250	48		202			70		30
Text Analytics	1	E	8	10	250	48		202			100		
Data Governance, Security & Ethics	2	M	8	10	250	48		202		40			60
IoT Real Time Analytics	2	E	8	10	250	48		202		50	50		
Time Series & Financial Analytics	2	E	8	10	250	48		202		40			60
Healthcare Analytics	2	E	8	10	250	48		202		40	60		
Special Regulations (Up to 280 characters)													

Name of Provider:	**National College of Ireland**
Programme Title	Bachelor of Science (Hons) in Data Science
Award Title	Bachelor of Science (Hons) in Data Science
Stage Exit Award Title3	N/A
Modes of Delivery (FT/PT):	**PT**
Teaching and learning modalities	Direct contact via lectures and demonstrations, Blended e-learning

Award Class[4]	**Award NFQ level**	**Award EQF Level**	**Stage** (1, 2, 3, 4, …, or Award Stage):	**Stage NFQ Level**[2]	**Stage EQF Level**[2]	**Stage Credit (ECTS)**	**Date Effective**	**ISCED Subject code**
Major	8		1	6		60	Sept 2019	

Module Title (Up to 70 characters including spaces)	**Semester no where applicable. (Semester 1, Semester 2 or Semester 3)**	**Module**		**Credit Numbers**	**Total Student Effort Module (hours)**					**Allocation Of Marks (from the module assessment strategy)**			
		Status	**NFQ Level**[1] **where specified**	**Credit Units** ECTS	**Total Hours**	**Class (or equiv) Contact Hours**	**Directed e-learning**	**Hours of Independent Learning**	**Work-based learning effort**	**C.A. %**	**Supervised Project %**	**Proctored practical demonstration %**	**Proctored written exam %**
Computational Thinking	1	M	6	5	125	24		101		100			
The Computing Industry	1	M	6	5	125	24		101		100			
Problem Solving & Programming Concepts	1	M	6	5	125	36		89		100			
Discrete Mathematics	1	M	6	5	125	60		65		40			60
Programming I	2	M	6	5	125	48		77		50		50	
Introduction to Data Modelling and Databases	2	M	6	10	250	48		202		40			60
Computing Systems	2	M	6	5	125	36		89		40			60
Introduction to Data Science	3	M	6	10	250	48		202		30	70		
Statistics I	3	M	6	10	250	60		190		100			
Special Regulations (Up to 280 characters)													

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

Award Class[4]	**Award NFQ level**	**Award EQF Level**	**Stage** (1, 2, 3, 4, ..., or Award Stage):	**Stage NFQ Level[2]**	**Stage EQF Level[2]**	**Stage Credit (ECTS)**	**Date Effective**	**ISCED Subject code**
Major	8		2	6		60	September 2019	

Module Title (Up to 70 characters including spaces)	**Semester no where applicable. (Semester 1, Semester 2 or Semester 3)**	**Module**		**Credit Numbers**	**Total Student Effort Module (hours)**					**Allocation Of Marks (from the module assessment strategy)**			
		Status	**NFQ Level[1] where specified**	**Credit Units** ECTS	**Total Hours**	**Class (or equiv) Contact Hours**	**Directed e-learning**	**Hours of Independent Learning**	**Work-based learning effort**	**C.A. %**	**Supervised Project %**	**Proctored practical demonstration %**	**Proctored written exam %**
Programming II	1	M	6	5	125	48		77		50		50	
Statistics II	1	M	6	10	250	48		202		50			50
Data Visualisation	1	M	7	5	125	36		89		100			
Advanced Databases	2	M	6	10	250	48		202		40			60
Linear Algebra	2	M	6	5	125	36		89		40			60
IT Project Management	2	M	6	5	125	36		89		40			60
Programming III	3	M	6	10	250	60		190		50		50	
Data Mining and Machine Learning	3	M	6	10	250	48		202		40	60		

Special Regulations (Up to 280 characters)

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

Award Class[4]	**Award NFQ level**	**Award EQF Level**	**Stage** (1, 2, 3, 4, …, or Award Stage):	**Stage NFQ Level[2]**	**Stage EQF Level[2]**	**Stage Credit (ECTS)**	**Date Effective**	**ISCED Subject code**
Major	8		3	7		60	September 2019	

Module Title (Up to 70 characters including spaces)	**Semester no where applicable. (Semester 1, Semester 2 or Semester 3)**	**Module**		**Credit Numbers**	**Total Student Effort Module (hours)**					**Allocation Of Marks (from the module assessment strategy)**			
		Status	**NFQ Level[1] where specified**	**Credit Units** ECTS	**Total Hours**	**Class (or equiv) Contact Hours**	**Directed e-learning**	**Hours of Independent Learning**	**Work-based learning effort**	**C.A. %**	**Supervised Project %**	**Proctored practical demonstration %**	**Proctored written exam %**
Data Architecture	1	M	6	5	125	36		89			60		40
Scalable Data Analytics	1	M	7	5	125	36		89		50			50
Data Warehousing & Business Intelligence	1	E	7	10	250	48		65			40		60
Artificial Intelligence	1	E	7	10	250	48		202			40		60
Advanced Machine Learning	2	M	7	10	250	48		202			50	50	
Work Placement	2, 3	E	7	30	750				750	100			
Academic Internship	2, 3	E	7	30	750	504		246			100		
Special Regulations (Up to 280 characters)													

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

Award Class[4]	**Award NFQ level**	**Award EQF Level**	**Stage** (1, 2, 3, 4, ..., or Award Stage):	**Stage NFQ Level[2]**	**Stage EQF Level[2]**	**Stage Credit (ECTS)**	**Date Effective**	**ISCED Subject code**
Major	8	6	Award	8	6	60	September 2019	

Module Title (Up to 70 characters including spaces)	**Semester no where applicable. (Semester 1 or Semester2)**	**Module**		**Credit Numbers**	**Total Student Effort Module (hours)**					**Allocation Of Marks (from the module assessment strategy)**			
		Status	**NFQ Level[1] where specified**	**Credit Units** ECTS	**Total Hours**	**Class (or equiv) Contact Hours**	**Directed e-learning**	**Hours of Independent Learning**	**Work-based learning effort**	**C.A. %**	**Supervised Project %**	**Proctored practical demonstration %**	**Proctored written exam %**
Data Science Project	1, 2, 3	M	8	20	500	48		452			100		
Systems Modelling, Simulation & Optimization for Analytics	1	E	8	10	250	48		202			60		40
Strategic Data Analysis	1	E	8	10	250	48		202		30			70
Neural Networks & Prescriptive Analytics	1	E	8	10	250	48		202			70		30
Text Analytics	1	E	8	10	250	48		202			100		
Data Governance, Security & Ethics	2	M	8	10	250	48		202		40			60
IoT Real Time Analytics	2	E	8	10	250	48		202		50	50		
Time Series & Financial Analytics	2	E	8	10	250	48		202		40			60
Healthcare Analytics	2	E	8	10	250	48		202		40	60		
Special Regulations (Up to 280 characters)													