![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 v1 2020

Part 1.   Provider details

Provider name	National College of Ireland
Date of site visit	8 September 2021
Date of report	16/11/2021

Section A.   Overall recommendations

Principal programme	Title	Master of Science in Artificial Intelligence
	Award	MSc
	Credit	Level 9 90 ECTS credits
	Recommendation *Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory*	Satisfactory subject to proposed conditions

Embedded programme 1	Title	Postgraduate Diploma in Science in Artificial Intelligence
	Award	Postgraduate Certificate
	Credit	Level 9 60 ECTS credits
	Recommendation *Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory*	Satisfactory subject to proposed conditions

Section B.   Expert panel

Name	Role	Affiliation
Mr Hugh McBride	Chair	Senior Lecturer at GMIT
Prof. Keshav Dahal	Subject Matter Expert	University of the West of Scotland
Dr Irene Murtagh	Subject Matter Expert	TU Dublin
Dr Deirdre Nuttall	Secretary	n/a
Ms Yvana Mpessa	Learner Representative	Maynooth University
Ms Louise O'Connor	Industry Representative	Beta Digital

Section C.

Principal Programme

Names of centre(s) where the programme(s) is to be provided	Maximum number of learners *(per centre)*	Minimum number of learners
National College of Ireland	65	20

Proposed Enrolment	
Date of first intake	September 2022
Maximum number of annual intakes	1
Maximum total number of learners per intake	65
Intake Schedule *(e.g. September, January)*	September
Programme duration *(months from start to completion)*	Full-time: 12 months (day course) Part-time: 24 months (evenings and Saturdays)

Panel Commentary on proposed enrolment:

The panel is satisfied with the plans laid out by the National College of Ireland with respect to enrolment. There are sufficient numbers of staff to provide the programme as envisioned, and the physical environment, and the technical support, are equipped to provide learners with a suitable learning environment.

Target learner groups
Applicants will typically hold a level 8 qualification in a relevant, numerate discipline such as Computer Science, Information Technologies, Software Engineering, and Computer Engineering, or Engineering, Mathematics, Statistics, and Physics. They will also be expected to demonstrate technical or mathematical problem-solving skills in addition to their qualifications, as well as evidence of prior programming experience. Graduates from other disciplines may be considered if they can demonstrate that they have prior programming experience. Applicants who do not meet the criteria listed above may be considered on the basis of Recognition of Prior Experiential Learning (RPEL/RPL), given a minimum of three years' experience, a portfolio of work, or another means to establish their eligibility. Applicants whose first language is not English must provide a certified qualification of proficiency in English, with a level of proficiency greater or equal to B2+ in the Common European Framework of Reference for Languages (CEFRL).

Approved countries for provision	Ireland
Delivery mode: Full-time/Part-time	Full-time and part-time

The teaching and learning modalities
Classroom, blended learning.

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 **MSc in AI** will provide graduates of numerate and other relevant disciplines with essential research and development skills in Artificial Intelligence. They will become familiar with the technical landscape of AI, such as classical, advanced, and state-of-the-art AI methods, including their theoretical foundations and mathematical underpinnings, and they will also explore topics related to the operationalisation and application of AI to real-world problems.

The MSc in AI includes a final supervised project, which will be either applied (the topic may be proposed by the learner themselves, or suggested to them by their supervisors) or industry-based. The latter option offers learners the chance to collaborate in a real-world industry-based project as a trainee.

The programme is expected to have a significant intake of domestic students for the part-time course, and to have a large cohort of international students for the full-time course. Currently, the college caters to learners from a wide range of home countries, including India, Nigeria, China, and others, as well as Irish learners, and it is anticipated that this will continue to be the case.

The National College of Ireland also intends to apply for Springboard funding to assist Ireland-based students to access further educational opportunities.

Summary of specifications for teaching staff	WTE
Lecturer: PhD/Master's degree in a computing or cognate discipline. May have industry experience also.	5
Programme Director: PhD/Master's degree in a computing or cognate discipline. May have industry experience also.	0.5

Learning Activity	Ratio of learners to teaching staff
Lecture	1:100
Practical session	1:25
Supervision	1:15

Embedded Programme

Names of centre(s) where the programme(s) is to be provided	Maximum number of learners (per centre)	Minimum number of learners
National College of Ireland	50	10

Proposed Enrolment	
Date of first intake	September 2022
Maximum number of annual intakes	1

Maximum total number of learners per intake	50
Intake Schedule *(e.g. September, January)*	September
Programme duration *(months from start to completion)*	Part-time: 12 months

Panel Commentary on proposed enrolment:

The panel is satisfied with the plans laid out by the National College of Ireland with respect to enrolment. There are sufficient numbers of staff to provide the programme as envisioned, and the physical environment, and the technical support, are equipped to provide learners with a suitable learning environment.

Target learner groups

Applicants will typically hold a level 8 qualification in a relevant, numerate discipline such as Computer Science, Information Technologies, Software Engineering, and Computer Engineering, or Engineering, Mathematics, Statistics, and Physics. They will also be expected to demonstrate technical or mathematical problem-solving skills in addition to their qualifications, as well as evidence of prior programming experience. Graduates from other disciplines may be considered if they can demonstrate that they have prior programming experience.

Applicants who do not meet the criteria listed above may be considered on the basis of Recognition of Prior Experiential Learning (RPEL/RPL), given a minimum of three years' experience, a portfolio of work, or another means to establish their eligibility.

Applicants whose first language is not English must provide a certified qualification of proficiency in English, with a level of proficiency greater or equal to B2+ in the Common European Framework of Reference for Languages (CEFRL).

Approved countries for provision	Ireland
Delivery mode: Full-time/Part-time	Part-time

The teaching and learning modalities

Classroom, blended learning.

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 **PGD in AI** will provide graduates of numerate and other relevant disciplines with essential research and development skills in Artificial Intelligence. They will become familiar with the technical landscape of AI, including classical, advanced, and state-of-the-art AI methods, incorporating studying their theoretical foundations and mathematical underpinnings, and they will also explore topics related to the operationalisation and application of AI to real-world problems.

The programme is expected to have a significant intake of domestic students. The National College of Ireland also intends to apply for Springboard funding to assist Ireland-based students to access further educational opportunities.

Summary of specifications for teaching staff	WTE
Lecturer: PhD/Master's degree in a computing or cognate discipline. May have industry experience also.	5

	0.5
Programme Director: PhD/Master's degree in a computing or cognate discipline. May have industry experience also.	

Learning Activity	Ratio of learners to teaching staff
Lecture	1:100
Practical session	1:25

Panel Commentary on programme outline and staffing:

In general, the panel is impressed with the programme outline and staffing arrangements. It is evident that the National College of Ireland boasts highly qualified and research-active lecturing staff who are clearly dedicated to their subject and to teaching excellence, and that it invests in both associate and full-time staff; the panel was particularly pleased to have the opportunity to interact with a member of NCI's associate staff on the day of the review.

The documentation provided, and the clear elucidation of the programme and its goals on the part of NCI's representatives, make it clear that the proposed programme has been carefully devised with a view to industry and learner needs, and that the NCI is in an excellent position to provide it.

Section D.   Other noteworthy features of the application

Because of ongoing restrictions related to the Covid pandemic, the panel review was carried out remotely using Microsoft Teams. There were no significant technical hitches, and all involved were able to participate actively. The college team engaged with the review panel in an open and courteous manner, and were receptive to constructive criticisms and suggestions as to how the programme might be further enhanced, and the process was both positive and productive.

Part 1A Evaluation of the Case for an Extension of the Approved Scope of Provision (where applicable).   Having examined appropriate QA / Governance procedures, comment on the case for extending the applicant's Approved Scope of Provision to enable provision of this programme. (Especially relevant for move to online delivery / assessment)

n/a

Part 2.   Evaluation against the validation criteria

The panel should complete this section with commentary against each criterion to support the recommendation given in the 'Satisfactory?' column i.e. Yes, No, or Partially.

If 'Yes', there should be a comment citing the evidence for this finding. Likewise, there should be an explanation as to why the panel have concluded that the criterion has either not been met or only partially so.

Criterion 1.   The provider is eligible to apply for validation of the programme

a)	The provider meets the prerequisites (section 44(7) of the 2012 Act) to apply for validation of the programme.	
b)	The application for validation is signed by the provider's chief executive (or equivalent) who confirms that the information provided is truthful and that all the applicable criteria have been addressed.	
c)	The provider has declared that their programme complies with applicable statutory, regulatory and professional body requirements.[1]	

	Satisfactory? (yes, no, partially)	Comment
Principal Programme	Yes	The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the provider fully meets this criterion.
Embedded Programme 1	Yes	As above.

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

Criterion 2. **The programme objectives and outcomes are clear and consistent with the QQI awards sought**

a) The programme aims and objectives are expressed plainly.
b) A QQI award is specified for those who complete the programme.
   (i) Where applicable, a QQI award is specified for each embedded programme.
c) There is a satisfactory rationale for the choice of QQI award(s).
d) The award title(s) is consistent with unit 3.1 of QQI's *Policy and Criteria for Making Awards.*
e) The award title(s) is otherwise legitimate for example it must comply with applicable statutory, regulatory and professional body requirements.
f) The programme title and any embedded programme titles are
   (i) Consistent with the title of the QQI award sought.
   (ii) Clear, accurate, succinct and fit for the purpose of informing prospective learners and other stakeholders.
g) For each programme and embedded programme
   (i) The **minimum intended programme learning outcomes** and any other educational or training objectives of the programme are explicitly specified.[2]
   (ii) The minimum intended programme learning outcomes to qualify for the QQI award sought are **consistent with** the relevant QQI awards standards.
h) Where applicable, the **minimum intended module learning outcomes** are explicitly specified for each of the programme's modules.
i) Any QQI minor awards sought for those who complete the modules are specified, where applicable.

For each minor award specified, the minimum intended module learning outcomes to qualify for the award are consistent with relevant QQI minor awards standards.[3]

	Satisfactory? (yes, no, partially)	Comment
Principal Programme	Partially	The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme partially meets this criterion. The panel is satisfied that the overall programme goal is aligned with the programme concept and is well-elucidated in sections 2 and 5 (for example, in section 5.1.1) of the programme document, and that it was clearly understood and articulated by the programme team during the virtual site visit. However, the programme document requires careful editing and revising to ensure that the overall goal of the programme is clearly and consistently stated throughout. In particular, the panel had concerns about the way in which the overall goal is expressed in section IC.1.9 and in section 2.1.1. These sections should be edited for clarity and consistency.

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[2] Other programme objectives, for example, may be to meet the educational or training requirements of a statutory, regulatory or professional body.
[3] 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.

		Special Condition of Validation 1
		The panel requires that the programme document be edited carefully to ensure that the overall programme goal is clearly and consistently stated throughout.
		The panel considers that there is a satisfactory rationale for the choice of the proposed award title and that the use of the QQI Computing Award Standards is appropriate. The panel is also satisfied that the award title is appropriate, legitimate, and fit-for-purpose.
		The MIPLOs are explicitly stated in section 2.4.1. The MIMLOs for each module are specified and mapped to the MIPLOs in tabular format in section 2.5, and again within each individual module descriptor. A detailed and comprehensive mapping of the MIPLOs and related MIMLOs to the award standards is tabulated in section 2.6. The panel also notes the inclusion of a comparison of the MIPLOs with those of comparable programmes in section 2.7, and the articulation of the distinctive features of the proposed programme. The panel is satisfied that the MIPLOs are consistent with the aims and objectives of the programme and with the Level 9 award standards.
		The panel welcomes the inclusion of the Transferable Skills Matrix in section 2.9.1. However, it considers that the matrix is incomplete, as it does not refer to student teamwork skills that are much in demand in today's industry environment, and are expected to be enhanced through the programme delivery. The panel recommends that the matrix be amended to also indicate that learners' teamwork skills will be developed and enhanced.
		Recommendation 1
		The panel recommends that the Transferable Skills Matrix be amended to include a reference to the learners' team-work skills that will be enhanced by the programme.
Embedded Programme 1	Partially	In general, as above. Note, however, that the MIPLOs for the embedded programme differ in one respect, as the Postgraduate Diploma does not incorporate the Practicum or the Internship.

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)

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a) The development of the programme and the intended programme learning outcomes has sought out and taken into account the views of stakeholders such as learners, graduates, teachers, lecturers, education and training institutions, employers, statutory bodies, regulatory bodies, the international scientific and academic communities, professional bodies and equivalent associations, trades unions, and social and community representatives.[4]

b) The interpretation of awards standards has been adequately informed and researched; considering the programme aims and objectives and minimum intended programme (and, where applicable, modular) learning outcomes.
  (i) There is a satisfactory rationale for providing the programme.
  (ii) The proposed programme compares favourably with existing related (comparable) programmes in Ireland and beyond. Comparators should be as close as it is possible to find.
  (iii) There is support for the introduction of the programme (such as from employers, or professional, regulatory or statutory bodies).
  (iv) There is evidence[5] of learner demand for the programme.
  (v) There is evidence of employment opportunities for graduates where relevant[6].
  (vi) The programme meets genuine education and training needs.[7]

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

d) Employers and practitioners in the cases of vocational and professional awards have been systematically involved in the programme design where the programme is vocationally or professionally oriented.

e) The programme satisfies any validation-related criteria attaching to the applicable awards standards and QQI awards specifications.
</td></tr>
<tr><td></td><td>**Satisfactory? (yes, no, partially)**</td><td>**Comment**</td></tr>
<tr><td>**Principal Programme**</td><td>Yes</td><td>The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion.

The panel considers that the programme concept is well-articulated in Section 3 of the programme document. The concept was also articulated convincingly by the programme team during the virtual site visit. The panel is satisfied that the rationale for the programme is well-researched, that the programme will meet genuine education and training needs, and that there will be a demand for the programme and for its graduates.

The stakeholder consultation undertaken by the programme team was relevant and is clearly documented. This included consultation with an impressive high-level Industry panel comprising practitioners and employer representatives, and a</td></tr>
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[4] 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.

[5] This might be predictive or indirect.

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

[7] 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.

		review of job vacancies advertisements in the disciplinary area. The research also included a comprehensive and thorough document analysis and a comparison with cognate programmes on offer in Ireland and internationally, in the context of growing interest in the application of AI across a wide range of areas, and the consequent need for professionals trained to work in this field. The panel is satisfied that the feedback from the research and stakeholder consultations directly informed programme design. The programme aims, MIPLOs, and curriculum are consistent with QQI's Level 9 Computer Award Type standards. The panel is also satisfied that there are appropriate mechanisms in place for on-going stakeholder consultation to ensure that the programme remains updated, contemporary, and relevant. This is clearly particularly important in the context of a programme exploring the use of cutting-edge and rapidly-developing technologies.
Embedded Programme 1	Yes	As above.

Criterion 4. **The programme's access, transfer and progression arrangements are satisfactory**

a) The information about the programme as well as its procedures for access, transfer and progression are consistent with the procedures described in QQI's policy and criteria for access, transfer and progression in relation to learners for providers of further and higher education and training. Each of its programme-specific criteria is individually and explicitly satisfied[8].

b) Programme information for learners is provided in plain language. This details what the programme expects of learners and what learners can expect of the programme and that there are procedures to ensure its availability in a range of accessible formats.

c) If the programme leads to a higher education and training award and its duration is designed for native English speakers, then the level of proficiency in English language must be greater or equal to B2+ in the Common European Framework of Reference for Languages (CEFRL[9]) in order to enable learners to reach the required standard for the QQI award.

d) The programme specifies the learning (knowledge, skill and competence) that **target learners** are expected to have achieved before they are enrolled in the programme and any other assumptions about enrolled learners (programme participants).

e) The programme includes suitable procedures and criteria for the **recognition of prior learning** for the purposes of access and, where appropriate, for advanced entry to the programme and for exemptions.

f) The programme title (the title used to refer to the programme):-
   (i) Reflects the core *intended programme learning outcomes*, and is consistent with the standards and purposes of the QQI awards to which it leads, the award title(s) and their class(es).
   (ii) Is learner focused and meaningful to the learners;
   (iii) Has long-lasting significance.

g) The programme title is otherwise legitimate; for example, it must comply with applicable statutory, regulatory and professional body requirements.

	Satisfactory? (yes, no, partially)	Comment
Principal Programme	Partially	The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme partially meets this criterion.

The panel is satisfied that access, transfer, and progression criteria and procedures, as outlined in section 4 of the programme document, are generally appropriate and consistent with QQI policies. These are well understood by the programme team and were clearly articulated during the meeting with the panel.

The programme team has considered the target learners for the programme and has detailed the minimum requirements for entry in section 4.2. However, the panel is concerned that the specified entry requirements remain somewhat ambiguous, particularly with regard to whether potential entrants require technical *and* mathematical problem-solving skills. It is also concerned that the |

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

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

		nature and level of prior programming experience required is rather unclear. It therefore feels that the documentation should be carefully revised to remove any ambiguity and provide greater clarity around these matters. **Special Condition of Validation 2** *The panel requires that section 4 of the programme document be edited to state clearly that the minimum entry requirements include technical and mathematical problem-solving skills, and to clarify the prior programming experience required.* Provision is made for entry to the programme for candidates who may not have the required academic background, but who do have extensive industry experience in the field. This provision is consistent with the college's RPL/RPEL policy (which is available on its website), which provides a framework within which such candidates can be considered. In general, such candidates can be assessed for entry on the basis of their previous academic and work experience. They may be required to submit a portfolio of evidence, and also to attend for interview. In addition to having demonstrable applicable skills, such applicants will need to show that they have sufficient suitable technical and mathematical problem-solving skills. In the absence of suitable evidence for these, they may be required to carry out an assessment that will help to determine if they can be admitted to the programme. The minimum English language proficiency requirement for international applicants of IELTS level 6.5 level is explicitly stated in section 4.2.5. The panel is satisfied that information about the programme will be provided in plain language for potential applicants and subsequently for learners on registration. This information will be provided through a range of sources, as outlined in section 4.1 of the programme document. The panel considers that the programme title is meaningful to learners and to employers, indicating the nature, scope, and content of the programme. It has long lasting significance in an area in which there will be a strong and ongoing demand for graduates.
Embedded Programme 1	Partially	As above.

Criterion 5.   The programme's written curriculum is well structured and fit-for-purpose

a) The programme is suitably structured and coherently oriented towards the achievement by learners of its intended programme learning outcomes. The programme (including any stages and modules) is integrated in all its dimensions.

b) In so far as it is feasible the programme provides choice to enrolled learners so that they may align their learning opportunities towards their individual educational and training needs.

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

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

e) The programme is structured and scheduled realistically based on sound educational and training principles[10].

f) The curriculum is comprehensively and systematically documented.

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

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

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

j) The programme duration (expressed in terms of time from initial enrolment to completion) and its fulltime equivalent contact time (expressed in hours) are consistent with the difference between the minimum entry standard and award standard and with the credit allocation.[11]

	Satisfactory? (yes, no, partially)	Comment
Principal Programme	Partially	The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme partially meets this criterion. Overall, the National College of Ireland has designed an excellent programme that will enable students to reach their goals. In general, the panel was favourably impressed by the quality and standard of the written curriculum for the proposed programme. The panel considers that the programme curriculum is well-structured, current, fit-for-purpose, and coherent. It is consistent with the overall goal of the programme, and aligned with and oriented towards learners achieving the intended programme learning outcomes. The rationale for the proposed curriculum structure, content, module credit weightings, and sequencing of constituent module delivery is clearly and comprehensively articulated and depicted in section 5 of the programme document. The proposed programme schedule is specified in section 5.11 and details for each of the constituent modules are comprehensively and consistently documented in section 6.

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[10] This applies recursively to each and every element of the programme from enrolment through to completion.

In the case of a modular programme, the pool of modules and learning pathway constraints (such as any prerequisite and co-requisite modules) is explicit and appropriate to the intended programme learning outcomes.

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

However, the panel has some concerns about the assessment strategies for the Practicum and Internship modules (which are discussed in sections 6.10.12 and 6.11.12).

The documentation states that the Practicum and Internship modules will enable learners to consolidate the knowledge, skills and competence acquired in the programme by combining applied research and technical skills. The documentation is not, however, very clear in terms of how the Practicum and the Internship would be assessed in practice; assessment was discussed in rather vague terms.

Special Condition of Validation 3
The panel requires that the documentation be revised to clearly state how the Practicum and Internship will be assessed and how it will be determined that learners have achieved the desired outcome of the modules.

The panel has also some concerns about the organisation of module content for the Practicum and Internship modules (as discussed in sections 6.10.5 and 6.11.5). The documentation is not clear about the nature and allocation of class (or equivalent) contact hours for both the classroom and blended delivery modes.

Moreover, section 6.11 indicates the Internship module as running for thirty weeks, while in 6.11.7, it is described as running for fifteen, of which the final three are allocated for the preparation of the portfolio to be submitted and of the viva. This inconsistency should be clarified.

Special Condition of Validation 4
The panel requires that the documentation be revised to clarify the nature and allocation of contact hours for the Practicum and Internship modules, and the duration of the Internship module.

The panel also has some concerns about the proposed amount of content to be covered in the programme at a standard consistent with Level 9, and the implications for learner workload during the proposed period of delivery. Certainly, the proposed programme is an extremely challenging one.

In particular, the panel feels that the programme team may be over-ambitious in their intentions. For example, notwithstanding the programme team's considerable experience in delivering programmes at this level to learner cohorts with similar profiles to the target cohort for the proposed programme, the Programming for Artificial Intelligence module attempts to cover a huge amount of material in a relatively concise module.

| | | Therefore, the panel suggests that the programme team review their experience of delivery in this regard at the end of the first cycle of delivery, and at that point make any revisions to the programme and the various modules that are deemed necessary.

Recommendation 2
The panel recommends that the programme team address the panel's concerns about level of content and related learner workload in reviewing the experience of delivery at the end of the first cycle.

Having examined the various modules described in detail in section 6 of the material provided, the panel also has a number of **recommendations relating to certain programme modules**, which are as follows:

The providers should ensure that machine translation is adequately covered, perhaps by including elements in diverse relevant modules throughout the programme.

Foundations of Artificial Intelligence module:
Replace the verb 'revise' in MIMLO LO4 with 'review'.

Data Governance and Ethics module:
1) Revise the indicative content to ensure that the issue of unconscious bias is adequately covered. The panel accepts that this material is already covered, to some degree, but would like the National College of Ireland A) to ensure that it is sufficiently covered and B) that this is made specifically clear in the associated literature.

2) In the module terminal examination, consider the use of case studies or scenarios appropriate to level 9, rather than only traditional essay-type questions as indicated in the sample assessment provided.

Practicum module:
Consider adding another MIMLO similar to MIMLO 7 in the Internship module, referring to demonstrating communication skills. |
| **Embedded Programme 1** | Partially | As above. |

Criterion 6. **There are sufficient qualified and capable programme staff available to implement the programme as planned**

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

b) The programme has an identified complement of staff[12] (or potential staff) who are available, qualified and capable to provide the specified programme in the context of their existing commitments.

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

d) There are arrangements for the performance of the programme's staff to be managed to ensure continuing capability to fulfil their roles and there are staff development[13] opportunities[14].

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

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

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<tr><td></td><td>**Satisfactory? (yes, no, partially)**</td><td>**Comment**</td></tr>
<tr><td>**Principal Programme**</td><td>Yes</td><td>The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the provider fully meets this criterion.

Staffing details are provided in section 7 of the programme document. The panel is satisfied that the staff complement necessary to provide the programme as planned is clearly specified and that a stable and coherent programme team is already in place. The team, including full-time and associate faculty, have the necessary qualifications, competence, and experience to ensure the continued successful delivery of the programme.

NCI are confident in their ability to recruit and retain the necessary staffing complement for programme delivery despite competition for talent in the labour market. NCI confirmed during</td></tr>
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[12] Staff here means natural persons required as part of the programme and accountable (directly or indirectly) to the programme's provider, it may for example, include contracted trainers and workplace supervisors.

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

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

		the panel visit that they will not enrol students unless sufficient staff numbers who meet their specifications are in place.
		A range of school staff members, including associate faculty, was actively involved in the programme design. The panel was impressed by the evident ownership of the programme by the team and their commitment to its long-term success.
		NCI has well-established processes in place for staff performance management, including provision for staff induction and training, and supports for continuing professional development.
		The panel was also pleased to note the provider's interest and investment in its associate staff as well as its permanent staff.
		It is evident to the panel that the National College of Ireland boasts highly qualified and research-active lecturing staff who are clearly dedicated to their subject and to teaching excellence, and that it invests in both associate and full-time staff; the panel was particularly pleased to have the opportunity to interact with a member of NCI's associate staff on the day of the review.
Embedded Programme 1	Yes	As above.

Criterion 7.   **There are sufficient physical resources to implement the programme as planned**

a) The specification of the programme's physical resource requirements (physical resources required as part of the programme and intrinsic to it) is precise, and rigorous and consistent with the programme, its defined purpose and its resource/learner-ratio requirements. See also criterion 12 d).
b) The programme has an identified complement of supported physical resources (or potential supported physical resources) that are available in the context of existing commitments on these e.g. availability of:
  (i) suitable premises and accommodation for the learning and human needs (comfort, safety, health, wellbeing) of learners (this applies to all of the programme's learning environments including the workplace learning environment)
  (ii) suitable information technology and resources (including educational technology and any virtual learning environments provided)
  (iii) printed and electronic material (including software) for teaching, learning and assessment
  (iv) suitable specialist equipment (e.g. kitchen, laboratory, workshop, studio) – if applicable
  (v) technical support
  (vi) administrative support
  (vii) company placements/internships – if applicable
c) If versions of the programme are provided in parallel at more than one location each independently meets the location-sensitive validation criteria for each location (for example staffing, resources and the learning environment).
d) There is a five-year plan for the programme. It should address
  (i) Planned intake (first five years) and
  (ii) The total costs and income over the five years based on the planned intake.
e) The programme includes controls to ensure entitlement to use the property (including intellectual property, premises, materials and equipment) required.

	Satisfactory? (yes, no, partially)	Comment
Principal Programme	Yes	The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the provider fully meets this criterion. It should be noted that, on this occasion, the panel was unable to visit the physical premises of the provider due to the Covid pandemic, as a result of which the review took place using Microsoft Teams. However, a number of panel members were already familiar with the premises of the National College of Ireland, and the supplied documentation provided a detailed description of the facilities available (section 8), and their capacity to meet the needs of learners, including in the event of an increase in learner numbers. The proposed programme will be run on a Bring Your Own Device (BYOD) basis. Learners will be provided with all necessary software and with suitable technical support as required, both on and off-campus. They will have full access to all necessary IT services, including to e-mail, administrative systems to access online services, the library, and software required for the programme. Assessments (other than exams) will be submitted through Moodle and Turnitin (which incorporate anti-plagiarism software), with results and individual feedback provided through these

		systems. No specialised equipment is required for the programme and all software to be used is fully licenced.
		Learners will have full access to the library, which has a significant online access facility.
		The five-year plan for the programme, including planned intake, income and costs is outlined in sections 3.12 and 3.13 of the programme document.
Embedded Programme 1	Yes	As above.

Criterion 8. **The learning environment is consistent with the needs of the programme's learners**

a) The programme's physical, social, cultural and intellectual environment (recognising that the environment may, for example, be partly virtual or involve the workplace) including resources and support systems are consistent with the intended programme learning outcomes.

b) Learners can interact with, and are supported by, others in the programme's learning environments including peer learners, teachers, and where applicable supervisors, practitioners and mentors.

c) The programme includes arrangements to ensure that the parts of the programme that occur in the workplace are subject to the same rigours as any other part of the programme while having regard to the different nature of the workplace.

	Satisfactory? (yes, no, partially)	Comment
Principal Programme	Yes	The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the provider fully meets this criterion. As well as providing a well-equipped and comfortable physical learning environment, and a highly-qualified complement of extremely motivated staff, the provider has ample supports in place for learners. As section 5.8 demonstrates, there are clearly-explained systems in place for students to raise issues or concerns. NCI clearly states its commitment to the students in section 5.8.2. The documentation (5.9) also makes clear that there are systems in place to quickly identify students who may be struggling with the programme and to reach out and support them in areas in which they may require additional help. Learners are encouraged to avail of the supports available to them, including the Learning Support Service and the Mathematical Support Service. Other initiatives that support students include the "bootcamp", which is provided to learners on beginning the programme so they can refresh or build relevant skills. These sessions will take place prior to the commencement of first semester modules and will be block delivered over the course of 1 week. With respect to the Internship module, during which learners will be based off-campus, the ongoing supports available to them are clearly laid out in the Internship Handbook, which was supplied to the panel as Appendix 7. Prior to embarking on an Internship, all stakeholders (learner, college, and employer where applicable) will sign a contract describing the responsibilities of each, as outlined in section 5.8.3. The college also boasts a Career Development and Employability Office that offers the services of a team of senior recruitment experts and guidance professionals who are experienced in providing tactical, customised, and comprehensive career development and personal branding advice and guidance to mid-

		senior level professionals in areas including career acceleration, career change, and career crisis, as well as extra support in the form of on-site career fairs, and industry-specific employability events such as a Whiteboard Interview Seminar where students get first-hand experience on the structure and procedure around whiteboard interviewing techniques.
Embedded Programme 1	Yes	As above.

Criterion 9.   There are sound teaching and learning strategies

a)	The teaching strategies support achievement of the intended programme/module learning outcomes.	
b)	The programme provides authentic learning opportunities to enable learners to achieve the intended programme learning outcomes.	
c)	The programme enables enrolled learners to attain (if reasonably diligent) the minimum intended programme learning outcomes reliably and efficiently (in terms of overall learner effort and a reasonably balanced workload).	
d)	Learning is monitored/supervised.	
e)	Individualised guidance, support15 and timely formative feedback is regularly provided to enrolled learners as they progress within the programme.	

	Satisfactory? (yes, no, partially)	Comment
Principal Programme	Partially	The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme partially meets this criterion.
		The programme documentation (section 5.6) makes it clear that the learner is central to the programme and is an active participant. Learners are therefore encouraged to interact with one another, and with their instructors, who in turn give the academic work context by applying it to real-world situations.
		To facilitate learners' needs, the college offers a flexible learning environment, including online learning and supports, as well as diverse learning strategies, blended, and asynchronous learning. Section 5.6.3 discusses in some detail the provider's Learner Success Strategy which, among other things, provides for support in transition, the application of Universal Design for Learning (UDL) principles, the provision of learning material and aides in a wide range of formats, and in actively working to promote learner engagement.
		Diverse methods are used for the assessment of learners' progress and work. Each module has a minimum of two assessments per module, with a clearly articulated rationale. Student performance is carefully monitored by continuous assessment, but also by providing feedback in a timely manner and in an appropriate way. Student attendance is tracked, allowing for an early intervention system with students who are disengaged or struggling in any way. A range of learning support services provide learners with support in core areas of the programme and in achieving their academic goals. In the event of students having concerns about any aspect of the programme, escalation procedures are in place, and are clearly explained in the Programme Handbook (which was provided to the panel as Appendix Two).

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

		The programme curriculum, modes of delivery, and modes of assessment provide meaningful learning opportunities, and facilitate learners in achieving their MIPLOs. The proposed delivery model is set out in section 5.4 and was further articulated by the programme team during the virtual site visit. However, the documentation is somewhat unclear as to whether the part-time programme will be delivered on two or three evenings per week, and on Saturdays; this matter should be clarified. **Special Condition of Validation 5** *The panel requires that the documentation should be carefully revised to clarify the delivery model for the part-time programme.*
Embedded Programme 1	Partially	As above.

Criterion 10. There are sound assessment strategies

a) All assessment is undertaken consistently with *Assessment Guidelines, Conventions and Protocols for Programmes Leading to QQI Awards[16]*

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

c) The programme includes specific procedures that are fair and consistent for the assessment of enrolled learners to ensure the minimum intended programme/module learning outcomes are acquired by all who successfully complete the programme.[17]

d) The programme includes formative assessment to support learning.

e) There is a satisfactory written **programme assessment strategy** for the programme as a whole and there are satisfactory module assessment strategies for any of its constituent modules.[18]

f) Sample assessment instruments, tasks, marking schemes and related evidence have been provided for each award-stage assessment and indicate that the assessment is likely to be valid and reliable.

g) There are sound procedures for the moderation of summative assessment results.

h) The provider only puts forward an enrolled learner for certification for a particular award for which a programme has been validated if they have been specifically assessed against the standard for that award.[19]

	Satisfactory? (yes, no, partially)	Comment
Principal Programme	Yes	The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the provider fully meets this criterion. The programme assessment strategy comprises both formative and summative elements. These are documented in sections 5.6 and 5.10, and within the descriptor for each module. Various assessment instruments are used, with an emphasis on continuous assessment suited to the nature and level of the programme. Generally speaking, the panel is satisfied that the programme team has thought deeply about how to ensure that assessment is appropriate, fair, adequately aligned with learner outcomes, and that learners are not over-assessed. No provision, however, is made for cross-modular integrated assessment (section 5.5.1), although the documentation does assert that there are strong links between the modules that help the students to achieve their academic goals. The programme material points out that, for example, to succeed in the Machine Learning module, the students should show skills and knowledge in programming and basic data analytics that are represented in

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[16] See the section on transitional arrangements.

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

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

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

		preceding modules Programming for Artificial Intelligence and Data Analytics for Artificial Intelligence, and makes similar points about the relationship between other modules. It also points out that the Practicum and Internship modules are capstone modules that contribute to all the Minimum Intended Programme Learning Outcomes (MIPLOs). During the panel's virtual visit, in which the various modes of assessment were thoroughly discussed with the college representatives, the panel suggested that NCI revisit their approach to assessment, with a view to incorporating integrated assessment where clear benefits can be seen from taking this approach. Given the challenging nature of the programme, and the fact that there are some common topics and overlaps between different programmes, integrated assessment would both help students by optimising their workload, while also highlighting synergies between different elements of the programme. **Recommendation 3** *The panel recommends that the provider review its assessment strategy with a view to incorporating cross-modular integrated modes of assessment where appropriate.* The panel welcomes the reference to NCI's Academic Honesty and Integrity Code in section 5.10.7.
Embedded Programme 1	Yes	As above.

Criterion 11.   **Learners enrolled on the programme are well informed, guided and cared for**

a) There are arrangements to ensure that each enrolled learner is fully informed in a timely manner about the programme including the schedule of activities and assessments.

b) Information is provided about learner supports that are available to learners enrolled on the programme.

c) Specific information is provided to learners enrolled on the programme about any programme-specific appeals and complaints procedures.

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

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

f) There are arrangements to ensure that learners enrolled on the programme are supervised and individualised support and due care is targeted at those who need it.

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

h) The programme makes reasonable accommodations for learners with disabilities[20].

i) If the programme aims to enrol international students it complies with the *Code of Practice for Provision of Programmes to International Students*[21] and there are appropriate in-service supports in areas such as English language, learning skills, information technology skills and such like, to address the particular needs of international learners and enable such learners to successfully participate in the programme.

j) The programme's learners will be well cared for and safe while participating in the programme, (e.g. while at the provider's premises or those of any collaborators involved in provision, the programme's locations of provision including any workplace locations or practice-placement locations).

	Satisfactory? (yes, no, partially)	Comment
Principal Programme	Yes	The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the provider fully meets this criterion. A wide array of supports is available, as detailed in sections 5.8 and 5.9 of the programme document. In terms of academic supports, student have access to library resources and to faculty outside of the classroom where appropriate, and module information is made available on Moodle. As leaners need to employ a wide range of software and learning technologies, they are provided with all the supports they need, including technical support over the phone. A wide variety of learning resources is provided in the college and online, and guest lectures provide depth alongside their regular programme of lectures. There is a dedicated Cloud Computing datacentre to facilitate practical work and research activities, incorporating state-of-the-art technology.

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

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

| | | Support is available to students with physical, mental, or health disabilities, including those with a specific learning disability, ensuring a level playing field for all students on the programme.

General learning support and specialised mathematics support services are among a number of support services available to learners.

In particular, the panel notes that the provider has robust systems in place to meet the needs of overseas learners, who can have additional challenges not faced by domestic learners, as well as Learning Support and Mathematics Support programmes (which are discussed in section five). |
|---|---|---|
| **Embedded Programme 1** | Yes | As above. |

Criterion 12.   The programme is well managed

a) The programme includes intrinsic governance, quality assurance, learner assessment, and access, transfer and progression procedures that functionally interface with the provider's general or institutional procedures.

b) The programme interfaces effectively with the provider's QQI approved quality assurance procedures. Any proposed incremental changes to the provider's QA procedures required by the programme or programme-specific QA procedures have been developed having regard to QQI's statutory QA guidelines. If the QA procedures allow the provider to approve the centres within the provider that may provide the programme, the procedures and criteria for this should be fit-for-the-purpose of identifying which centres are suited to provide the programme and which are not.

c) There are explicit and suitable programme-specific criteria for selecting persons who meet the programme's staffing requirements and can be added to the programme's complement of staff.

d) There are explicit and suitable programme-specific criteria for selecting physical resources that meet the programmes physical resource requirements, and can be added to the programme's complement of supported physical resources.

e) Quality assurance[22] is intrinsic to the programme's maintenance arrangements and addresses all aspects highlighted by the validation criteria.

f) The programme-specific quality assurance arrangements are consistent with QQI's statutory QA guidelines and use continually monitored completion rates and other sources of information that may provide insight into the quality and standards achieved.

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

h) There are sound procedures for interface with QQI certification.

	Satisfactory? (yes, no, partially)	Comment
Principal Programme	Yes	The panel has evaluated the proposed programme with respect to the criterion and sub-criteria and recommends that QQI can be satisfied that the provider fully meets this criterion.

Details were provided (section 1A) of the governance body and the manner in which the provider is governed. The College is managed by an Executive Team, chaired by the President. The Executive Board manages the day-to-day operations of the College and comprises the President, Vice President, Director of Finance, Registrar, Director of HR, and Director of Marketing. It is clear from the documentation, and from the meeting with the panel, that the provider has robust systems of management that remain learner-focussed at all times. Section 9, Table 33 documents a range of quality assurance procedures, including learner involvement, input from external examiners, and more.

Learners are actively involved. Section 9 of the programme document lays out the various ways in which student input is sought. For example, each class year within a programme elects two representatives who will meet with the Head of School and all relevant academic and support staff for consultations about learners' views relating to programme content, delivery, assessment and development and to identify areas of concern to |

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

| | | the class groups. This liaison occurs at least once a semester or more often as required.

Programme committee meetings are regularly held, input and expertise from external examiners are sought and acted upon, and the Annual Report reflects and brings together feedback from all the diverse bodies and individuals with input. |
|---|---|---|
| **Embedded Programme 1** | Yes | As above. |

Part 3.   Overall recommendation to QQI

3.1   Principal programme:

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

Reasons for the overall recommendation

The proposed Masters in Science in Artificial Intelligence is well-designed, conceived, and planned. It will be a valuable addition to the field in Ireland.

The panel is of the view that NCI has the intent and competence to deliver a highly relevant programme that is clearly aligned with current market needs and that addresses an area in which there is a significant skills gap.

The panel considers that QQI can be satisfied that the proposed programme meets all the Validation Criteria, subject to the implementation pre-validation of the minor amendments specified in the special conditions of validation.

The panel considers that the National College of Ireland will be in a position to make the necessary amendments to the programme document in a timely manner.

The programme team's commitment to the success of the proposed programme was evident to the panel from the overall quality of the programme documentation and the constructive mind-set and approach displayed in their engagement with the panel during the virtual site visit.

The panel commends the programme team for the open manner in which it engaged during the virtual site visit and panel review; its evident collective ownership of and pride in the programme; its commitment to supporting learners and to ensuring they have a high-quality experience of education; the coherence of its shared understanding of the rationale for the programme design; and the enthusiasm and articulacy it displayed in addressing the panel's questions and concerns.

Special Conditions of Validation (directive and with timescale for compliance)

Special Condition of Validation 1: Criterion 2

The panel requires that the programme document be edited carefully to ensure that the overall programme goal is clearly and consistently stated throughout.

Special Condition of Validation 2: Criterion 4
The panel requires that section 4 of the programme document be edited to state clearly that the minimum entry requirements include technical and mathematical problem-solving skills, and to clarify the prior programming experience required.

Special Condition of Validation 3: Criterion 5

The panel requires that the documentation be revised to clearly state how the Practicum and Internship will be assessed and how it will be determined that learners have achieved the desired outcome of the modules.

Special Condition of Validation 4: Criterion 5

The panel requires that the documentation be revised to clarify the nature and allocation of contact hours for the Practicum and Internship modules, and the duration of the Internship module.

Special Condition of Validation 5: Criterion 9

The panel requires that the documentation should be carefully revised to clarify the delivery model for the part-time programme.

All conditions should be met within a period of three calendar months.

Embedded programme 1:

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

Reasons for the overall recommendation

As above for principal programme.

Special Conditions of Validation (directive and with timescale for compliance)

Special Condition of Validation 1: Criterion 2

That the programme document be edited carefully to ensure that the overall programme goal is clearly and consistently stated throughout.

Special Condition of Validation 2: Criterion 4

That section 4 of the programme document be edited to state clearly that the minimum entry requirements include technical and mathematical problem-solving skills, and to clarify the prior programming experience required.

Special Condition of Validation 5: Criterion 9

The documentation should be carefully revised to clarify the delivery model for the part-time programme

All conditions should be met within a period of three calendar months.

Summary of recommendations to the provider

Recommendation 1
The panel recommends that the Transferable Skills Matrix be amended to include a reference to the learners' team-work skills that will be enhanced by the programme.

Recommendation 2
The panel recommends that the programme team address the panel's concerns about level of content and related learner workload in reviewing the experience of delivery at the end of the first cycle.

Recommendation 3
The panel recommends that the provider review its assessment strategy with a view to incorporating cross-modular integrated modes of assessment where appropriate.

There are also several **module-specific recommendations**, as follows:

The providers should ensure that machine translation is adequately covered, perhaps by including elements in diverse relevant modules throughout the programme.

<u>Foundations of Artificial Intelligence</u> module:

Replace the verb 'revise' in MIMLO LO4 with 'review'.

<u>Data Governance and Ethics</u> module:

Revise the indicative content to ensure that the issue of unconscious bias is adequately covered. The panel accepts that this material is already covered, to some degree, but would like the National College of Ireland A) to ensure that it is sufficiently covered and B) that this is made specifically clear in the associated literature. In the module terminal examination, consider the use of case studies or scenarios appropriate to level 9, rather than only traditional essay type questions as indicated in the sample assessment provided.

<u>Practicum</u> module:

Consider adding another MIMLO similar to MIMLO 7 in the Internship module, referring to demonstrating communication skills.

Declarations of Evaluators' Interests

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

panel chairperson: Date:

Signed:

3.2   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 4.   Proposed programme schedules *(post panel feedback and consequent amendments, if any)*

Name of Provider:	National College of Ireland
Programme Title	Master of Science in Artificial Intelligence
Award Title	Master of Science in Artificial Intelligence
Stage Exit Award Title	Postgraduate Diploma in Science in Artificial Intelligence
Modes of Delivery (FT/PT):	FT
Teaching and learning modalities	Classroom

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	9		Award	9		90	January 2022	0619

Module Title (Up to 70 characters including spaces)	Semester no where applicable. (Semester 1 or Semester2)	Module		Credit Number[5]	Total Student Effort Module (hours)						Allocation of Marks (from the module assessment strategy)				
		Status	NFQ Level where specified	Credit Units	Total Hours	Class (or equiv) Contact Hours	Directed e-learning	Directed Learning	Hours of Independent Learning	Work-based learning effort	C.A. %	Supervised Project %	Proctored practical demonstration	Proctored written exam %
Foundations of Artificial Intelligence	1	M	9	5	125	36			89		60%			40%
Data Governance and Ethics	1	M	9	5	125	36			89		40%			60%
Programming for Artificial Intelligence	1	M	9	10	250	48			202		100%			
Data Analytics for Artificial Intelligence	1	M	9	10	250	48			202		100%			
Engineering and Evaluating Artificial Intelligence Systems	2	M	9	5	125	36			89		50%			50%
Intelligent Agents and Process Automation	2	M	9	5	125	36			89		100%			
Artificial Intelligence Driven Decision Making	2	M	9	5	125	36			89		100%			
Machine Learning	2	M	9	10	250	48			202		100%			
Emergent Artificial Intelligence Technologies and Sustainability	3	M	9	5	125	36			89		50%			50%
Practicum	2, 3	E	9	30	750	48			702			100%		
Internship	2, 3	E	9	30	750	48			510	192		100%		
Special Regulations (Up to 280 characters)														
The Practicum and Internship modules cannot be compensated.														

Name of Provider:		National College of Ireland														
Programme Title		Master of Science in Artificial Intelligence														
Award Title		Master of Science in Artificial Intelligence														
Stage Exit Award Title[3]		Postgraduate Diploma in Science in Artificial Intelligence														
Modes of Delivery (FT/PT):		FT														
Teaching and learning modalities		Blended 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	9		Award	9				90	January 2022	0619

Module Title (Up to 70 characters including spaces)	Semester no where applicable. (Semester 1 or Semester2)	Module		Credit Number[5]	Total Student Effort Module (hours)					Allocation of Marks (from the module assessment strategy)				
		Status	NFQ Level[1] where specified	Credit Units	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 %
Foundations of Artificial Intelligence	1	M	9	5	125	24	12	89		60%			40%
Data Governance and Ethics	1	M	9	5	125	24	12	89		40%			60%
Programming for Artificial Intelligence	1	M	9	10	250	24	24	202		100%			
Data Analytics for Artificial Intelligence	1	M	9	10	250	24	24	202		100%			
Engineering and Evaluating Artificial Intelligence Systems	2	M	9	5	125	24	12	89		50%			50%
Intelligent Agents and Process Automation	2	M	9	5	125	24	12	89		100%			
Artificial Intelligence Driven Decision Making	2	M	9	5	125	24	12	89		100%			
Machine Learning	2	M	9	10	250	24	24	202		100%			
Emergent Artificial Intelligence Technologies and Sustainability	3	M	9	5	125	24	12	89		50%			50%
Practicum	3	E	9	30	750	36	12	702			100%		
Internship	3	E	9	30	750	36	12	510	192		100%		
Special Regulations (Up to 280 characters)													
The Practicum and Internship modules cannot be compensated.													

Name of Provider:	National College of Ireland
Programme Title	Master of Science in Artificial Intelligence
Award Title	Master of Science in Artificial Intelligence
Stage Exit Award Title[3]	Postgraduate Diploma in Science in Artificial Intelligence
Modes of Delivery (FT/PT):	PT
Teaching and learning modalities	Classroom

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	9		Award	9		90	January 2022	0619

Module Title (Up to 70 characters including spaces)	Semester no where applicable. (Semester 1 or Semester2)	Module Status	Module NFQ Level[1] where specified	Credit Number[5] Credit Units	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 %
Foundations of Artificial Intelligence	1	M	9	5	125	36		89		60%			40%
Data Governance and Ethics	1	M	9	5	125	36		89		40%			60%
Programming for Artificial Intelligence	1	M	9	10	250	48		202		100%			
Data Analytics for Artificial Intelligence	2	M	9	10	250	48		202		100%			
Engineering and Evaluating Artificial Intelligence Systems	2	M	9	5	125	36		89		50%			50%
Intelligent Agents and Process Automation	2	M	9	5	125	36		89		100%			
Artificial Intelligence Driven Decision Making	3	M	9	5	125	36		89		100%			
Machine Learning	3	M	9	10	250	48		202		100%			
Emergent Artificial Intelligence Technologies and Sustainability	3	M	9	5	125	36		89		50%			50%
Practicum	4	E	9	30	750	48		702			100%		
Internship	4	E	9	30	750	48		510	192		100%		

Special Regulations (Up to 280 characters)

The Practicum and Internship modules cannot be compensated.

Name of Provider:	National College of Ireland
Programme Title	Master of Science in Artificial Intelligence
Award Title	Master of Science in Artificial Intelligence
Stage Exit Award Title[3]	Postgraduate Diploma in Science in Artificial Intelligence
Modes of Delivery (FT/PT):	PT
Teaching and learning modalities	Blended 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	9		Award	9		90	January 2022	0619

Module Title (Up to 70 characters including spaces)	Semester no where applicable. (Semester 1 or Semester2)	Module Status	Module NFQ Level[1] where specified	Credit Number[5] Credit Units	Total Student Effort Module (hours) Total Hours	Class (or equiv) Contact Hours	Directed e-learning	Hours of Independent Learning	Work-based learning effort	Allocation of Marks (from the module assessment strategy) C.A. %	Supervised Project %	Proctored practical demonstration	Proctored written exam %
Foundations of Artificial Intelligence	1	M	9	5	125	24	12	89		60%			40%
Data Governance and Ethics	1	M	9	5	125	24	12	89		40%			60%
Programming for Artificial Intelligence	1	M	9	10	250	24	24	202		100%			
Data Analytics for Artificial Intelligence	2	M	9	10	250	24	24	202		100%			
Engineering and Evaluating Artificial Intelligence Systems	2	M	9	5	125	24	12	89		50%			50%
Intelligent Agents and Process Automation	2	M	9	5	125	24	12	89		100%			
Artificial Intelligence Driven Decision Making	3	M	9	5	125	24	12	89		100%			
Machine Learning	3	M	9	10	250	24	24	202		100%			
Emergent Artificial Intelligence Technologies and Sustainability	3	M	9	5	125	24	12	89		50%			50%
Practicum	4	E	9	30	750	36	12	702			100%		
Internship	4	E	9	30	750	36	12	510	192		100%		

Special Regulations (Up to 280 characters)

The Practicum and Internship modules cannot be compensated.

Name of Provider:	National College of Ireland
Programme Title	Postgraduate Diploma in Science in Artificial Intelligence
Award Title	Postgraduate Diploma in Science in Artificial Intelligence
Stage Exit Award Title[3]	
Modes of Delivery (FT/PT):	PT
Teaching and learning modalities	Classroom

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	9		Award	9		60	January 2022	0619

Module Title (Up to 70 characters including spaces)	Semester no where applicable. (Semester 1 or Semester2)	Module		Credit Number[5]	Total Student Effort Module (hours)					Allocation of Marks (from the module assessment strategy)				
		Status	NFQ Level[1] where specified	Credit Units	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 %
Foundations of Artificial Intelligence	1	M	9	5	125	36		89		60%			40%
Data Governance and Ethics	1	M	9	5	125	36		89		40%			60%
Programming for Artificial Intelligence	1	M	9	10	250	48		202		100%			
Data Analytics for Artificial Intelligence	2	M	9	10	250	48		202		100%			
Engineering and Evaluating Artificial Intelligence Systems	2	M	9	5	125	36		89		50%			50%
Intelligent Agents and Process Automation	2	M	9	5	125	36		89		100%			
Artificial Intelligence Driven Decision Making	3	M	9	5	125	36		89		100%			
Machine Learning	3	M	9	10	250	48		202		100%			
Emergent Artificial Intelligence Technologies and Sustainability	3	M	9	5	125	36		89		50%			50%

Special Regulations (Up to 280 characters)

N/A

Name of Provider:	National College of Ireland
Programme Title	Postgraduate Diploma in Science in Artificial Intelligence
Award Title	Postgraduate Diploma in Science in Artificial Intelligence
Stage Exit Award Title[3]	
Modes of Delivery (FT/PT):	PT
Teaching and learning modalities	Blended 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	9		Award	9		60	January 2022	0619

Module Title (Up to 70 characters including spaces)	Semester no where applicable. (Semester 1 or Semester2)	Module		Credit Number[5]	Total Student Effort Module (hours)					Allocation of Marks (from the module assessment strategy)			
		Status	NFQ Level where specified	Credit Units	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 %
Foundations of Artificial Intelligence	1	M	9	5	125	24	12	89		60%			40%
Data Governance and Ethics	1	M	9	5	125	24	12	89		40%			60%
Programming for Artificial Intelligence	1	M	9	10	250	24	24	202		100%			
Data Analytics for Artificial Intelligence	2	M	9	10	250	24	24	202		100%			
Engineering and Evaluating Artificial Intelligence Systems	2	M	9	5	125	24	12	89		50%			50%
Intelligent Agents and Process Automation	2	M	9	5	125	24	12	89		100%			
Artificial Intelligence Driven Decision Making	3	M	9	5	125	24	12	89		100%			
Machine Learning	3	M	9	10	250	24	24	202		100%			
Emergent Artificial Intelligence Technologies and Sustainability	3	M	9	5	125	24	12	89		50%			50%

Special Regulations (Up to 280 characters)
N/A