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

## Part 1

| Provider name | National College of Ireland |
|---|---|
| Date of site visit | 28th October 2020 |
| Date of report | 05/02/2021 |

## Overall recommendations

| Principal programme | Title | Higher Diploma in Science in Data Analytics |
|---|---|---|
| | Award | Major Award |
| | Credit | 60 |
| | **Recommendation** *Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory* | Satisfactory subject to proposed conditions |

| Embedded programme | Title | Certificate in Data Analytics |
|---|---|---|
| | Award | Minor Award |
| | Credit | 30 |
| | **Recommendation** *Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory* | Satisfactory subject to proposed conditions |

| Embedded programme | Title | N/A |
|---|---|---|
| | Award | N/A |
| | Credit | N/A |
| | **Recommendation**<br>*Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory* | N/A |

| Evaluators | | |
|---|---|---|
| **Name** | **Role** | **Affiliation** |
| Hugh Mc Bride | Chair | Senior Lecturer, School of Business, Galway-Mayo IT |
| Rory Byrne | Recording Secretary | Independent Education Consultant. Former Deputy Managing Director, Dorset College |
| Dr Jennifer Mc Manis | Subject Matter Expert | Assistant Professor and Associate Dean for Teaching and Learning, School of Engineering and Computing, DCU |
| Louise O'Conor | Industry Representative | Founding Partner, Beta Digital Ltd. Delivers in-company professional training, advisory and consulting services to support businesses across sectors and industries adapt to the digital environment. |
| John Rowley | Subject Matter Expert | Dublin Business School, IBAT College, Dorset College, Irish Computer Society and ICDL Foundation |
| Cathal Curry | Learner Representative | Recent Graduate of DCU. Trained by QQI and NSTEP |

## Principal Programme

| Names of centres where the programmes are to be provided | Maximum number of learners *(per centre)* | Minimum number of learners |
|---|---|---|
| National College of Ireland, IFSC Campus | 250 | 15 |

| Enrolment interval *(normally 5 years)* | Date of first intake | 01/09/2021 |
|---|---|---|
| | Date of last intake | 31/08/2026 |

| | |
|---|---|
| **Maximum number of annual intakes** | 2 |
| **Maximum total number of learners per intake** | 125 |
| **Programme duration (months from start to completion)** | Full-time: 12 months, day, International students<br><br>Part-time: 12 months, evening, Springboard<br><br>Part-time: 24 months, evening |
| **Target learner groups** | This programme is for non-technical professionals and college graduates from non-technical disciplines at level 8 on the National Framework of Qualifications. It will appeal to learners who wish to change their non-ICT qualification into the computer science field through a level 8 award in computing. It will also appeal to technical and non-technical professionals who would like to upgrade their skills in this programme, helping them to progress faster in their employment or to apply the knowledge in their current role. Applications from candidates with a level 7 award in a cognate area and from non-standard applicants will be also considered on a case-by-case basis applying programme-specific RPL criteria. |
| **Approved countries for provision** | Republic of Ireland |
| **Delivery mode: Full-time/Part-time** | Full-time/Part-time |
| **The teaching and learning modalities** | The teaching and learning approaches combine different strategies, including traditional classroom lectures, video, lab work, tutorials, seminars, flipped classroom, problem and project-based learning, teamwork, and work-based learning. The programme is designed to be delivered both blended/on-line and in the classroom (face-to-face). |
| **Brief synopsis of the programme (e.g. who it is for, what is it for, what is involved for learners, what it leads to.)** | This programme is a level 8 Diploma aimed at level 8 graduates or mature applicants who wish to follow a career in data analytics. The programme will run both in part-time and full-time modes in order to cater to the different types of learners. The learners will have to attend lectures and tutorials in the classroom or online over the academic year, as well as to study independently. Learners will take modules that cover topics such as Statistics, Data Governance, Business Intelligence, Programming for Data Analytics, Databases and Machine Learning. An important component of the programme will be the Project module. The programme leads to an NFQ Level 8 academic award Higher Diploma in Science in Data Analytics awarded by QQI. Graduates of this programme may seek to continue studying within higher education or seek employment in the field of data analytics. |

| **Summary of specifications for teaching staff** | **WTE** | **Qualifications and experience** |
|---|---|---|
| | 2 | Lecturers with a PhD or Masters level qualification in computing and data analytics, or a related discipline with academic experience delivering modules in ICT level 8 on NFQ. |

| | 1 | Programme Director who is responsible for the academic management of the programme and may also be a lecturer on the programme. The programme director will have at least a Masters or PhD qualification in computing or a related discipline. |
|---|---|---|
| | 1 | Programme Co-ordinator with experience in relationship management and programme coordination. |
| **Summary of specifications for the ratio of learners to teaching-staff** | **Staff to learner ratio** | **Learning activity type** |
| | 1:60 | Lectures |
| | 1:25 | Tutorials/Labs |
| **Overall WTE staff/learner ratio** | 1:62.5 | |

| **Programmes being replaced (applicable to applications for revalidation)** | | |
|---|---|---|
| **Code** | **Title** | **Last enrolment date** |
| **PG22525** | Higher Diploma in Science in Data Analytics | 01/01/2021 |

## Embedded programme

| **Names of centres where the programmes are to be provided** | **Maximum number of learners** *(per centre)* | **Minimum number of learners** |
|---|---|---|
| National College of Ireland, IFSC Campus | 250 | 15 |

| **Enrolment interval** *(normally 5 years)* | **Date of first intake** | 01/09/2021 |
|---|---|---|
| | **Date of last intake** | 31/08/2026 |
| **Maximum number of annual intakes** | 2 | |
| **Maximum total number of learners per intake** | 125 | |
| **Programme duration (months from start to completion)** | Full-time/Part-time: 12 months | |
| **Target learner groups** | This programme is for non-technical professionals and college graduates from non-technical disciplines at level 8 on the National Framework of Qualifications. It will appeal to learners who wish to change their non-ICT qualification into the computer science field through a level 8 award in | |

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|---|---|
| | computing. It will also appeal to technical and non-technical professionals who would like to upgrade their skills in this programme, helping them to progress faster in their employment or to apply the knowledge in their current role. Applications from candidates with a level 7 award in a cognate area and from non-standard applicants will be also considered on a case-by-case basis applying programme-specific RPL criteria. |
| **Approved countries for provision** | Republic of Ireland |
| **Delivery mode: Full-time/Part-time** | Full-time/Part-time |
| **The teaching and learning modalities** | The teaching and learning approaches combine different strategies, including traditional classroom lectures, video, lab work, tutorials, seminars, flipped classroom, problem and project-based learning, teamwork, and work-based learning. The programme is designed to be delivered both blended/on-line and in the classroom (face-to-face). |
| **Brief synopsis of the programme (e.g. who it is for, what is it for, what is involved for learners, what it leads to.)** | This programme is an exit award within the Higher Diploma in Science in Data Analytics. It is aimed at the same prospective students who wish to follow a career in data analytics. The programme will run part-time in order to cater to the different types of learners. The learners will have to attend lectures and tutorials in the classroom or online over the academic year, as well as to study independently. Learners will take modules that cover topics such as Statistics, Data Governance, Business Intelligence, Programming for Data Analytics, Databases and Machine Learning. The programme leads to a Level 8 Certificate in Data Analytics awarded by QQI. Graduates of this programme may seek to continue studying within higher education or seek employment in the field of data analytics. |

| Summary of specifications for teaching staff | WTE | Qualifications and experience |
|---|---|---|
| | 2 | Lecturers with a PhD or Masters level qualification in computing and data analytics, or a related discipline with academic experience delivering modules in ICT level 8 on NFQ. |
| | 1 | Programme Director who is responsible for the academic management of the programme and may also be a lecturer on the programme. The programme director will have at least a Masters or PhD qualification in computing or a related discipline. |
| | 1 | Programme Co-ordinator with experience in relationship management and programme coordination. |

| Summary of specifications for the ratio of learners to teaching-staff | Staff to learner ratio | Learning activity type |
|---|---|---|
| | 1:60 | Lectures |
| | 1:25 | Tutorials/Labs |
| **Overall WTE staff/learner ratio** | 1:62.5 | |

| Programmes being replaced (applicable to applications for revalidation) | | |
|---|---|---|
| **Code** | **Title** | **Last enrolment date** |
| **PG22564** | Certificate in Data Analytics | 01/01/2021 |

## Other noteworthy features of the application

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

Not Applicable

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

| |
|---|
| Not Applicable |

## Part 2 Evaluation against the validation criteria

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

## 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. | |
| **Satisfactory (yes, no, partially)** | **Comment** |
| **Yes** | The Panel has evaluated the proposed programme having regard to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion. |

## 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.
    - (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.

| Satisfactory (yes, no, partially) | Comment |
|---|---|
| **Partially** | The Panel has evaluated the proposed programme having regard to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme partially meets this criterion. |
| | The Panel are satisfied that the programme aims and objectives are clearly stated in section 2 of the programme document, and that there is a satisfactory rationale for the choice of award titles for both the principal and the minor awards. The use of the QQI Computing Award Standards at level 8 is appropriate. |
| | The MIPLOs for each of the principal and minor awards are explicitly stated in section 2.4.1. The explanation of the changes made to update the MIPLOs following the programme self-evaluation review process are clearly explained in section 2.7.1. |
| | The MIMLOs for each module are specified and mapped to the MIPLOs in tabular format in section 2.5. A detailed and comprehensive mapping of the MIPLOs and related MIMLOs to the award standards is tabulated in section 2.6 and are also further explicated in section 5.6.1. The Panel is satisfied that the MIPLOs are consistent with the aims and objectives of the programme and with the level 8 award standards. |
| | The Panel however has concerns about gaps in the articulation of intention in the MIPLOs. In particular, that the MIPLOs do not explicitly refer to the communication and other transferable skills to be gained by learners on the programme. In this context, the Panel note that the transferable skills to be developed by programme learners are explicitly linked to MIMLOs in Table 4 in section 2.9. This is also referenced in sections 5.6.1 and at the end of section 5.6.3. The Panel consider that reference to the enhancement of learner transferable skills should be explicitly incorporated into the MIPLOs. |

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|---|---|
| | **Special Condition of Approval**<br><br>**The Panel requires that the MIPLOs be amended to explicitly refer to the transferable skills, including communications skills, to be gained by learners on the programme.**<br><br>The Panel is also concerned that the MIPLOs as stated for the embedded Certificate programme are the same as for the principal Diploma programme other than MIPLO 6. Following discussions with the programme team during the site visit, the Panel is satisfied that the difference is greater than that suggested by section 2.4.1 of the programme document. The Panel require that the difference between the MIPLOs for the Certificate and for the Diploma should be more explicitly articulated in this section of the programme document.<br><br>**Special Condition of Approval**<br><br>**The Panel requires that a more explicit differentiation be articulated between the embedded Certificate programme MIPLOs and the principal Diploma programme MIPLOs.** |

## Criterion 3

**The programme concept, implementation strategy, and its interpretation of QQI awards standards are well informed and soundly based (considering social, cultural, educational, professional and employment objectives)**

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

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

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

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

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

| Satisfactory (yes, no, partially) | Comment |
|---|---|
| **Yes** | The Panel has evaluated the proposed programme having regard to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion. |
| | The Panel acknowledge that the programme is well established and successful. The rationale for its continuation is well articulated in section 3 of the programme document and was reiterated convincingly by the programme team during the site visit. The Panel is satisfied that there is a continuing need and demand for the programme and for its graduates, and that the programme continues to meet genuine education and training needs. |
| | The stakeholder consultation and programme review undertaken by the programme team was comprehensive, thorough and robust, and is well documented in sections 3 and 5 of the SER and in the programme document. This included consultation with an industry advisory panel and with employer representatives, with learners, graduates, external examiners and faculty. The review also included a document analysis and a comparison with other similar cognate programmes on offer in Ireland. |
| | The manner in which the feedback from the various consultations informed amendments to the programme design are clearly explained in section 6 of the SER and in section 5 of the programme document. |

| | The Panel is satisfied that the programme aims, objectives and MIPLOs are consistent with and directly related to the QQI level 8 Computer Award Type standards. It is also satisfied that there are appropriate mechanisms in place for on-going stakeholder consultation to ensure the programme remains updated, contemporary and relevant. |
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## 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.
   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) 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 |
| --- | --- |
| **Partially** | The Panel has evaluated the proposed programme having regard to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme partially meets this criterion.<br><br>The Panel is satisfied that access, transfer and progression criteria and procedures as outlined in section 4 of the programme document are appropriate and consistent with QQI policies. These are well understood by the programme team and were clearly articulated during the meeting with the Panel.<br><br>The minimum entry requirement is a level 8 degree or equivalent. Applications will be considered on a case-by-case basis from candidates with a level 7 award in a cognate area subject to consideration of programme-specific RPL and workplace experience to establish level 8 equivalency. However, the Panel do not consider that this is explicitly |

stated with sufficient clarity in section 4.2.2 of the programme document. Furthermore, it is not stated consistently throughout the programme document, as for example in section 3.2.

**Special Condition of Approval**

**The Panel requires that the additional entry requirements and procedures for admission with a level 7 degree in a cognate area be clarified and stated explicitly and consistently in the programme document.**

The programme team confirmed during the site-visit that there is no provision for advanced entry, although this is not stated explicitly in the programme document. The Panel are in agreement with this policy and practice.

**Recommendation**

**The panel recommend that the programme documentation state that there is no provision for advanced entry onto the programme.**

The Panel is satisfied that information about the programme is provided in plain language for potential applicants onto the programme and subsequently for learners on registration. This information is provided through a range of sources as outlined in section 4.1 of the programme document. The minimum English language proficiency requirement for international applicants of IELTS level 6 level is explicitly stated in section 4.2.3.

The Panel consider that the programme title is appropriate and legitimate. It reflects the programme aims and core intended learning outcomes, and is meaningful to learners and to employers. It has long lasting significance in an area in which there is strong continuing demand for graduates: this is clearly articulated by the continuing rationale for the programme provided in section 3 of the programme document.

The programme team have identified suitable transfer and progression opportunities for programme graduates at NCI.

## 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. |
| 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. |

| Satisfactory (yes, no, partially) | Comment |
|---|---|
| **Partially** | The Panel has evaluated the proposed programme having regard 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 programme written curriculum is well structured, current, fit-for-purpose and coherent. It is 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 sections 5.1, 5.2 and 5.3 of the programme document. The proposed programme schedule is specified in section 5.12 and details for each of the constituent modules are comprehensively and consistently documented in section 6.

The Panel consider that the proposed amendments to the programme design are relevant and are well informed both by the experience of delivery over the previous five years and by the feedback received through the comprehensive stakeholder consultation undertaken as part of the self-evaluation review process, as outlined in section 6 of the SER report.

In general, the Panel was satisfied that the programme team had undertaken a comprehensive review of each module, consistent with the findings of the self-evaluation review. However, the Panel consider that the MIMLOs in a number of modules should be revised.

In particular, the Panel accept the rationale for introducing the new Business Intelligence module to replace the existing Data Visualization module, as explained in section 5.2.1 of the programme document. However, the Panel consider it important that in doing so, there is no loss of focus and emphasis on developing the learner's ability to interpret and communicate data; on data sense-making and data storytelling. |

The Panel consider that this requirement should be addressed specifically in the Business Intelligence MIMLOs.

The Panel welcome the inclusion of the new Data Governance module and the embedding of ethical awareness within all other modules, as explained in section 5.2.1 of the programme document. However, the Panel consider that the MIMLOs for the Data Governance module as written are unclear, overly complex and overly demanding and should be re-written.

The MIMLOs for the Statistics I and Statistics II modules should also be reviewed to better reflect level 8 requirements and incorporate greater specificity, as suggested during the site-visit.

**Special Condition of Approval**

**The Panel requires that the programme team review and amend the MIMLOs for the Business Intelligence, Data Governance and Statistics I and Statistics II modules.**

In general, the Panel were impressed by the quality and standard of the documentation provided. However, the Panel flagged a number of deficiencies in the module documentation requiring editing which should be addressed by the programme team including inter alia, clarifying the 'maximum number of learners per module', the 'duration of the module' and the contact hours for the Project module.

**Special Condition of Approval**

**The Panel requires that the programme team edit the module documentation to address the deficiencies flagged during the site-visit.**

The Panel has some concerns about the proposed amount of content to be covered in the programme at a standard consistent with level 8, and the implications for learner workload. In particular, the Panel consider that the programme team may be over-ambitious in their intentions in the Programming for Data Analytics and Machine Learning modules, especially in the case of learners with no computing background. In this context, the Panel note the view expressed by learners during the site visit that the programme content and workload, although demanding, was neither too much nor too little. The Panel suggest that the programme team review their experience in this regard at the end of the first cycle of delivery and subsequently.

**Recommendation**

**The Panel recommend 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 and subsequently.**

# Panel Comments and Recommendations re Specific Modules

**Statistics I (5 Credit)**

The Panel recommend that the assessment strategy be reviewed to specifically address LO 4.

**Data Governance (5 Credit)**

The Panel recommend that the nature of the proposed Assignment 1 be reconsidered.

**Business Intelligence (5 Credit)**

The Panel recommend that the assessment strategy be reviewed to ensure consideration of the learner's data sense-making and data storytelling abilities.

## Criterion 6

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

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

b) The programme has an identified complement of staff (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 opportunities.

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.

| Satisfactory (yes, no, partially) | Comment |
|---|---|
| **Yes** | The Panel has evaluated the proposed programme having regard to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme 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. All team members were actively involved in the programme review and the Panel was impressed by their evident ownership of the programme and their commitment to achieving high standards. |
| | NCI has well established process in place for staff performance management, including provision for staff induction and training, and supports for continuing professional development. |

## Criterion 7

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

| Satisfactory (yes, no, partially) | Comment |
|---|---|
| **Yes** | The Panel has evaluated the proposed programme having regard to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion. |
| | The physical resource requirements are specified in section 8 of the programme document. Due to the Covid-19 pandemic restrictions, the Panel site visit was undertaken virtually. The Panel recognises that NCI is a long-established higher education provider with a purpose-built state-of the art premises. It has significant experience in delivering ICT programmes and the Panel accept the assurances provided by the programme team and the College Executive that adequate learning spaces and other physical resources required to deliver the programme as envisaged are already in place. |
| | The programme is run on a Bring Your Own Device (BYOD) basis, but learners will be provided with all necessary software and with suitable technical support as required. |
| | Learners will have full access to the Library which has a significant online access facility. They will also have full access to all necessary IT services and related dedicated administrative supports, including to e-mail and to the Moodle system. Assessments (other than exams) will be submitted through Moodle and Turnitin (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. |

| | 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. |
|---|---|

## 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. <br> 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. <br> c) The programme includes arrangements to ensure that the parts of the programme that occur in the workplace are subject to the same rigours as any other part of the programme while having regard to the different nature of the workplace. | |
| **Satisfactory (yes, no, partially)** | **Comment** |
| **Yes** | The Panel has evaluated the proposed programme having regard to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion. <br><br> Details about the programme learning environment are provided in sections 5.8 and 5.9 of the programme document. As fully registered students of NCI, learners on the programme will have full access to all of the college's physical, organisational, social and cultural facilities. <br><br> Facilitation of learner interaction with their peers and teachers is provided for in the NCI's Learning, Teaching, and Assessment strategy, and is an integral part of the programme delivery process. |

## Criterion 9

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

| Satisfactory (yes, no, partially) | Comment |
|---|---|
| **Partially** | The Panel has evaluated the proposed programme having regard to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme partially meets this criterion. |
| | The Panel recognise that this is a well-established programme and that the programme team have significant experience in its successful delivery to date. The Panel also acknowledge the impressive manner in which the team adapted delivery to the demands of the Covid-19 emergency. |
| | The teaching and learning (including formative assessment) strategy is set out in section 5.6 of the programme document. This is supplemented by the additional information provided about the intended delivery model for each module in section 6. It was further elucidated by the programme team during the site-visit. The strategy incorporates authentic learning opportunities including through an explicit focus on the practical application of knowledge in the classroom, the use of real world examples, opportunities for learners to reference their own work-experience, the use of contemporary case studies and of guest speakers from industry. Learners are provided with opportunities to develop their transferable skills, including those referred to in section 2.9 of the programme document, through assignments and related formative feedback. |
| | Arrangements are in place for coordinating module delivery when more than one lecturer is involved and for content alignment across modules. |
| | Ensuring an evenly distributed workload was an important consideration for the programme team in changing the proposed sequencing of module delivery, as explained in section 5.2.3.1 of the programme document. The Panel's concern and related recommendation about the possibility of an overly challenging workload for learners in the re-designed programme was stated under Criterion 5 above. |
| | The experience of the learners and graduates that the Panel met during the site-visit was that the workload was demanding and challenging but manageable. They considered the topics covered to have practical relevance, and referenced the benefits of 'learning by doing', of opportunities to apply what they learned, of group working and of timely feedback from lecturers. |
| | In general, the Panel is satisfied that the programme enables learners to attain the MIPLOs, that learning is appropriately monitored, and that adequate provision is made for individualised learner guidance, support and timely feedback on progress. |
| | The Panel, however, has a concern about the lack of clarity and inadequate documentation around the delivery model for the Machine Learning and Project |

modules. This was explained by the programme team during the site-visit, including the use of a block delivery approach for the Machine Learning module. The Panel requires that this be clarified in the programme document.

**Special Condition of Approval**

**The Panel requires that the delivery model for the Machine Learning and Project modules be clarified in the programme document.**

The learners and graduates that the Panel met during the site-visit suggested that more emphasis might be given to the development of learner's presentation skills. The Panel recommend that the programme team consider the possibilities for doing so.

**Recommendation**

**The Panel recommend that the programme team consider the possibility of incorporating more opportunities for learners to develop their presentation skills.**

## 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*

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.

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.

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.

| Satisfactory (yes, no, partially) | Comment |
|---|---|
| **Partially** | The Panel has evaluated the proposed programme having regard to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme partially meets this criterion. |
| | The programme summative assessment strategy is set out in section 5.10 of the programme document and an indicative assessment strategy in tabular format in section 5.11. A variety of assessment instruments are used and each module has a minimum of two specified assessments. |
| | In general the Panel are satisfied that the programme team have given considerable thought to ensuring that assessment is appropriate and fair, that assessment is adequately aligned with learning outcomes, and that learners are not over-assessed. |
| | However, the Panel has concerns about the timing of the second element of continuous assessment in a number of modules. Requiring submission in week 13 (or even in week 14) might distract learner attention from participation in the final teaching weeks (weeks 11 to 13) and might not provide learners with the opportunity to demonstrate their achievement relative to the learning outcomes related to the content covered in the final weeks. |
| | **Special condition of approval** |
| | **The Panel requires that the programme team revise the timing of the submission of the final continuous assessment elements until after delivery of the modules has been completed.** |
| | The Panel are not satisfied that the arrangements for repeat assessments, including their nature and timing, are clearly stated in the programme document. |

**Special condition of approval**

**The Panel requires that the arrangements for the nature and timing of repeat assessments be clearly stated in the programme document.**

The Panel consider that the assessment strategy for the Project module is not clearly documented, and that it does not adequately link to demonstration of learner achievement of the module learning outcomes.

**Special condition of approval**

**The Panel requires that the programme team clarify the assessment strategy for the Project module.**

The Panel considers that scope exists for the greater use of integrative cross-modular assessments. In addition to recognising the inter-relationships of content and learning outcomes across the various modules, it may also help to address the issues of potentially excessive student workload and over-assessment

**Recommendation**

**The Panel recommend that the programme team consider incorporating a greater use of integrative cross-modular assessments into the programme assessment strategy.**

The Panel has some concerns about the adequacy of arrangements for formative assessment and provision for timely learner feedback. It also has concerns about the possibility of over-assessing learners, particularly in the context of the potential over-ambition of the programme team in their intentions that was referred to under Criterion 5 above. Accordingly, the Panel suggest that the programme team review their experience in this regard at the end of the first cycle of delivery and subsequently.

**Recommendation**

**The Panel recommend that the programme team address the Panel's concerns about assessment in reviewing the experience of delivery at the end of the first cycle and subsequently.**

# 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.
> i) If the programme aims to enrol international students it complies with the *Code of Practice for Provision of Programmes to International Students* and there are appropriate in-service supports in areas such as English language, learning skills, information technology skills and such like, to address the particular needs of international learners and enable such learners to successfully participate in the programme.
> j) The programme's learners will be well cared for and safe while participating in the programme, (e.g. while at the provider's premises or those of any collaborators involved in provision, the programme's locations of provision including any workplace locations or practice-placement locations).

| Satisfactory (yes, no, partially) | Comment |
|---|---|
| **Yes** | The Panel has evaluated the proposed programme having regard to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion. |
| | The Panel is satisfied that appropriate and adequate arrangements are in place for informing, guiding and caring for learners. In particular, this was confirmed in the Panel meeting with the learners and graduates during the site-visit who spoke positively about their experience in NCI and about the support they received from lecturers and other college staff. |
| | NCI has a long history and significant accumulated experience in the provision of part-time higher education. It has well established and comprehensive individualised learner support arrangements in place consistent with the fulfilment of a duty of care. These include learner induction and orientation, attendance monitoring and early intervention, distributed scheduling of continuous assessment, provision of timely assessment feedback, a range of academic support services (including in maths, IT, academic writing note-taking and exam preparation), disability support services, a careers and opportunities service, IT technical support and on-line administrative support. The programme-specific arrangements are outlined in sections 5.8 and 5.9 of the programme document. |

| | Enrolled learners are provided with a Programme Handbook containing all relevant programme information, including about the various supports available and how to access them. |
|---|---|
| | Staff commitment to caring for learners was clearly evident to the Panel during the virtual site-visit in its meetings with the executive, programme and support service staff. This reflects an embedded culture that is oriented towards learner care. In particular, the Panel noted the importance attached to listening and responding constructively to the student voice, and the structures and processes in place to facilitate this including, in particular, the class representative system. |

## 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 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 |
|---|---|
| **Yes** | The Panel has evaluated the proposed programme having regard to the criterion and sub-criteria and recommends that QQI can be satisfied that the programme meets this criterion.<br><br>The Panel considers that the proposed arrangements for programme management as set out in section 9 of the programme document, and as explained during the virtual site-visit, are suitable and fit-for-purpose.<br><br>This programme will be managed in accordance with NCI's quality assurance policies and procedures which are consistent with QQI guidelines and requirements. |

Completion, retention and progression rates are considered at the end of each semester at programme and College level.

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

Planning for resource requirements, including human, IT and physical resources was part of the programme review and development process, and is undertaken on an annual basis at Executive Level.

The programme team's commitment to academic quality assurance and enhancement was apparent to the Panel throughout the virtual site-visit, indicative of a culture of quality that is intrinsic to programme management and development.

Data on completion, retention and progression rates are monitored and reviewed by the programme team and by College management on a routine basis, and are used to inform practice, including for managing learner expectations and for informing strategies for improving retention as, for example, is outlined in section 3.3 of the programme self-evaluation review (SER) document. However, the Panel consider that the analysis of data on completion and withdrawals outlined in sections 3.1.3 and 6.1.2 of the SER is incomplete and lacks clarity.

**Recommendation**

**The panel recommend that the programme team clarify the analysis and monitoring of completion and withdrawals data.**

# Overall recommendation to QQI

## 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. |

## Embedded 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 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 approval.

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 where there is a significant skills gap.

The Panel commend the programme team for: the openness of their engagement during the site-visit; their evident collective ownership of and pride in the programme; their commitment to supporting learners and to ensuring they have a high quality education experience; the coherence of their shared understanding of the rationale for the programme redesign; and the enthusiasm and coherence they displayed in addressing the Panel's questions and concerns. The programme team's focus on and commitment to academic quality assurance and enhancement was evident to the Panel from the reflective and robust nature of the self-evaluation review process, the standard of the documentation provided and the constructive mind-set and approach displayed during the site-visit.

# Summary of recommended special conditions of validation

**Criterion 2**

That the MIPLOs be amended to explicitly refer to the transferable skills, including communications skills, to be gained by learners on the programme.

That a more explicit differentiation be articulated between the embedded Certificate programme MIPLOs and the principal Diploma programme MIPLOs.

**Criterion 4**

That the additional entry requirements and procedures for admission with a level 7 degree in a cognate area be clarified and stated explicitly and consistently in the programme document.

**Criterion 5**

That the MIMLOs for the Business Intelligence, Data Governance, Statistics I and Statistics II modules be reviewed and amended.

That the module documentation be edited to address deficiencies flagged during the site-visit.

**Criterion 9**

That the delivery model for the Machine Learning and Project modules be clarified in the programme document.

**Criterion 10**

That the timing of the submission of the final continuous assessment elements be revised until after delivery of the modules has been completed.

That the arrangements for the nature and timing of repeat assessments be clearly stated in the programme document.

That the assessment strategy for the Project module be clarified.

# Summary of recommendations to the provider

That the programme document state that there is no provision for advanced entry.

That the programme team address concerns about level of content and related learner workload in reviewing the experience of delivery at the end of the first cycle and subsequently.

That the Statistics I module assessment strategy be reviewed to specifically address LO 4.

That the Business Intelligence module assessment strategy be reviewed to ensure consideration of the learner's data sense-making and data storytelling abilities.

That the nature of the proposed Assignment 1 in the Data Governance module be reconsidered.

That the programme team consider the possibilities of incorporating more opportunities for learners to develop their presentation skills.

That the programme team consider incorporating a greater use of integrative cross-modular assessments into the programme assessment strategy.

That the programme team address concerns about assessment in reviewing the experience of delivery at the end of the first cycle and subsequently.

That the programme team clarify the analysis and monitoring of completion and withdrawals data.

## Declarations of Evaluators' Interests

No interests have been declared by members of the revalidation panel that would affect the impartiality of the panel and its ability to make a recommendation to QQI regarding the revalidation of the primary programme and the two embedded programmes.

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

Signed:    H. Mc Bride

02/03/2021

Panel chairperson:  Hugh Mc Bride

## Disclaimer

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## 8.3    Proposed programme and stage schedules

Proposed programme schedule of the Higher Diploma in Data Analytics (1 Year Full-time & Part-time Delivery)

| Name of Provider: | National College of Ireland |
|---|---|
| Programme Title | Higher Diploma in Science in Data Analytics |
| Award Title | Higher Diploma in Science in Data Analytics |
| Stage Exit Award Title[3] | Certificate in Data Analytics |
| Modes of Delivery (FT/PT): | Full-Time & Part Time |
| Teaching and learning modalities | Direct contact (face-to-face) via lectures and demonstrations, Synchronous On-line Learning/Blended |

| Class | NFQ level | EQF Level | Stage (1, 2, 3, 4, …, or Award Stage): | NFQ Level | EQF Level | Credit (ECTS) | Date Effective | ISCED Subject code |
|---|---|---|---|---|---|---|---|---|
| Major | 8 | 6 | Award Stage | 8 | 6 | 60 | September 2021 | 0612 |

| Module Title (Up to 70 characters including spaces) | Semester no where applicable. (Semester 1 or Semester2) | Module Status | NFQ Level where specified | Credit Units ECTS | Total Hours | Contact Hours | eLearning | Hours of Independent Learning | Work-based learning effort | C.A. % | Supervised Project % | Proctored practical demonstration % | Proctored written exam % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistics I | 1 | M | 8 | 5 | 125 | 36 | | 89 | | 40 | | | 60 |
| Programming for Data Analytics | 1 | M | 8 | 10 | 250 | 60 | | 190 | | 100 | | | |
| Data Governance | 1 | M | 8 | 5 | 125 | 36 | | 89 | | 100 | | | |
| Statistics II | 2 | M | 8 | 5 | 125 | 36 | | 89 | | 50 | | | 50 |
| Databases for Analytics | 2 | M | 8 | 10 | 250 | 60 | | 190 | | 50 | | | 50 |
| Business Intelligence | 2 | M | 8 | 5 | 125 | 36 | | 89 | | 100 | | | |
| Machine Learning | 3 | M | 8 | 10 | 250 | 60 | | 190 | | 100 | | | |
| Project | 3 | M | 8 | 10 | 250 | 36 | | 214 | | 100 | | | |

**Special Regulations:** N/A.

Proposed programme schedule of the Higher Diploma in Data Analytics (2-Year Part Time Delivery)

| Name of Provider: | National College of Ireland |
|---|---|
| Programme Title | Higher Diploma in Science in Data Analytics |
| Award Title | Higher Diploma in Science in Data Analytics |
| Stage Exit Award Title[3] | Certificate in Data Analytics |
| Modes of Delivery (FT/PT): | Part-Time |
| Teaching and learning modalities | Direct contact (face-to-face) via lectures and demonstrations, Synchronous On-line Learning/Blended |

| Class | NFQ level | EQF Level | Stage (1, 2, 3, 4, …, or Award Stage): | NFQ Level | EQF Level | Credit (ECTS) | Date Effective | ISCED Subject code |
|---|---|---|---|---|---|---|---|---|
| Major | 8 | 6 | Award Stage | 8 | 6 | 60 | September 2021 | 0612 |

| Module Title (Up to 70 characters including spaces) | Semester no where applicable. (Semester 1 or Semester2) | Status | NFQ Level where specified | Credit Units / ECTS | Total Hours | Contact Hours | eLearning | Hours of Independent Learning | Work-based learning | C.A. % | Supervised Project % | Proctored practical demonstration % | Proctored written exam % | Proctored written exam % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Statistics I | 1 | M | 8 | 5 | 125 | 36 | | 89 | | 40 | | | | 60 |
| Programming for Data Analytics | 1 | M | 8 | 10 | 250 | 60 | | 190 | | 100 | | | | |
| Statistics II | 2 | M | 8 | 5 | 125 | 36 | | 89 | | 50 | | | | 50 |
| Data Governance | 2 | M | 8 | 5 | 125 | 36 | | 89 | | 100 | | | | |
| Business Intelligence | 2 | M | 8 | 5 | 125 | 36 | | 89 | | 100 | | | | |
| Databases for Analytics | 3 | M | 8 | 10 | 250 | 60 | | 190 | | 50 | | | | 50 |
| Machine Learning | 3 | M | 8 | 10 | 250 | 60 | | 190 | | 100 | | | | |
| Project | 4 | M | 8 | 10 | 250 | 36 | | 214 | | 100 | | | | |

**Special Regulations:** N/A.

National College of Ireland

**Programme Revalidation**

**Higher Diploma in Science in Data Analytics**

**Programme Team Response to IPRR**

February 2021

## TABLE OF CONTENTS

# 1    INTRODUCTION

The programme team for the review and revalidation of the Higher Diploma in Science in Data Analytics would like to express their appreciation to the Expert Panel for their deliberations and valuable feedback. The proposed programme has undergone a set of considered amendments based on the panel's feedback. The response to each of the conditions and recommendations made by the panel in light of the evaluation against the validation criteria are detailed below.

# 2    RESPONSES TO CONDITIONS OF VALIDATION

## 2.1    Condition 1

That the MIPLOs be amended to explicitly refer to the transferable skills, including communications skills, to be gained by learners on the programme.

**Special Condition of Approval**--------------------------------------------------------------------------------------

The Panel requires that the MIPLOs be amended to explicitly refer to the transferable skills, including communications skills, to be gained by learners on the programme.

The Panel however has concerns about gaps in the **articulation of intention in the MIPLOs**. In particular, that the MIPLOs do not explicitly refer to the communication and other transferable skills to be gained by learners on the programme.
In this context, the Panel note that t**he transferable skills to be developed by programme learners are explicitly linked to MIMLOs in Table 4 in section 2.9.**
This is also referenced in sections 5.6.1 and at the end of section 5.6.3.
The Panel consider that reference to the enhancement of learner transferable skills should be explicitly incorporated into the MIPLOs.

MIPLO2 and MIPLO4 have now changed to explicitly refer to transferable skills (e.g., communication skills) as follows:

**Now**: MIPLO2: "Generate insights using business intelligence techniques to make sense of data in order to solve **and explain** real world business problems"

> **Before** "Generate insights using business intelligence techniques to make sense of data in order to solve real world business problems"

**Now**: MIPLO4: "Assess and evaluate data governance frameworks to ensure best practice in managing data consistently throughout the organization in order to support **and communicate** business outcomes"

**Before** "Assess and evaluate data governance frameworks to ensure best practice in managing data consistently throughout the organization in order to support business outcomes"

All the changes of MIPLOs have been reflected in the document.

## 2.2   Condition 2

That a more explicit differentiation be articulated between the embedded Certificate programme MIPLOs and the principal Diploma programme MIPLOs.

**Special Condition of Approval--------------------------------------------------------------------------------**

The Panel requires that a more explicit differentiation be articulated between the embedded Certificate programme MIPLOs and the principal Diploma programme MIPLOs.

The Panel is also concerned that the MIPLOs as stated for the embedded Certificate programme are the same as for the principal Diploma programme other than MIPLO 6. Following discussions with the programme team during the site visit, the Panel is satisfied that the difference is greater than that suggested by section 2.4.1 of the programme document. The Panel require that the difference between the MIPLOs for the Certificate and for the Diploma should be more explicitly articulated in this section of the programme document.

To address this comment, MIPLO5 has been changed to "Apply database skills on modelling scalable real-world problems"

Now the exit certificate contains only the first four MIPLOs.

All the changes of MIPLOs have been reflected in the document.

## 2.3   Condition 3

That the additional entry requirements and procedures for admission with a level 7 degree in a cognate area be clarified and stated explicitly and consistently in the programme document.

**Special Condition of Approval------------------------------------------------------------------------**

The Panel requires that the additional entry requirements and procedures for admission with a level 7 degree in a cognate area be clarified and stated explicitly and consistently in the programme document.

The minimum entry requirement is a level 8 degree or equivalent. Applications will be considered on a case-by-case basis from candidates with a level 7 award in a cognate area subject to consideration of programme-specific RPL and workplace experience to establish level 8 equivalency. However, the Panel do not consider that this is explicitly stated with sufficient clarity in section 4.2.2 of the programme document. Furthermore, it is not stated consistently throughout the programme document, as for example in section 3.2.

Section 4.2.2 is now clarified, and we have stated explicitly and consistently in the document that level 7 degrees in a cognate area will also be considered for direct access. See section below. In addition, regarding non-standard applications at the end of the document, we specifically mention the corresponding section 4.2.7 on RPEL criteria, and arrangements for entry.

**Section 4.2.2 (changed to)**
"Applications to the Higher Diploma in Data Analytics will be accepted from prospective learners who have an Honours Degree (level 8) qualification. A level 8 degree or its equivalent in any discipline is eligible to apply for this programme. Candidates with level 7 degree in a cognate area will also be considered for direct access into the programme. Non-standard applications will be also considered on an individual basis (see section 4.2.7 on RPEL criteria, and arrangements for entry)."

In addition, section 3.2 has been modified as follows in order to provide clarity and consistency.

**Section 3.2 (changed to)**
"This programme is for non-technical professionals and college graduates from non-technical disciplines in a cognate area who have an Honours Degree (level 8) qualification on the National Framework of Qualification or a level 7 degree in a cognate area. This course will appeal to learners who wish to change their non-ICT qualification into the computer science field through a level 8 award in computing.

It will also appeal to technical and non-technical professionals who would like to upgrade their skills in this programme, helping them to progress faster in their employment or to apply the knowledge in their current role.

 Non-standard applications will be also considered on an individual basis."

## 2.4    Condition 4

That the **MIMLOs** for the Business Intelligence, Data Governance, Statistics I and Statistics II modules be reviewed and amended.

**Special Condition of Approval**--------------------------------------------------------------------------------

The Panel requires that the programme team review and amend the MIMLOs for the Business Intelligence, Data Governance and Statistics I and Statistics II module

**Business Intelligence**

However, the Panel consider it important that in doing so, there is no loss of focus and emphasis on developing the learner's ability to interpret and communicate data; on data sense-making and data storytelling. The Panel consider that this requirement should be addressed specifically in the Business Intelligence MIMLOs.

**Data Governance**

The Panel welcome the inclusion of the new Data Governance module and the embedding of ethical awareness within all other modules, as explained in section 5.2.1 of the programme document. However, the Panel consider that the MIMLOs for the Data Governance module as written are unclear, overly complex and overly demanding and should be re-written

**Statistics I and Statistics II**

The MIMLOs for the Statistics I and Statistics II modules should also be reviewed to better **reflect level 8 requirements** and incorporate greater specificity, as suggested during the site-visit.

**Business Intelligence**: MIMLOs 2, 3 and 4 have been reviewed and revised to take into account panel comments.  In relation to the most significant edit (MIMLO 4), the list of roles has been shortened (a proposition/comments of Chair about it being too long) rather than left as it is (a proposition/comments of panel member about liking clear overview of roles and responsibilities).

In addition, we have updated the existing MIMLO to include storytelling of data, addressing an audience/ data consumers within an industry context in line with an industry BI/DA role for effective delivery of information and structure of Visualizations. Proficiency of storytelling will have a particular emphasis during delivery and will be expected and assessed throughout through the use of roleplay and assessment criteria.

In addition, for the BI module, the following sections are updated:

1. Teaching and Learning to include more specific tools to BI module.
2. Assessment Strategy to include more specific info on the module assessment tasks
3. Updated MIMLO4 in line with Panel comments , callout "StoryTelling", "Addressing an Audience", "Softskills of communications" e.g.with the ability to become proficient in storytelling of data, addressing audiences in an industry context and build upon key soft skills of communication in a BI role.
4. Updated Repeat Assessment Strategy Clarifying the route for repeat assessment
5. Update Assessment Strategy pg130 for BI module, the purpose of having both a theory based and practical based assessment.

**Data Governance:** The proposed 5 MIMLOs for the Data Governance modules (Section 6.3.2) have been reviewed in the light of the above comments from the panel and during the consultation. LO4 (covering stakeholders, roles and responsibilities) has been reduced by approximately half and MIMLO's LO2 (regulatory and legislative requirements) and LO3 (ethical underpinnings) have been edited to reduce complexity and improve clarity.  Those remaining LO1 and LO5 are considered to be clear and concise.

1) For the Data Governance module, MIMLOs 2, 3 and 4 have been reviewed and revised to take into account panel comments.  In relation to the most significant edit (MIMLO 4), the list of roles has been shortened.

**Statistics I**: MIMLOs 1,2 and 3 have been amended in response to Panel's comments.

1) In Statistics 1, use of standard statistical software for calculation has been included in the outline of the Continuous Assessment to address the comments made about its inclusion in the curriculum but absence in the assessment.

**Statistics II**:

1) Communication and transferable skills are now explicitly shown in Statistics II's MIPLOs (LO4 & LO5 in Table 1b).
2) Communication, problem solving, and teamwork are now mentioned in the module assessment as well (Sec. 6.5.6.)

## 2.5   Condition 5

That the module documentation be edited to address deficiencies flagged during the site-visit.


**Special Condition of Approval**-------------------------------------------------------------------------------

The Panel requires that the programme team edit the module documentation to address the deficiencies flagged during the site-visit.

However, the Panel flagged a number of deficiencies in the module documentation requiring editing which should be addressed by the programme team including inter alia, clarifying the '**maximum number of learners per module**', the '**duration of the module**' and the **contact hours for the Project module.**

Such deficiencies are now addressed. Section 5.4 in now updated to concur with the actual delivered contact hours of 2 hours Lecture and 1-hour Lab, as stated in the Project module description (Section 6.8).

## 2.6    Condition 6

That the delivery model for the **Machine Learning** and **Project** modules be clarified in the programme document.

**Special Condition of Approval**-------------------------------------------------------------------------------

The Panel requires that the delivery model for the Machine Learning and Project modules be clarified in the programme document.

The Panel, however, has a concern about the lack of clarity and inadequate documentation around the delivery model for the Machine Learning and Project modules. This was explained by the programme team during the site-visit, including the use of a block delivery approach for the Machine Learning module. The Panel requires that this be clarified in the programme document.

The **Machine Learning** module will be delivered in 12 weeks in the 2-Year Programme and in 6 weeks (block delivery model) in the 1-Year Programme.

Clarifications about these different delivery models for this module in specific have been added in Section 5.4 – Indicative timetable and its rationale, Section 5.11 – Indicative assessment schedule, and Section 6.7 – Machine Learner module descriptor.

In Section 5.4, a note was inserted to highlight that the indicative timetable presented refers to the 2-Year Programme.

In Section 5.1, the Indicative assessment schedule table has been duplicated to represent the assessment schedules for the 1-Year and 2-Year Programmes. A note was also added to highlight the block delivery model of the Machine Learning module in the 1-Year Programme.

In Section 6.7, the module descriptor has been amended to inform that the module can be delivered in 6 weeks 10 works per week in the 1-Year Programme, or in 12 weeks 5 hours per week in the 2-Year Programme. Because the content and sequence of topics covered in the 1-Year and 2-Year Programmes are the same, we maintained a single Module Descriptor for both Programmes.

In general, for the machine learning module, the following changes has been performed.

a) Updated Section 5.11 to distinguish the indicative assessment schedule for the 1-Year and 2-Year Higher Diploma in Data Analytics Programme.
b) Modified the "Duration of the module" and "Average (over the duration of the module) of the contact hours per week" to reflect the correct number of weeks and contact hours per week for the 1-Year and 2-Year Higher Diploma in Data Analytics Programme.
c) Updated Learning Outcome 2 (LO2) from "Recognise the ethical implications of machine learning" to "Comprehend and assess potential ethical implications of machine learning"
d) Updated the Project description to include more explicitly the assessment of ethical implications of machine learning.

Regarding the Project module, Section 5.4 has updated to concur with the actual delivered contact hours of 2 hours Lecture and 1 hour Lab, as stated in the Project module description (Section 6.8).

## 2.7 Condition 7

That the **timing of the submission of the final continuous assessment elements** be revised until after delivery of the modules has been completed.

**Special Condition of Approval**-------------------------------------------------------------------------------

The Panel requires that the programme team revise the timing of the submission of the final continuous assessment elements until after delivery of the modules has been completed.

The programme summative assessment strategy is set out in section 5.10 of the programme document and an indicative assessment strategy in tabular format in section 5.11. A variety of assessment instruments are used and each module has a minimum of two specified assessments.

In general the Panel are satisfied that the programme team have given considerable thought to ensuring that assessment is appropriate and fair, that assessment is adequately aligned with learning outcomes, and that learners are not over-assessed.

However, the Panel has concerns about the timing of the second element of continuous assessment in a number of modules. Requiring submission in week 13 (or even in week 14)

All learning objectives and related content are covered early enough (in time) to allow students to appropriately prepare for their assessments in week 13 or even week 14. Usually, the last week students do a revision upon the topics they have learned. In addition, for modules that have an exam component, the final week's learning objectives and related content are assessed by this component.

Now, in particular for the Machine Learning module, that is delivered in 6 weeks instead of 12 weeks, in the 1 year – FT/PT delivery model. This means that the contact hours per week is doubled. This structure does not impact students learning because this is the only module, they have to attend lectures in Semester 3.

## 2.8    Condition 8

That the arrangements for the **nature and timing of repeat assessments** be clearly stated in the programme document.

**Special Condition of Approval**--------------------------------------------------------------------------------

The Panel are not satisfied that the arrangements for repeat assessments, including their nature and timing, are clearly stated in the programme document.

**The Panel requires that the arrangements for the nature and timing of repeat assessments be clearly stated in the programme document.**

We have updated section 5.10.2 "Strategies to be employed for repeat assessment" as follows. That includes more information and clarity about the nature and timing - different assessment periods.

"Candidates complete the repeat assessment for the module as noted in the module descriptors, if they do not successfully pass the module.

The repeat examinations of component assessments and assignments will take place as close as possible to the point in time where the learned failed the module. Usually, that is the next assessment period and before the exam period. The format, as determined by the Programme Committee, may be either written assignment or examination.

Learners may build on prior work from the component assessments.

Typically, the repeat assessment period for students started in September takes place on the second half of August, for example from 12/08/2021 to 28/08/2021. For semester 3 the repeat/deferral session takes place in January

For students who started in January, the repeat/deferral session for semester 1 and 2 takes place in January, for example from 05/01/2021 to 16/01/2021. For semester 3 the repeat/deferral session takes place in May.

Students can register for repeats once the semester results have been released.

Students who have attempted the repeat assessment and are unsuccessful are required to repeat by attending their module."

## 2.9   Condition 9

That the **assessment strategy for the Project** module be clarified

s**pecial Condition of Approval**-------------------------------------------------------------------------------
The Panel requires that the programme team clarify the assessment strategy for the Project module.

The Panel consider that the **assessment strategy** for the **Project** module is not clearly documented, and that it does not adequately link to demonstration of learner achievement of the module learning outcomes.

Regarding the assessment strategy for the Project module three separate sample continuous assessments were uploaded to the CA directory last November.  Also, additional information included to the Project Section 6.8.6 around one-to-one in-class feedback. The associated assessments and rubrics can be mapped directly back to the MIMLOs.

## 3.1    Recommendation 1

That the programme document state that there is no provision for **advanced entry**.

**The panel recommend that the programme documentation state that there is no provision for advanced entry onto the programme.**

The programme team confirmed during the site-visit that there is no provision for advanced entry, although this is not stated explicitly in the programme document. The Panel are in agreement with this policy and practice.

>> David  … I can provide this extra text for you

## 3.2    Recommendation 2

That the programme team address concerns about level of content and related learner **workload** in reviewing the experience of delivery at the end of the first cycle and subsequently.

**Recommendation**

**The Panel recommend 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 and subsequently.**

The Panel has some concerns about the proposed amount of content to be covered in the programme at a standard consistent with level 8, and the implications for learner workload. In particular, the Panel consider that the programme team may be **over-ambitious** in their intentions in the **Programming for Data Analytics** and **Machine Learning** modules, especially in the case of learners with **no computing background**.
In this context, the Panel note the view expressed by learners during the site visit that the programme content and workload, **although demanding, was neither too much nor too little.** The Panel suggest that the programme team review their experience in this regard at the end of the first cycle of delivery and subsequently.

**General Comment:** As suggested at the end of the first cycle we are going to review the learner's experience, evaluate their feedback and accordingly we make any necessary adjustments.

**Specifically in relation to Machine Learning:** The Machine Learning module is delivered in Semester 3. At this stage, we expect that learners will have improved their computing skills to understand and apply the methods and techniques covered in the module.

To address this concern, we have reduced the number of topics reviewed in Lecture 1 regarding regulatory & privacy components and data exploration statistics that have been covered in-depth in the Data Governance and Statistics modules respectively. In addition, we split Lecture 2 (Data Pre-processing) in 2 Lectures to allow a gradual introduction of the learners to the tools used in the module and an adjustment to the core Machine Learning concepts.

We will review the learner's experience at the end of the first cycle as suggested and make small adjustments based on this experience.

**Specifically in relation to Programming for Data Analytics**: The module content has been designed taking into account:

- The learner needs, especially those with no prior programming experience (the vast majority),
- The technical needs of subsequent modules,
- The module's upgrade to 10 credits and consequent increase in contact hours, and
- All prior student feedback

While the outline of the new module addresses a larger variety of topics compared to the existing one, one of the most important aspects of the module is that the actual content is not overwhelming to students.

In addition, initial content will be adjusted regularly in response to both direct and indirect student feedback.

## 3.3   Recommendation 3

That the **Statistics I** module assessment strategy be reviewed to specifically address LO 4.

The continuous assessment description has been amended to include "use of standard statistical software for calculation and the visual presentation of data" in response to the Panel's comments (Task 2 and Task 3).

## 3.4   Recommendation 4

> That the **Business Intelligence** module assessment strategy be reviewed to ensure consideration of the learner's data sense-making and data storytelling abilities.

MIMLO4 was updated in line with Panel comments , callout "StoryTelling", "Addressing an Audience", "Softskills of communications" for example with the ability to become proficient in storytelling of data, addressing audiences in an industry context and build upon key soft skills of communication in a BI role. In particular, proficiency of storytelling will have a particular emphasis during delivery and will be expected and assessed throughout through the use of roleplay and assessment criteria

## 3.5   Recommendation 5

> That the nature of the proposed Assignment 1 in the **Data Governance** module be reconsidered.

Assignment 1 originally proposed an **in-class test** of main data governance definitions and legislative requirements to show knowledge and application of LO1 (concepts and policies) and LO2 (regulatory and legislative requirements), valued at 40% of total module marks and administered at Week 5.   This was originally envisaged as an efficient way to test student's understanding of a range of definitional terms and concepts (for example, data quality, data provenance etc) as well as knowledge of key data protection legislation and cases (for example, GDPR provisions, specific court decisions).

However, given the still to be clarified position in relation to in-class attendance over the medium term and the panel recommendation that there should be a greater focus on presentation skills in the module (see below), Assignment 1 will be configured on the lines of a group assignment where each group must argue a proposition related to the items covered in LO1 and LO2 in a debate style format. [An alternative would be for groups to present a critical review of a recent academic work in the field followed by a question-and-answer session]. This could take place in both online and in person formats.

Given the group nature of the assignment, it is considered that the weighting should be reduced to 30% with a consequent increase of the weighting for the second assignment. On this basis it is proposed to replace the table in the programme document with the following:

Module summative assessment strategy (revised)

| Assessment Type | Assessment Description | Assessment Learning Outcomes | Assessment Percentage of Total Mark | Assessment Timing |
|---|---|---|---|---|
| Assignment 1 | Group assignment where each team has to argue a proposition related to the items | LO1, LO2 | 30% | Weeks 4-10 (contingent |

| | covered in the first part of the course in a debate style format | | | on number students) |
|---|---|---|---|---|
| Assignment 2 | Application of learning from course to analyse a case study organisation and design a data governance framework and strategy | LO1, LO2, LO3, LO4, LO5 | 70% | Week 13 |

Module summative assessment strategy (previous version)

| Assessment Type | Assessment Description | Assessment Learning Outcomes | Assessment Percentage of Total Mark | Assessment Timing |
|---|---|---|---|---|
| Assignment 1 | In-class test of main data governance definitions and legislative requirements. | LO1, LO2 | 40% | Week 5 |
| Assignment 2 | Application of learning from course to analyse a case study organisation and design a data governance framework and strategy through the preparation of a report and infographic | LO1, LO2, LO3, LO4, LO5 | 60% | Week 13 |

## 3.6    Recommendation 6

That the programme team consider the possibilities of incorporating more opportunities for learners to develop their **presentation skills.**

The learners and graduates that the Panel met during the site-visit suggested that more emphasis might be given to the development of learner's presentation skills. The Panel recommend that the programme team consider the possibilities for doing so.

The programme incorporates many opportunities for learners to develop their presentation skills across different modules. For example

**Statistics 1:** The continuous assessment description has been amended to include "use of standard statistical software for calculation and the visual presentation of data" in response to the Panel's comments (Task 2 and Task 3).

**Business Intelligence:**  The proposed change in Assignment 1 will partially address this.  Assignment 2 will be expanded to require the presentation of either an infographic summarising the key features of the proposed framework and strategy.

**Machine Learning:**  To contemplate the request to give more emphasis to the development of learner's presentation skills, the Project assessment has been amended. The Project will require the

learners to "elaborate a video presentation highlighting the project's main objectives, methodology, main findings, challenges faced".

**Programming for Data Analytics:** The module will incorporate a subsection for UX, common conventions and good habits for presenting data analysis results via graphs. This has been added to the Lecture Detail column of Lecture 11 (Introduction to Matplotlib).

**Project**: There is now a separate presentation assessment document, outlining how the presentation of the project will be assessed, along with the associated rubric.

## 3.7    Recommendation 7

That the programme team consider incorporating a greater use of integrative cross-modular assessments into the programme assessment strategy.

The learners and graduates that the Panel met during the site-visit suggested that more emphasis might be given to the development of learner's presentation skills. The Panel recommend that the programme team consider the possibilities for doing so.

After the delivery of the first cycle and based upon the feedback we receive from students and lecturers we may consider the use of integrative cross-modular assessments.

## 3.8    Recommendation 8

That the programme team address concerns about assessment in reviewing the experience of delivery at the end of the first cycle and subsequently.

The Panel has some concerns about the adequacy of arrangements for formative assessment and provision **for timely learner feedback**. It also has concerns about the possibility of **over-assessing learners**, particularly in the context of the potential over-ambition of the programme team in their intentions that was referred to under Criterion 5 above. Accordingly, the Panel suggest that the programme team **review their experience in this regard at the end of the first cycle of delivery and subsequent**ly.

As suggested at the end of the first cycle we are going to review the learner's experience, evaluate their feedback and accordingly we make any necessary adjustments in terms of their workload and the potential over-assessing of learners.

We are also committed to give feedback on assessment in a timely manner. In particular, the continuous assessment schedule provides the weeks in which feedback will be given to the learners on that particular assessment. This feedback will be delivered as general class level feedback at a minimum but will often take the form of individual feedback depending on the nature of the assessment. Regarding, assessment feedback is normally provided to learners two weeks after submission date, except in the case of terminal assessments.

## 3.9    Recommendation 9

That the programme team clarify the analysis and monitoring of completion and withdrawals data.

Data on completion, retention and progression rates are monitored and reviewed by the programme team and by College management on a routine basis, and are used to inform practice, including for managing learner expectations and for informing strategies for improving retention as, for example, is outlined in section 3.3 of the programme self-evaluation review (SER) document. However, the Panel consider that the analysis of data on completion and withdrawals outlined in sections 3.1.3 and 6.1.2 of the SER is incomplete and lacks clarity.

We would continue to analyse data on programme withdrawals and completions under our annual monitoring process.

**Gustavio changes (ML)**

1) For the machine learning module, the following changes has been performed.
    a.) Updated Section 5.11 to distinguish the indicative assessment schedule for the 1-Year and 2-Year Higher Diploma in Data Analytics Programme.
    b.) Modified the "Duration of the module" and "Average (over the duration of the module) of the contact hours per week" to reflect the correct number of weeks and contact hours per week for the 1-Year and 2-Year Higher Diploma in Data Analytics Programme.
    c.) Updated Learning Outcome 2 (LO2) from "Recognise the ethical implications of machine learning" to "Comprehend and assess potential ethical implications of machine learning"
    d.) Updated the Project description to include more explicitly the assessment of ethical implications of machine learning.
2) For the project module, Sample CAs uploaded to the CA directory. Also added info to the Project Section 6.8.6 around one-to-one in-class feedback

**Sean Heeney [Business Intelligence]**

Updated Module, Teaching and Learning pg127 to include more specific tools to BI module.

Updated Module Assessment Strategy pg130 to include more specific info on the module assessment tasks

Updated MIMLO4 pg17 & pg125 inline with Panel comments , callout "StoryTelling", "Addressing an Audience", "Softskills of communications" e,g with the ability to become proficient in storytelling of data, addressing audiences in an industry context and build upon key soft skills of communication in a BI role.

Updated Repeat Assessment Strategy Clarifying the route for repeat assessment pg130

Update Assessment Strategy pg130 for BI module , the purpose of having both a theory based and practical based assessment

**Sean Heeney [Business Intelligence]**

National College of Ireland

**Programme Revalidation**

# Higher Diploma in Science in Data Analytics

**Panel Acknowledgement of Programme Team Response**

February 2020

Panel acknowledgment of NCI response to the Conditions of Validation and the Recommendations to the Provider for the enhancement of the programme documentation and programme delivery.

| Condition 1 | Action Taken | Panel's Comment |
|---|---|---|
| The Panel requires that the MIPLOs be amended to explicitly refer to the transferable skills, including communications skills, to be gained by learners on the programme. | MIPLO2 and MIPLO4 have now changed to explicitly refer to transferable skills (e.g., communication skills) as follows:<br><br>Now: MIPLO2: "Generate insights using business intelligence techniques to make sense of data in order to solve and explain real world business problems"<br><br>Before "Generate insights using business intelligence techniques to make sense of data in order to solve real world business problems"<br><br>Now: MIPLO4: "Assess and evaluate data governance frameworks to ensure best practice in managing data consistently throughout the organization in order to support and communicate business outcomes"<br><br>Before "Assess and evaluate data governance frameworks to ensure best practice in managing data consistently throughout the organization in order to support business outcomes"<br><br>All the changes of MIPLOs have been reflected in the document. | The Panel is satisfied that the Programme Team have sufficiently responded to the Special Condition of Validation |
| **Condition 2** | **Action Taken** | **Panel's Comment** |
| The Panel requires that a more explicit differentiation be articulated between the embedded Certificate programme MIPLOs and the principal Diploma programme MIPLOs. | To address this comment, MIPLO5 has been changed to "Apply database skills on modelling scalable real-world problems"<br><br>Now the exit certificate contains only the first four MIPLOs.<br><br>All the changes of MIPLOs have been reflected in the document. | The Panel is satisfied that the Programme Team have sufficiently responded to the Special Condition of Validation |
| **Condition 3** | **Action Taken** | **Panel's Comment** |
| The Panel requires that the additional entry requirements | Section 4.2.2 is now clarified, and we have stated explicitly and consistently in the document that level 7 degrees in a cognate area will also be considered for direct | The Panel is satisfied that the Programme Team have |

| and procedures for admission with a level 7 degree in a cognate area be clarified and stated explicitly and consistently in the programme document. | access. See section below. In addition, regarding non-standard applications at the end of the document, we specifically mention the corresponding section 4.2.7 on RPEL criteria, and arrangements for entry.<br>Section 4.2.2 (changed to)<br>"Applications to the Higher Diploma in Data Analytics will be accepted from prospective learners who have an Honours Degree (level 8) qualification. A level 8 degree or its equivalent in any discipline is eligible to apply for this programme. Candidates with level 7 degree in a cognate area will also be considered for direct access into the programme. Non-standard applications will be also considered on an individual basis (see section 4.2.7 on RPEL criteria, and arrangements for entry)."<br>In addition, section 3.2 has been modified as follows in order to provide clarity and consistency.<br>Section 3.2 (changed to)<br>"This programme is for non-technical professionals and college graduates from non-technical disciplines in a cognate area who have an Honours Degree (level 8) qualification on the National Framework of Qualification or a level 7 degree in a cognate area. This course will appeal to learners who wish to change their non-ICT qualification into the computer science field through a level 8 award in computing. It will also appeal to technical and non-technical professionals who would like to upgrade their skills in this programme, helping them to progress faster in their employment or to apply the knowledge in their current role.<br><br>Non-standard applications will be also considered on an individual basis." | sufficiently responded to the Special Condition of Validation |
| **Condition 4** | **Action Taken** | **Panel's Comment** |
| The Panel requires that the programme team review and amend the MIMLOs for the Business Intelligence, Data Governance and Statistics I and Statistics II module. | Business Intelligence: MIMLOs 2, 3 and 4 have been reviewed and revised to take into account panel comments.  In relation to the most significant edit (MIMLO 4), the list of roles has been shortened (a proposition/comments of Chair about it being too long) rather than left as it is (a proposition/comments of panel member about liking clear overview of roles and responsibilities).<br>In addition, we have updated the existing MIMLO to include storytelling of data, addressing an audience/ data consumers within an industry context in line with an industry BI/DA role for effective delivery of information and structure of Visualizations. Proficiency of storytelling will have a particular emphasis during | The Panel is satisfied that the Programme Team have sufficiently responded to the Special Condition of Validation |

| | delivery and will be expected and assessed throughout through the use of roleplay and assessment criteria.

In addition, for the BI module, the following sections are updated:

1.      Teaching and Learning to include more specific tools to BI module.
2.      Assessment Strategy to include more specific info on the module assessment tasks
3.      Updated MIMLO4 in line with Panel comments , callout "StoryTelling", "Addressing an Audience", "Softskills of communications" e.g.with the ability to become proficient in storytelling of data, addressing audiences in an industry context and build upon key soft skills of communication in a BI role.
4.      Updated Repeat Assessment Strategy Clarifying the route for repeat assessment
5.      Update Assessment Strategy pg130 for BI module, the purpose of having both a theory based and practical based assessment.

Data Governance: The proposed 5 MIMLOs for the Data Governance modules (Section 6.3.2) have been reviewed in the light of the above comments from the panel and during the consultation. LO4 (covering stakeholders, roles and responsibilities) has been reduced by approximately half and MIMLO's LO2 (regulatory and legislative requirements) and LO3 (ethical underpinnings) have been edited to reduce complexity and improve clarity.  Those remaining LO1 and LO5 are considered to be clear and concise.

1)      For the Data Governance module, MIMLOs 2, 3 and 4 have been reviewed and revised to take into account panel comments.  In relation to the most significant edit (MIMLO 4), the list of roles has been shortened.

Statistics I:  MIMLOs 1,2 and 3 have been amended in response to Panel's comments. | |

| 1) In Statistics 1, use of standard statistical software for calculation has been included in the outline of the Continuous Assessment to address the comments made about its inclusion in the curriculum but absence in the assessment. Statistics II: 1) Communication and transferable skills are now explicitly shown in Statistics II's MIPLOs (LO4 & LO5 in Table 1b). 2) Communication, problem solving, and teamwork are now mentioned in the module assessment as well (Sec. 6.5.6.) | | |
|---|---|---|
| **Condition 5** | **Action Taken** | **Panel's Comment** |
| The Panel requires that the programme team edit the module documentation to address the deficiencies flagged during the site-visit. | Such deficiencies are now addressed. Section 5.4 in now updated to concur with the actual delivered contact hours of 2 hours Lecture and 1-hour Lab, as stated in the Project module description (Section 6.8). | The Panel is satisfied that the Programme Team have sufficiently responded to the Special Condition of Validation |
| **Condition 6** | **Action Taken** | **Panel's Comment** |
| The Panel requires that the delivery model for the Machine Learning and Project modules be clarified in the programme document. | The Machine Learning module will be delivered in 12 weeks in the 2-Year Programme and in 6 weeks (block delivery model) in the 1-Year Programme. Clarifications about these different delivery models for this module in specific have been added in Section 5.4 – Indicative timetable and its rationale, Section 5.11 – Indicative assessment schedule, and Section 6.7 – Machine Learner module descriptor. In Section 5.4, a note was inserted to highlight that the indicative timetable presented refers to the 2-Year Programme. In Section 5.1, the Indicative assessment schedule table has been duplicated to represent the assessment schedules for the 1-Year and 2-Year Programmes. A note was also added to highlight the block delivery model of the Machine Learning module in the 1-Year Programme. | The Panel is satisfied that the Programme Team have sufficiently responded to the Special Condition of Validation |

In Section 6.7, the module descriptor has been amended to inform that the module can be delivered in 6 weeks 10 works per week in the 1-Year Programme, or in 12 weeks 5 hours per week in the 2-Year Programme. Because the content and sequence of topics covered in the 1-Year and 2-Year Programmes are the same, we maintained a single Module Descriptor for both Programmes.

In general, for the machine learning module, the following changes has been performed.
a)      Updated Section 5.11 to distinguish the indicative assessment schedule for the 1-Year and 2-Year Higher Diploma in Data Analytics Programme.
b)      Modified the "Duration of the module" and "Average (over the duration of the module) of the contact hours per week" to reflect the correct number of weeks and contact hours per week for the 1-Year and 2-Year Higher Diploma in Data Analytics Programme.
c)      Updated Learning Outcome 2 (LO2) from "Recognise the ethical implications of machine learning" to "Comprehend and assess potential ethical implications of machine learning"
d)      Updated the Project description to include more explicitly the assessment of ethical implications of machine learning.

Regarding the Project module, Section 5.4 has updated to concur with the actual delivered contact hours of 2 hours Lecture and 1 hour Lab, as stated in the Project module description (Section 6.8).

| Condition 7 | Action Taken | Panel's Comment |
|---|---|---|
| The Panel requires that the programme team revise the timing of the submission of the final continuous assessment elements until after delivery of the modules has been completed. | All learning objectives and related content are covered early enough (in time) to allow students to appropriately prepare for their assessments in week 13 or even week 14. Usually, the last week students do a revision upon the topics they have learned. In addition, for modules that have an exam component, the final week's learning objectives and related content are assessed by this component.<br><br>Now, in particular for the Machine Learning module, that is delivered in 6 weeks instead of 12 weeks, in the 1 year – FT/PT delivery model. This means that the | The Panel is satisfied that the Programme Team have sufficiently responded to the Special Condition of Validation |

| contact hours per week is doubled. This structure does not impact students learning because this is the only module, they have to attend lectures in Semester 3. | | |
|---|---|---|
| **Condition 8** | **Action Taken** | **Panel's Comment** |
| The Panel requires that the arrangements for the nature and timing of repeat assessments be clearly stated in the programme document. | We have updated section 5.10.2 "Strategies to be employed for repeat assessment" as follows. That includes more information and clarity about the nature and timing - different assessment periods.<br><br>"Candidates complete the repeat assessment for the module as noted in the module descriptors, if they do not successfully pass the module.<br><br>The repeat examinations of component assessments and assignments will take place as close as possible to the point in time where the learned failed the module. Usually, that is the next assessment period and before the exam period. The format, as determined by the Programme Committee, may be either written assignment or examination.<br><br>Learners may build on prior work from the component assessments.<br><br>Typically, the repeat assessment period for students started in September takes place on the second half of August, for example from 12/08/2021 to 28/08/2021. For semester 3 the repeat/deferral session takes place in January<br><br>For students who started in January, the repeat/deferral session for semester 1 and 2 takes place in January, for example from 05/01/2021 to 16/01/2021. For semester 3 the repeat/deferral session takes place in May.<br><br>Students can register for repeats once the semester results have been released.<br><br>Students who have attempted the repeat assessment and are unsuccessful are required to repeat by attending their module." | The Panel is satisfied that the Programme Team have sufficiently responded to the Special Condition of Validation |
| **Condition 9** | **Action Taken** | **Panel's Comment** |
| The Panel requires that the programme team clarify the | Regarding the assessment strategy for the Project module three separate sample continues assessments were uploaded to the CA directory last November. Also, | The Panel is satisfied that the Programme Team have |

| assessment strategy for the Project module. | additional information included to the Project Section 6.8.6 around one-to-one in-class feedback. The associated assessments and rubrics can be mapped directly back to the MIMLOs. | sufficiently responded to the Special Condition of Validation |
|---|---|---|
| **Recommendation 1** | **Action Taken** | **Panel's Comment** |
| The panel recommend that the programme documentation state that there is no provision for advanced entry onto the programme. | Prior to submission to QQI, the programme documentation will include a declaration that there is no provision for advanced entry onto the programme. | The Panel is satisfied that the Programme Team have addressed the recommendation. |
| **Recommendation 2** | **Action Taken** | **Panel's Comment** |
| The Panel recommend 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 and subsequently. | General Comment: As suggested at the end of the first cycle we are going to review the learner's experience, evaluate their feedback and accordingly we make any necessary adjustments.<br><br>Specifically in relation to Machine Learning:  The Machine Learning module is delivered in Semester 3. At this stage, we expect that learners will have improved their computing skills to understand and apply the methods and techniques covered in the module.<br><br>To address this concern, we have reduced the number of topics reviewed in Lecture 1 regarding regulatory & privacy components and data exploration statistics that have been covered in-depth in the Data Governance and Statistics modules respectively. In addition, we split Lecture 2 (Data Pre-processing) in 2 Lectures to allow a gradual introduction of the learners to the tools used in the module and an adjustment to the core Machine Learning concepts.<br><br>We will review the learner's experience at the end of the first cycle as suggested and make small adjustments based on this experience.<br><br>Specifically in relation to Programming for Data Analytics: The module content has been designed taking into account: | The Panel is satisfied that the Programme Team have addressed the recommendation. |

- The learner needs, especially those with no prior programming experience (the vast majority),
- The technical needs of subsequent modules,
- The module's upgrade to 10 credits and consequent increase in contact hours, and
- All prior student feedback

While the outline of the new module addresses a larger variety of topics compared to the existing one, one of the most important aspects of the module is that the actual content is not overwhelming to students.

In addition, initial content will be adjusted regularly in response to both direct and indirect student feedback.

| Recommendation 3 | Action Taken | Panel's Comment |
|---|---|---|
| That the Statistics I module assessment strategy be reviewed to specifically address LO 4. | The continuous assessment description has been amended to include "use of standard statistical software for calculation and the visual presentation of data" in response to the Panel's comments (Task 2 and Task 3). | The Panel is satisfied that the Programme Team have addressed the recommendation. |
| **Recommendation 4** | **Action Taken** | **Panel's Comment** |
| That the Business Intelligence module assessment strategy be reviewed to ensure consideration of the learner's data sense-making and data storytelling abilities. | MIMLO4 was updated in line with Panel comments , callout "StoryTelling", "Addressing an Audience", "Softskills of communications" for example with the ability to become proficient in storytelling of data, addressing audiences in an industry context and build upon key soft skills of communication in a BI role. In particular, proficiency of storytelling will have a particular emphasis during delivery and will be expected and assessed throughout through the use of roleplay and assessment criteria. | The Panel is satisfied that the Programme Team have addressed the recommendation. |
| **Recommendation 5** | **Action Taken** | **Panel's Comment** |
| That the nature of the proposed Assignment 1 in the Data Governance module be reconsidered. | Assignment 1 originally proposed an **in-class test** of main data governance definitions and legislative requirements to show knowledge and application of LO1 (concepts and policies) and LO2 (regulatory and legislative requirements), valued at 40% of total module marks and administered at Week 5.   This was originally envisaged as an efficient way to test student's understanding of a range of | The Panel is satisfied that the Programme Team have addressed the recommendation. |

definitional terms and concepts (for example, data quality, data provenance etc) as well as knowledge of key data protection legislation and cases (for example, GDPR provisions, specific court decisions).

However, given the still to be clarified position in relation to in-class attendance over the medium term and the panel recommendation that there should be a greater focus on presentation skills in the module (see below), Assignment 1 will be configured on the lines of a group assignment where each group must argue a proposition related to the items covered in LO1 and LO2 in a debate style format. [An alternative would be for groups to present a critical review of a recent academic work in the field followed by a question-and-answer session]. This could take place in both online and in person formats.

Given the group nature of the assignment, it is considered that the weighting should be reduced to 30% with a consequent increase of the weighting for the second assignment. On this basis it is proposed to replace the table in the programme document with the following:

Module summative assessment strategy (revised)

| Assessment Type | Assessment Description | Assessment Learning Outcomes | Assessment Percentage of Total Mark | Assessment Timing |
|---|---|---|---|---|
| Assignment 1 | Group assignment where each team has to argue a proposition related to the items covered in the first part of the course in a debate style format | LO1, LO2 | 30% | Weeks 4-10 (contingent on number students) |