



QQI

Quality and Qualifications Ireland  
Dearbhú Cáilíochta agus Cáilíochtaí Éireann



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Reception

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

## Part 1

<b>Provider name</b>	Dublin Business School
<b>Date of site visit</b>	20 <sup>th</sup> March 2018
<b>Date of report</b>	

## Overall recommendations

<b>Principal programme</b>	<b>Title</b>	Master of Science in Financial Technology
	<b>Award</b>	Master of Science
	<b>Credit</b>	90 credits
	<b>Recommendation</b> <i>Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory</i>	Satisfactory subject to recommended special conditions

<b>Embedded programme</b>	<b>Title</b>	Postgraduate Diploma in Science in Financial Technology
	<b>Award</b>	Postgraduate Diploma in Science (exit award only)
	<b>Credit</b>	60
	<b>Recommendation</b> <i>Satisfactory OR Satisfactory subject to proposed conditions OR Not Satisfactory</i>	Satisfactory subject to recommended special conditions

## Evaluators

Evaluators		
Name	Role	Affiliation
Ann Campbell	Chairperson	Former President of Dundalk Institute of Technology
Marian Duggan	Secretary	Dean of Flexible Learning & VP of Equality and Diversity, Limerick Institute of Technology
Daniel Broby	Expert	University of Strathclyde
Mary Daly	Expert	University College Cork
Enda Stafford	Learner	National College of Ireland
Aidan Duane	Expert	Waterford Institute of Technology (Desk Review)
Campbell Harvey	Expert	Duke University (Desk Review)
Cillian Leonowicz	Industry	Senior Client Solutions Manager, Fenergo (Desk Review)

## Principal Programme – Master of Science in Financial Technology

Names of centres where the programmes are to be provided	Maximum number of learners ( <i>per centre</i> )	Minimum number of learners
DBS Campus	50	10

Enrolment interval ( <i>normally 5 years</i> )	Date of first intake	September 2018
	Date of last intake	September 2022
Maximum number of annual intakes	2 – September & January	
Maximum total number of learners per intake	50 students full-time 50 students part-time	
Programme duration (months from start to completion)	12 months Full-Time 2 Academic Years Part-time	
Target learner groups	NFQ Level 8 graduates of the appropriate level (2.2) from a cognate discipline. Either full time or part time. The programme is designed to facilitate learners with a science/technology/computing/business/finance background who wish to upskill in this new and emerging area of Fintech.	
Approved countries for provision	Ireland	
Delivery mode: Full-time/Part-time	Full-time and Part-time	
The teaching and learning modalities	1. Class room lectures 2. Case Based learning	

	<p>3. Practical Skills Sessions  4. Workshops  5. Tutorials  6. Individual and Group work</p>		
<p><b>Brief synopsis of the programme (e.g. who it is for, what is it for, what is involved for learners, what it leads to.)</b></p>	<p>Technological innovation applied to financial services has created a wave of disruptive activity that will change the shape of the global financial system over the next decade.</p> <p>This has created demand from graduates and employees for programmes specifically tailored to the skills required for a changing financial services industry.</p> <p>This is an interdisciplinary program that focuses on finance, data analytics and computing. It is designed to appeal to graduates seeking to gain exposure to Fintech - the technology enabled business model innovation in the financial sector.</p> <p>It is a 1 year Full Time, 2 year Part Time programme with taught modules and an applied project which combined lead to an Master of Science Financial Technology (Fintech)</p>		
<p><b>Summary of specifications for teaching staff</b></p>	<p>WTE:  Full Time 0.64 WTE  Part Time 0.5 WTE  Qualifications and experience  Masters and/or PhD level in the following areas:</p> <ul style="list-style-type: none"> <li>• Finance: Financing, treasury, research, trading, data analytics &amp; lecturing financial theory &amp; practice.</li> <li>• Computing: Information security, cloud computing and computer networking.</li> <li>• Business intelligence, predictive analytics, data management and software engineering. Prince 2 accredited IT Project Manager.</li> <li>• Financial Economics: Development and execution of strategic initiatives designed to improve business performance, creator of data-driven solutions to critical business needs</li> <li>• Data Mining and Business Intelligence, Operations Research: Data Scientist, Programming Languages, Data Mining tools expertise, development &amp; Data environments and applications</li> </ul> <p>Additional Faculty Members will be added to the team.</p>		
<p><b>Summary of specifications for the ratio of learners to teaching-staff</b></p>	<table border="0"> <tr> <td style="padding-right: 20px;">Staff to learner ratio</td> <td>Learner activity type</td> </tr> </table>	Staff to learner ratio	Learner activity type
Staff to learner ratio	Learner activity type		

	1/50	Class room sessions
	1/25	Workshops
	1/25	Practical Sessions

Programmes being replaced (applicable to applications for revalidation)		
Code	Title	Last enrolment date
	N/A	

Embedded Programme – Postgraduate Diploma in Science in Financial Technology  
(Exit Award Only)

Names of centres where the programmes are to be provided	Maximum number of learners (per centre)	Minimum number of learners
DBS Campus	30	10

<b>Enrolment interval (normally 5 years)</b>	<b>Date of first intake</b>	September 2018
	<b>Date of last intake</b>	September 2022
<b>Maximum number of annual intakes</b>	2 – September & January	
<b>Maximum total number of learners per intake</b>	30 students full-time 30 students part-time	
<b>Programme duration (months from start to completion)</b>	1 Academic Year – 2 Semesters Full-Time 2 Academic Years – 3 Semesters Part-time	
<b>Target learner groups</b>	NFQ Level 8 graduates of the appropriate level (2.2) from a cognate discipline. Either full time or part time. The programme is designed to facilitate learners with a science/technology/computing/business/finance background who wish to upskill in this new and emerging area of Fintech. It may be the learner's preference to study the theory and practical modules and not complete the applied project.	
<b>Approved countries for provision</b>	Ireland	
<b>Delivery mode: Full-time/Part-time</b>	Full-time and Part-time	
<b>The teaching and learning modalities</b>	<ol style="list-style-type: none"> <li>1. Class room lectures</li> <li>2. Case Based learning</li> <li>3. Practical Skills Sessions</li> <li>4. Workshops</li> <li>5. Tutorials</li> <li>6. Individual and Group work</li> </ol>	
<b>Brief synopsis of the programme (e.g. who it is for, what is it for,</b>	The postgraduate Diploma is an embedded award in the MSc in Financial Technology. It will not be offered	

<p><b>what is involved for learners, what it leads to.)</b></p>	<p>separately but is an exit award at 60 ECTS for learners who are unable to complete the Masters Programme.</p> <p>Technological innovation applied to financial services has created a wave of disruptive activity that will change the shape of the global financial system over the next decade.</p> <p>This has created demand from graduates and employees for programmes specifically tailored to the skills required for a changing financial services industry.</p> <p>This is an interdisciplinary program that focuses on finance, data analytics and computing. It is designed to appeal to graduates seeking to gain exposure to Fintech - the technology enabled business model innovation in the financial sector.</p> <p>The duration of the PGDip is two twelve week semester full-time and three twelve week semesters part-time.</p>	
<p><b>Summary of specifications for teaching staff</b></p>	<p>WTE: Full-time 0.58 WTE Part Time 0.43 WTE</p> <p>Qualifications and experience Masters and/or PhD level in the following areas:</p> <ul style="list-style-type: none"> <li>• Finance: Financing, treasury, research, trading, data analytics &amp; lecturing financial theory &amp; practice.</li> <li>• Computing: Information security, cloud computing and computer networking.</li> <li>• Business intelligence, predictive analytics, data management and software engineering. Prince 2 accredited IT Project Manager.</li> <li>• Financial Economics: Development and execution of strategic initiatives designed to improve business performance, creator of data-driven solutions to critical business needs</li> <li>• Data Mining and Business Intelligence, Operations Research: Data Scientist, Programming Languages, Data Mining tools expertise, development &amp; Data environments and applications</li> </ul> <p>Additional Faculty Members will be added to the team.</p>	
<p><b>Summary of specifications for the ratio of learners to teaching-staff</b></p>	<p>Staff to learner ratio</p> <p>1/50 1/25</p>	<p>Learner activity type</p> <p>Class room sessions Workshops</p>

	1/25	Practical Sessions
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Programmes being replaced (applicable to applications for revalidation)		
Code	Title	Last enrolment date
	N/A	

## Part 2 Evaluation against the validation criteria

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

### Criterion 1

<b>The provider is eligible to apply for validation of the programme</b>	
<ul style="list-style-type: none"> <li>a) The provider meets the prerequisites (section 44(7) of the 2012 Act) to apply for validation of the programme.</li> <li>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.</li> <li>c) The provider has declared that their programme complies with applicable statutory, regulatory and professional body requirements.</li> </ul>	
<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
Yes	

### Criterion 2

<b>The programme objectives and outcomes are clear and consistent with the QQI awards sought</b>
<ul style="list-style-type: none"> <li>a) The programme aims and objectives are expressed plainly.</li> <li>b) A QQI award is specified for those who complete the programme. <ul style="list-style-type: none"> <li>(i) Where applicable, a QQI award is specified for each embedded programme.</li> </ul> </li> <li>c) There is a satisfactory rationale for the choice of QQI award(s).</li> <li>d) The award title(s) is consistent with unit 3.1 of QQI's <i>Policy and Criteria for Making Awards</i>.</li> <li>e) The award title(s) is otherwise legitimate for example it must comply with applicable statutory, regulatory and professional body requirements.</li> <li>f) The programme title and any embedded programme titles are <ul style="list-style-type: none"> <li>(i) Consistent with the title of the QQI award sought.</li> <li>(ii) Clear, accurate, succinct and fit for the purpose of informing prospective learners and other stakeholders.</li> </ul> </li> <li>g) For each programme and embedded programme</li> </ul>

<ul style="list-style-type: none"> <li>(i) The <b>minimum intended programme learning outcomes</b> and any other educational or training objectives of the programme are explicitly specified.</li> <li>(ii) The minimum intended programme learning outcomes to qualify for the QQI award sought are <b>consistent with</b> the relevant QQI awards standards.</li> </ul> <ul style="list-style-type: none"> <li>h) Where applicable, the <b>minimum intended module learning outcomes</b> are explicitly specified for each of the programme's modules.</li> <li>i) Any QQI minor awards sought for those who complete the modules are specified, where applicable.</li> </ul> <p>For each minor award specified, the minimum intended module learning outcomes to qualify for the award are consistent with relevant QQI minor awards standards.</p>	
<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
	Yes

A Master of Science award and a Postgraduate Diploma in Science award is being sought due to the mathematical and statistical focus of the programme. This is justified on the basis that finance, and in particular financial technology, in capturing greater and richer sources of data, utilising increasingly sophisticated data analytic tools and seeing the evolution of machine learning in an increasingly digitised world, is a science. The panel is satisfied that the technological focus and level of statistical analysis required of a student on the programme justifies the Master of Science Award and Postgraduate Diploma in Science Award.

The minimum intended programme learning outcomes for the Master of Science in Finance Technology and the Postgraduate Diploma in Science have been mapped against QQI Level 9 Science Award Standards, with minimum module learning outcomes mapped against programme learning outcomes. The panel noted a number of important elements within financial technology, while covered within the modules, are not reflected in the minimum intended programme learning outcomes. Accordingly, it is recommended that the minimum intended programme learning outcomes for both programmes be amended to include the following areas within financial technology: 1) data governance and regulation; 2) the impact of the internet environment on the distribution of finance and 3) the development of key transferable skills such as teamwork. It is also recommended that relevant minimum module learning outcomes be mapped against revised minimum programme learning outcomes.

The Postgraduate Diploma in Science Award is being sought as an early exit award from the MSc programme and will not be offered separately but is an exit award at 60 ECTS for learners who are unable to complete the full programme of studies for MSc programme. The panel is satisfied that the programme title of MSc in Financial Technology and the exit programme title of Postgraduate Diploma in Science in Financial Technology are consistent with the title of the QQI award sought and fit for the purpose to inform prospective learners and other stakeholders.

Modules on the proposed Masters and Postgraduate Diploma programmes will be offered as standalone modules, valued at 5 or 10 ECTS. However, no QQI Award will be granted to successful candidates studying these modules.

### 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

Industry engagement for the development of the proposed programmes (i.e. MSc in Financial Technology and Postgraduate Diploma in Science in Financial Technology) involved a survey, interaction with employers and industry representatives (e.g. Enterprise Ireland, First Data, Circle and Treasury Data), Fintech Breakfast Briefings, a Fintech Ireland 'Bridge' event with Fintech Atlanta and a Blockchain Hackathon (focusing on Aviation Industry). The initial conception of the programme was derived from reports on staff and skill shortages in the financial services sector. Engagement commenced with consultations with the IDA and Enterprise Ireland followed by interactions with employers focused on seeking feedback on an outline of modules for the proposed programme.

The MSc programme is compared to similar programmes offered in Waterford Institute of Technology, University of Strathclyde, and Brandeis University. The panel is satisfied that the MSc in Financial Technology compares favourably with existing related and comparable programmes delivered by these educational providers in Ireland, UK and US.

DBS confirmed that both programmes (MSc in Financial Technology and Postgraduate Diploma in Science in Financial Technology) are targeted at students interested in setting up as SME within the



sector and to employees in 'big banks'. The inclusion of innovation in the programmes was justified as being relevant not just in a SME scenario but also in large institutions seeking new innovative solutions and accordingly investing in R& D. While Dublin is a start-up centre in financial technology, the programme has a global reach and is not just focused on the sector within Ireland.

DBS outlined that modules are reviewed by lecturers via the Module Review and Development Plan (MRDP) at the end of each delivery. This feedback as captured in the MRDPs are collated by programme and discussed at Board of Studies as a means of reflecting on the performance of the past year, identifying issues and proposing initiatives for the next year.

The proposed programmes are to be offered in Ireland at DBS's main campus on a full-time and part-time basis, with the expectation that the full-time cohort will have a large % of international students. Part-time students will be working or wishing to commence employment in the area. Other postgraduate programmes offered by DBS on a part-time basis are structured in a similar format of two evenings per week and students are highly motivated so willing to give time commitment.

## 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 (CEFR) 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, subject to recommended special conditions

The entry requirements for the proposed programmes (i.e. MSc in Financial Technology and Postgraduate Diploma in Science in Financial Technology as exit award) are stated as a minimum second class level 8 honours bachelor degree (2.2) in a cognate discipline from a recognised third level institution. The panel proposes as a special condition of validation that the cognate disciplines need to be clearly defined for the purpose of these entry requirements.

For applicants whose first language is not English and who have not undertaken their undergraduate degree through English, DBS requires such applicants to have a level of proficiency in English language greater or equal to B2+ in the Common European Framework of Reference for Languages (CEFR) for admission.

In a separate section, DBS outlined that, due to the mathematical nature of the content, applicants to the programme will be required to show sufficient competency in mathematics, based on prior learning or professional experience. This was further defined as module of mathematics or statistics equivalent to 10 ECTS in a primary degree. In the event that an applicant does not have the required level of mathematics on entry or who may not have attended college in a while, a bridging module will be provided by DBS. The panel noted that applicants are not required to have a previous competency in coding to enter the programme.

The panel noted inconsistency in the statement of the minimum entry requirements for the programme throughout the document and the panel proposes as a special condition of validation that the mathematical competence required be clearly stated.

DBS has policies and procedures for the recognition of prior learning as a means of entry into the programme. However, it is envisaged that any applicant with prior experiential learning but without a primary degree in a cognate discipline will be directed to the Higher Diploma in Financial Technology being delivered by DBS. Students who have successfully completed the HDip programme may apply for entry into the MSc programme in Financial Technology. The panel proposes as a special condition of validation that the minimum entry requirements for MSc in Financial Technology and Postgraduate Diploma in Science in Financial Technology be restated to reflect all entry routes.

## 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 <b>duration</b> (expressed in terms of time from initial enrolment to completion) and its <b>fulltime equivalent contact time</b> (expressed in hours) are consistent with the difference between the minimum entry standard and award standard and with the credit allocation.	
<b>Satisfactory</b> (yes, no, partially)	<b>Comment</b> Partially, subject to recommended special condition

In relation to the proposed modules on both programmes, MSc in Financial Technology and Postgraduate Diploma in Science in Financial Technology:

The module on Financial Markets & Services originally had a strong focus on traditional finance and now reflects more contemporary issues within the FinTech sector. The underlying basics of financial markets are still covered but underplayed. It is recommended that the topics of Capital Asset Pricing Model (CAPM), Portfolio Management and Robo-advisory be included. The Panel noted that a text on disintermediation has not been included in resources for the module.

For the module on Quantitative Financial Modelling, DBS confirmed that the programming languages of Python and R will be drawn on and not just Excel to model and analyse large data sets. DBS acknowledges the difficulty of accessing real data sets and therefore, will rely on databases such as those as provided by Bloomberg and Thompson Reuters. It is recommended that an introduction to whichever platform is chosen (i.e. Bloomberg or Thompson Reuters) be included in syllabus content.

Reference was made to students having access to resources on Moodle to educate themselves on Python, especially where a student may not have prior coding knowledge or experience. The Panel proposes as a special condition of validation that tutorial support on Python (involving class contact hours) be provided, so that students are not dependent on e-learning resources to educate themselves on this computer software. This tutorial support may not be required for full semester, but in the initial 4 – 5 weeks of the semester.

There is a large syllabus content for the module on Information & Cybersecurity Management, more worthy of 10 credits as opposed to the allocated 5 credits. DBS confirmed that student will not be expected to conduct a cybersecurity analysis, but will be able to conduct a risk assessment. It is recommended that that fewer topics be included in module syllabus which can be covered in greater depth.

It is recommended that the title of the module on Distributed Ledger Technologies be changed to Blockchain & Distributed Ledger Technologies to accurately reflect syllabus content. It is also recommended that any overlap of syllabus content in this module with that in the module on Quantitative Financial Modelling (e.g. Python) be eliminated. The topic of Public versus Private Blockchain needs to be added to module aims and objectives.

Although particular to the module on Distributed Ledger Technologies but relevant to all modules, the panel queried how the redundancy of material is dealt with in light of the fast changing pace of the financial technology sector. DBS outlined that modules are reviewed by lecturers via the Module Review and Development Plan (MRDP) at the end of each delivery. This feedback as captured in the MRDPs are collated by programme and discussed at Board of Studies as a means of reflecting on the performance of the past year, identifying issues and proposing initiatives for the next year. In order to ensure that programme content reflects contemporary issues within the financial technology sector, it is recommended that DBS has policies and procedures to process minor amendments to the programme until the next programme review. In particular, the definition of a minor change will need

to be determined to identify when a series of minor changes equates to major change in the programme and re-validation is required.

While the module on FinTech Regulation focuses on EU policy, it is recommended that regulation in a global context needs to be considered due to the expected number of international students that will be pursuing the proposed programme on a full-time basis.

For the module on Data Analysis & Machine Learning, the panel expressed concern about the lack of tutorial support in light of the technical nature of syllabus content, especially for students who may not have previous coding experience, and therefore recommends the addition of such support, involving direct contact hours. A similar concern and recommendation is made for the module on Applied Financial Analysis.

The Panel emphasised the importance of guest lecturers for the module on Innovation & Entrepreneurship in Fintech. DBS outlined that while this module will be taught from the perspective of SMEs, concepts also relevant to large scale banking institutions seeking innovative solutions in the financial technology sector.

In relation to proposed modules specifically on the MSc in Financial Technology:

The module on Research Methods will run across both Semester 1 and 2 and students will be required to develop a proposal for their Applied Project.

It is recommended that contact hours for the Applied Project module be clarified, not only in terms of group class sessions to be held but also supervision meetings. Flexibility will be afforded to the student on the type of project to be undertaken e.g. development of own innovative idea, collaborative project with industry (confidentiality issues to be addressed).

Because DBS has designed the module content to ensure that learners from a range of cognate backgrounds are equipped with the underpinning core knowledge relating to financial technology, all modules are designed as compulsory. The panel queried the lack of electives and the expectation from part-time students to study an area of financial technology that would be of particular relevance to their workplace. DBS referred to the Applied Project as providing students with an opportunity to explore an aspect of fintech of interest to them. The panel points to comparable programmes offering elective modules and it is recommended that DBS consider the inclusion of electives into the programmes, possibly at the next programme review.

It is recommended that lists of resources for each module be reviewed and updated accordingly.

## 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.

<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>e) There are arrangements for programme staff performance to be reviewed and there are mechanisms for encouraging development and for addressing underperformance.</li> <li>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.</li> </ul>	
<b>Satisfactory (yes, no, partially)</b>	<b>Comment Yes</b>

DBS acknowledges the need to recruit staff to offer the MSc in Financial Technology and Postgraduate Diploma in Science in Financial Technology, but references the recruitment completed in the past six months to start delivering the recently validated Higher Diploma Programme in Financial Technology. Further to queries raised by the Panel, an analysis was provided of the hours required to deliver this proposed programme and the hours available from the current team of lecturers qualified to teach on the programme. The deficit will be covered by recruitment and some may be covered by part-time lecturers.

Concerns were raised by the Panel on the ability of DBS to recruit the number of qualified staff required to provide an appropriate student learning experience where it is envisaged that the full-time intake will be 50 students for both September and February (i.e. 100 in total over the academic year). A similar concern exists for part-time students. Therefore, the panel recommends maximum class sizes of 30 students for both the full-time and part-time modes of delivery of both programmes.

DBS outlined that guest lecturers for industry and the financial technology sector will be invited to participate in each module with 2-3 hours approximately devoted to domain experts for each module. As guest lecturers may not be able to present detail from their own workplace as a case study due to confidentiality, the Panel recommends that the guest lecturing not be required for all modules but be reduced to focus on areas such as Innovation & Entrepreneurship.

In terms of staff development, DBS encourages staff to research into all aspects of teaching, learning, course design, supervision and assessment and to promote a scholarly approach to educational development. The interaction of staff through staff meetings and staff development activities forms the backdrop for research, scholarly activity and professional development in which all staff are expected to participate. In this regard, DBS offers a range of supports including 20 scholarships per year to full-time and part-time staff, with submissions being assessed by Research Committee.

## 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

<p>programme, its defined purpose and its resource/learner-ratio requirements. See also criterion 12 d).</p> <p>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:</p> <ul style="list-style-type: none"> <li>(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)</li> <li>(ii) suitable information technology and resources (including educational technology and any virtual learning environments provided)</li> <li>(iii) printed and electronic material (including software) for teaching, learning and assessment</li> <li>(iv) suitable specialist equipment (e.g. kitchen, laboratory, workshop, studio) – if applicable</li> <li>(v) technical support</li> <li>(vi) administrative support</li> <li>(vii) company placements/internships – if applicable</li> </ul> <p>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).</p> <p>d) There is a five-year plan for the programme. It should address</p> <ul style="list-style-type: none"> <li>(i) Planned intake (first five years) and</li> <li>(ii) The total costs and income over the five years based on the planned intake.</li> </ul> <p>e) The programme includes controls to ensure entitlement to use the property (including intellectual property, premises, materials and equipment) required.</p>	
<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
	Yes

DBS acknowledges the difficulty of accessing real life case studies within the Financial Technology sector. Such constraints imply that DBS has no expectation of obtaining real data and therefore, will rely on databases such as those as provided by Bloomberg and/or Thompson Reuters. It is recommended that resources be made available to subscribe to the relevant databases for financial data, as well as the appropriate number of licences.

DBS will provide students with access to required software i.e. Python and R but does not stipulate that students have laptop or other computer facilities to partake in the programme.

A five-year plan is presented for the proposed programmes, which provides income and direct costs figures for each of the five years. For all years, income exceeds direct costs.

## Criterion 8

<p><b>The learning environment is consistent with the needs of the programme's learners</b></p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>
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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.	
<b>Satisfactory (yes, no, partially)</b>	<b>Comment Partially, subject to recommended special condition</b>

For full-time students on the MSc in Financial Technology, the taught modules will be delivered over two 12-week semesters with 30 credits per semester plus the 5 ECTS Research Methods module delivered across both semesters. Full-time students complete their applied project over a three-month period following their successful completion of the taught modules. Accordingly, the MSc programme is of 12 months in durations for full-time students. Each semester includes 2 x 10 credit modules and 2 x 5 credits modules, with each 10-credit module being timetabled for 4 hours per week and each 5 credit module for 2 hours per week. This implies a total of 12 contact hours per week.

For part-time students on the MSc in Financial Technology, the taught modules will be delivered over 12-week semesters with 20 credits per semester plus the 5 ECTS Research Methods module delivered across all semesters. The applied project is completed in the fourth semester. Accordingly, the MSc programme is delivered over 2 academic years for part-time students.

For full-time students on the Postgraduate Diploma in Financial Technology, the taught modules will be delivered over two 12-week semesters with 30 credits per semester. Accordingly, the PGDip programme is delivered over one academic year to full-time students. For part-time students, the taught modules will be delivered over 12-week semesters with 20 credits per semester. Accordingly, the PGDip programme is of 3 semesters in duration for part-time students.

The part-time programmes have been designed as two nights of three hours' delivery. As the student profile for the part-time programme will comprise of those working or wishing to commence employment in the area, concern was expressed by the panel on the time commitment expected from these students. DBS outlined that other postgraduate programmes offered on a part-time basis are structured in a similar format and that these students are highly motivated so willing to give time commitment.

Reference is made in proposed programme schedule to hours being allocated to directed e-learning. DBS clarified that these hours relate to lecturers placing support material (e.g. articles, videos) on Moodle for students to access in own study time and therefore effectively represent independent learning. Lecturers can only discuss module material in class contact time and directed e-learning does not involve any interaction between the lecturer and student.

As highlighted previously in this report, the Panel proposes as a special condition of validation that tutorial support to comprise of additional direct contact hours be provided for the following modules: Quantitative Financial Modelling, Data Analytics & Machine Learning and Applied Financial Analysis. The proposed programme schedules will need to be revised to reflect actual class contact time (including lectures and tutorials) and hours allocated to directed e-learning should be re-defined to avoid any misunderstanding about class contact hours.

DBS outlined the support available within the college to address the particular needs of international students, such as English language and learning skills.

## Criterion 9

<p><b>There are sound teaching and learning strategies</b></p> <ul style="list-style-type: none"> <li>a) The teaching strategies support achievement of the intended programme/module learning outcomes.</li> <li>b) The programme provides authentic learning opportunities to enable learners to achieve the intended programme learning outcomes.</li> <li>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).</li> <li>d) Learning is monitored/supervised.</li> <li>e) Individualised guidance, support and timely formative feedback is regularly provided to enrolled learners as they progress within the programme.</li> </ul>	
<p><b>Satisfactory (yes, no, partially)</b></p>	<p><b>Comment</b></p> <p><b>Partially, subject to recommended special condition</b></p>

Emphasis is placed on a teaching methodology based on problem based learning. However, DBS acknowledges the difficulty of accessing real life case studies and will rely on databases such as those provided by Bloomberg and/or Thompson Reuters.

Modules will be delivered through a mix of lectures and practical workshops. Emphasis is placed on directed e-learning as a means of additional support for students, but as this represents independent learning, the panel proposes as a special condition of validation that tutorial support involving direct contract hours be put in place for certain modules on both the MSc and PGDip programmes:

- (1) For the module on Quantitative Financial Modelling, reference was made to students having access to resources on Moodle to educate themselves on Python, especially where a student may not have prior coding knowledge or experience. The Panel proposes as a special condition of validation that tutorial support on Python (involving class contact hours) be provided, so that students are not dependent on e-learning resources to educate themselves on this computer software. This tutorial support may not be required for full semester, but in the initial 4 – 5 weeks of the semester.
- (2) For the module on Data Analysis & Machine Learning, the panel expressed concern about the lack of tutorial support in light of the technical nature of syllabus content, especially for students who may not have previous coding experience, and therefore recommends the addition of such support, involving direct contact hours.
- (3) A similar concern and recommendation is made for the module on Applied Financial Analysis.

(as previously identified in this report under criterion 5).

It is recommended that contact hours for the Applied Project module on the MSc programme in Financial Technology be clarified, not only in terms of group class sessions to be held but also supervision meetings.



## Criterion 10

### There are sound assessment strategies

- a) All assessment is undertaken consistently with *Assessment Guidelines, Conventions and Protocols for Programmes Leading to QQI Award*
- 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 Yes

For both programmes (i.e. MSc in Financial Technology and Postgraduate Diploma in Financial Technology), a variety of modes of assessment will be used to include both analysis of case studies and real-world examples (where possible), continuous assessment, project work, working in teams on group assignments, assessment on an individual basis and personal reflection on learning. A terminal examination is included for each 10-credit module on the proposed programme.

The panel were satisfied that the assessment and re-assessment strategy for each module would serve to ensure that successful students would achieve the minimum intended learning outcomes for the module. In this regard, sample assignment briefs and exam papers were provided and reviewed by the panel.

For the MSc programme, flexibility will be afforded to the student on the type of project to be undertaken for the Applied Project module e.g. development of own innovative idea, collaborative project with industry (confidentiality issues to be addressed).

DBS confirmed that the award classification for successful students on the programmes will be in accordance with QQI regulations for postgraduate programmes.

## 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.

<ul style="list-style-type: none"> <li>c) Specific information is provided to learners enrolled on the programme about any programme-specific appeals and complaints procedures.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>g) The programme provides supports for enrolled learners who have special education and training needs.</li> <li>h) The programme makes reasonable accommodations for learners with disabilities.</li> <li>i) If the programme aims to enrol international students it complies with the <i>Code of Practice for Provision of Programmes to International Students</i> 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.</li> <li>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).</li> </ul>	
<b>Satisfactory (yes, no, partially)</b>	<b>Comment</b>
	Yes

DBS outlined the support available within the college to address the particular needs of international students, such as English language and learning skills and confirms compliance with the Code of Practice for the Provision of Programmes to International Students.

In terms of identifying 'at risk' students, various methods are used, including reference to course director and programme co-ordinator, review of analytics from attendance records and Moodle log-in details, and examination of assessment results after Semester 1.

The Panel raised concerns about the level of supports being made available to part-time students comparable to that which can be accessed by full-time students. DBS outlined their commitment to ensuring that part-time students are supported to the same extent as full-time students and referred to their experience of delivering part-time programmes.

**Criterion 12**

<b>The programme is well managed</b>	
<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	

- 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.

New role of course director has been created, with responsibility for the overall management and development of the programme, for co-ordination of the organisation and delivery of the programmes and the management and support of learners of the programme. A Programme-Coordinator is also available to deal with student queries / requests. DBS strives to ensure that supports available to full-time students are also accessible by part-time students.

## Overall recommendation to QQI

### 1.1 Principal programme

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

The Evaluation Panel wishes to commend DBS on developing a Master of Science programme in Financial Technology, which serves to respond to the identified skills and staff shortages in the financial services sector. The panel appreciated the positive engagement of the management team and academic staff with their queries.

### 1.2 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;

X	Satisfactory subject to proposed special conditions (specified with timescale for compliance for each condition; these may include proposed pre-validation conditions i.e. proposed ( <b>minor</b> ) things to be done to a programme that almost fully meets the validation criteria before QQI makes a determination);
	Not satisfactory.

The Evaluation Panel wishes to commend DBS on developing a Postgraduate Diploma in Science in Financial Technology, as an exit award to the Master of Science programme in Financial Technology. This programme will also serve to respond to the skills and staff shortages in the financial services sector.

### Summary of recommended special conditions of validation

For both programmes, MSc in Financial Technology and Postgraduate Diploma in Science in Financial Technology:

- 1) Tutorial support to comprise of additional direct contact hours be provided for the following modules: Quantitative Financial Modelling, Data Analytics & Machine Learning and Applied Financial Analysis. The proposed programme schedules will need to be revised to reflect actual class contact time (including lectures and tutorials) and hours allocated to directed e-learning should be re-defined to ensure clarity in relation to class contact hours.
- 2) The module on Quantitative Financial Modelling needs to be underpinned by a conceptual understanding of Python and R, to be provided through tutorial support (involving class contact hours). This tutorial support may not be required for full semester, but at least in the initial 4 – 5 weeks of the semester.
- 3) Minimum entry requirements should be clarified and consistent throughout programme documentation, including a definition of relevant cognate disciplines and mathematical requirement.

### Summary of recommendations to the provider

For both programmes, MSc in Financial Technology and Postgraduate Diploma in Science in Financial Technology:

- 1) Maximum class sizes of 30 students for both the full-time and part-time modes of delivery of the programme.
- 2) Guest lecturing not be required for all modules but be reduced to focus on areas such as Innovation & Entrepreneurship.
- 3) The minimum intended programme learning outcomes to be amended to include the following areas within financial technology: a) data governance and regulation; b) the impact of the internet environment on the distribution of finance and c) the development of key

transferable skills such as teamwork. Relevant minimum module learning outcomes will need to be mapped against revised minimum programme learning outcomes.

- 4) Resources be made available to subscribe to the relevant databases for financial data (i.e. Bloomberg or Thompson Reuters), as well as the appropriate number of licences.
- 5) The topics of Capital Asset Pricing Model (CAPM), Portfolio Management and Robo-Advisory be included in the syllabus content for the module on Financial Markets & Services. A text on disintermediation to be included in resources for this module.
- 6) In the module on Quantitative Financial Modelling, an introduction to whichever platform is chosen for accessing large data sets (i.e. Bloomberg or Thompson Reuters) be included in syllabus content.
- 7) For the module on Information & Cybersecurity Management, fewer topics be included in module syllabus which can be covered in greater depth.
- 8) The title of the module on Distributed Ledger Technologies be changed to Blockchain & Distributed Ledger Technologies to accurately reflect syllabus content.
- 9) Any overlap of syllabus content in the module on Distributed Ledger Technologies with that in the module on Quantitative Financial Modelling (e.g. Python) be eliminated.
- 10) The topic of Public versus Private Blockchain needs to be added to module aims and objectives for Distributed Ledger Technologies.
- 11) To ensure that programme content reflects contemporary issues within the financial technology sector, policies and procedures need to be devised to process minor amendments to programme until next programmatic review. In addition, the definition of a minor change will need to be determined to identify when a series of minor changes equates to major change in the programme and re-validation is required.
- 12) Regulation in a global context needs to be considered within the modules on FinTech Regulation due to the expected number of international students that will be pursuing the proposed programme on a full-time basis.
- 13) DBS consider the inclusion of electives into the programme, possibly at the next programme review.
- 14) Lists of resources for each module be reviewed and updated accordingly.

#### Specifically for MSc Programme in Financial Technology

- 15) Contact hours for the Applied Project module be clarified, not only in terms of group class sessions to be held but also supervision meetings.

## Declarations of Evaluators' Interests

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

- Mr Cillian Leonowicz informed QQI and the panel that he was previously a member of a programme evaluation panel that evaluated a programme by Dublin Business School. After the evaluation took place, Cillian met with a member of the Dublin Business School panel to discuss a project that Cillian's previous employer was considering. The member of the Dublin Business School panel was involved in the design of the programme at that time but is not currently lecturing in Dublin Business School. The project did not commence.

Panel chairperson:

*ANN CAMPBELL*

Date:

*7.6.2018*

Signed:

*Ann Campbell*

### 1.3 Disclaimer

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

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

## Part 3: Proposed programme schedules

<b>Name of Provider:</b>		Dublin Business School													
<b>Programme Title</b>		Master of Science in Financial Technology (Fintech)													
<b>Award Title</b>		Master of Science													
<b>Stage Exit Award Title<sup>3</sup></b>		Postgraduate Diploma in Science in Financial Technology (Fintech)													
<b>Modes of Delivery (FT/PT):</b>		Full Time													
<b>Teaching and learning modalities</b>		Formal lectures, seminars interactive group work, specific learning groups as defined by area of academic need, workshops, presentations, educator/teacher review, case-based learning, problem based learning													
<b>Award Class<sup>4</sup></b>	<b>Award NFQ level</b>	<b>Award EQF Level</b>	<b>Stage (1, 2, 3, 4, ..., or Award Stage):</b>		<b>Stage NFQ Level<sup>2</sup></b>	<b>Stage EQF Level<sup>2</sup></b>	<b>Stage Credit (ECTS)</b>	<b>Date Effective</b>	<b>ISCED Subject code</b>						
Major	9	7	Award		9	7	90	1 <sup>st</sup> Sept 2018	0412						
<b>Module Title</b> (Up to 70 characters including spaces)		<b>Semester no where applicable (Semester 1 or Semester 2)</b>	<b>Module</b>		<b>Credit Number<sup>5</sup></b>	<b>Total Student Effort Module (hours)</b>					<b>Allocation Of Marks (from the module assessment strategy)</b>				
			<b>Status<sup>19</sup></b>	<b>NFQ Level<sup>1</sup> where specified</b>	<b>Credit Units</b> ECTS	<b>Total Hours</b>	<b>Class (or equiv) Contact Hours</b>	<b>Directed e-learning</b>	<b>Independent Learning</b>	<b>Hours of independent learning effort<sup>20</sup></b>	<b>Work-based learning effort<sup>20</sup></b>	<b>C.A. %</b>	<b>Supervised Project %</b>	<b>% practical demonstration</b>	<b>Proctored practical</b>
Fintech: Markets & Services		1	M	9	10ECTS	250	48	50	152		60				40
Quantitative Financial Modelling		1	M	9	10ECTS	250	60	50	140		60				40
Information & Cybersecurity Management		1	M	9	5 ECTS	125	30	50	45		100				
Blockchain & Distributed Ledger Technologies		1	M	9	5 ECTS	125	30	50	45		100				
Fintech Regulation		2	M	9	10 ECTS	250	48	50	152		60				40
Data Analytics & Machine Learning		2	M	9	10ECTS	250	60	50	140		60				40
Applied Financial Analysis		2	M	9	5 ECTS	250	30	50	45		100				
Innovation & Entrepreneurship in Fintech		2	M	9	5 ECTS	125	24	50	51		100				
<b>Special Regulations (Up to 280 characters)</b>															
None															

<b>Name of Provider:</b>		Dublin Business School												
<b>Programme Title</b>		Master of Science in Financial Technology (Fintech)												
<b>Award Title</b>		Master of Science												
<b>Stage Exit Award Title<sup>3</sup></b>		Postgraduate Diploma in Science in Financial Technology												
<b>Modes of Delivery (FT/PT):</b>		Part Time												
<b>Teaching and learning modalities</b>		Formal lectures, seminars interactive group work, specific learning groups as defined by area of academic need, workshops, presentations, educator/teacher review, case-based learning, problem based learning												
<b>Award Class<sup>4</sup></b>	<b>Award NFQ level</b>	<b>Award EQF Level</b>	<b>Stage (1, 2, 3, 4, ..., or Award Stage):</b>	<b>Stage NFQ Level<sup>2</sup></b>	<b>Stage EQF Level<sup>2</sup></b>	<b>Stage Credit (ECTS)</b>	<b>Date Effective</b>	<b>ISCED Subject code</b>						
Major	9	7	Award	9	7	90	1 <sup>st</sup> Sept 2018	0412						
<b>Module Title</b> (Up to 70 characters including spaces)	<b>Semester no where applicable (Semester 1 or Semester 2)</b>	<b>Module</b>		<b>Credit Number<sup>5</sup></b>	<b>Total Student Effort Module (hours)</b>					<b>Allocation Of Marks (from the module assessment strategy)</b>				
		<b>Status<sup>21</sup></b>	<b>NFQ Level<sup>1</sup> where specified</b>	<b>Credit Units</b>	<b>Total Hours</b>	<b>Class (or equiv) Contact Hours</b>	<b>Directed e-learning</b>	<b>Learning Independent</b>	<b>Hours of learning effort<sup>22</sup></b>	<b>Work-based learning effort<sup>22</sup></b>	<b>C.A. %</b>	<b>Supervised Project %</b>	<b>% practical demonstration</b>	<b>Proctored practical</b>
<b>ECTS Credits</b>														
Fintech: Markets & Services	1	M	9	10ECTS	250	36	62	152		60				40
Quantitative Financial Modelling	2	M	9	10ECTS	250	48	62	140		60				40
Information & Cybersecurity Management	1	M	9	5 ECTS	125	24	56	45		100				
Blockchain & Distributed Ledger Technologies	1	M	9	5 ECTS	125	24	56	45		100				
Fintech Regulation	2	M	9	10 ECTS	250	36	62	152		60				40
Data Analytics & Machine Learning	2	M	9	10 ECTS	250	48	62	140		60				40
Applied Financial Analysis	3	M	9	5 ECTS	125	24	56	45		100				
Innovation & Entrepreneurship in Fintech	3	M	9	5 ECTS	125	18	56	51		100				
<b>Special Regulations (Up to 280 characters)</b>														
<b>None</b>														



<b>Name of Provider:</b>		Dublin Business School												
<b>Programme Title</b>		Master of Science in Financial Technology (Fintech)												
<b>Award Title</b>		Master of Science												
<b>Stage Exit Award Title<sup>3</sup></b>		N/A												
<b>Modes of Delivery (FT/PT):</b>		Full Time												
<b>Teaching and learning modalities</b>		Formal lectures, seminars interactive group work, specific learning groups as defined by area of academic need, workshops, presentations, educator/teacher review, case-based learning, problem based learning												
<b>Award Class<sup>4</sup></b>	<b>Award NFQ level</b>	<b>Award EQF Level</b>	<b>Stage (1, 2, 3, 4, ..., or Award Stage):</b>		<b>Stage NFQ Level<sup>2</sup></b>	<b>Stage EQF Level<sup>2</sup></b>	<b>Stage Credit (ECTS)</b>	<b>Date Effective</b>	<b>ISCED Subject code</b>					
Major	9	7	Award		9	7	90	1 <sup>st</sup> Sept 2018	0412					
<b>Module Title</b> (Up to 70 characters including spaces)		<b>Semester no where applicable (Semester 1 or Semester 2)</b>	<b>Module</b>		<b>Credit Number<sup>5</sup></b>	<b>Total Student Effort Module (hours)</b>					<b>Allocation Of Marks (from the module assessment strategy)</b>			
			<b>Status<sup>15</sup></b>	<b>NFQ Level<sup>1</sup> where specified</b>	<b>Credit Units</b>	<b>Total Hours</b>	<b>Class (or equiv) Contact Hours</b>	<b>Directed e-learning</b>	<b>Hours of Independent Learning</b>	<b>Work-based learning effort<sup>16</sup></b>	<b>C.A. %</b>	<b>Supervised Project %</b>	<b>Proctored practical demonstration %</b>	<b>Proctored written exam %</b>
					<b>ECTS</b>									
Fintech: Markets & Services		1	M	9	10ECTS	250	48	50	152		60			40
Quantitative Financial Modelling		1	M	9	10ECTS	250	60	50	140		60			40
Information & Cybersecurity Management		1	M	9	5 ECTS	125	30	50	45		100			
Blockchain & Distributed Ledger Technologies		1	M	9	5 ECTS	125	30	50	45		100			
Fintech Regulation		2	M	9	10 ECTS	250	48	50	152		60			40
Data Analytics & Machine Learning		2	M	9	10ECTS	250	60	50	140		60			40
Applied Financial Analysis		2	M	9	5 ECTS	250	30	50	45		100			
Innovation & Entrepreneurship in Fintech		2	M	9	5 ECTS	125	24	50	51		100			
Research Methods*		1 / 2	M	9	5 ECTS	125	24	50	51		100			
Applied Project		3	M	9	25 ECTS	624	24		600			100		
<b>Special Regulations (Up to 280 characters)</b>														
<b>Students will not progress to the Applied Project module unless all taught modules have been passed. *All CA components in Research Methods must be passed individually</b>														

<b>Name of Provider:</b>		Dublin Business School												
<b>Programme Title</b>		Master of Science in Financial Technology (Fintech)												
<b>Award Title</b>		Master of Science												
<b>Stage Exit Award Title<sup>3</sup></b>		N/A												
<b>Modes of Delivery (FT/PT):</b>		Part Time												
<b>Teaching and learning modalities</b>		Formal lectures, seminars interactive group work, specific learning groups as defined by area of academic need, workshops, presentations, educator/teacher review, case-based learning, problem based learning												
<b>Award Class<sup>4</sup></b>	<b>Award NFQ level</b>	<b>Award EQF Level</b>	<b>Stage (1, 2, 3, 4, ..., or Award Stage):</b>	<b>Stage NFQ Level<sup>2</sup></b>	<b>Stage EQF Level<sup>2</sup></b>	<b>Stage Credit (ECTS)</b>	<b>Date Effective</b>	<b>ISCED Subject code</b>						
Major	9	7	Award	9	7	90	1 <sup>st</sup> Sept 2018	0412						
<b>Module Title</b> (Up to 70 characters including spaces)		<b>Semester no where applicable (Semester 1 or Semester 2)</b>	<b>Module</b>		<b>Credit Number<sup>5</sup></b>	<b>Total Student Effort Module (hours)</b>					<b>Allocation Of Marks (from the module assessment strategy)</b>			
			<b>Status<sup>17</sup></b>	<b>NFQ Level<sup>1</sup> where specified</b>	<b>Credit Units</b>	<b>Total Hours</b>	<b>Class (or equiv) Contact Hours</b>	<b>Directed e-learning</b>	<b>Learning Independent</b>	<b>Hours of learning effort<sup>18</sup></b>	<b>Work-based learning effort<sup>18</sup></b>	<b>C.A. %</b>	<b>Supervised Project %</b>	<b>% practical demonstration</b>
ECTS Credits														
Fintech: Markets & Services		1	M	9	10ECTS	250	36	62	152		60			40
Quantitative Financial Modelling		2	M	9	10ECTS	250	48	62	140		60			40
Information & Cybersecurity Management		1	M	9	5 ECTS	125	24	56	45		100			
Blockchain & Distributed Ledger Technologies		1	M	9	5 ECTS	125	24	56	45		100			
Fintech Regulation		2	M	9	10 ECTS	250	36	62	152		60			40
Data Analytics & Machine Learning		2	M	9	10 ECTS	250	48	62	140		60			40
Applied Financial Analysis		3	M	9	5 ECTS	125	24	56	45		100			
Innovation & Entrepreneurship in Fintech		3	M	9	5 ECTS	125	18	56	51		100			
Research Methods		1 / 2 /3	M	9	5 ECTS	125	18	56	51		100			
Applied Project		4	M	9	25 ECTS	624	24		600		100			
<b>Special Regulations (Up to 280 characters)</b>														
<b>Students will not progress to the Applied Project module unless all taught modules have been passed.</b>														