(Policy & Procedure for Validation of all Programmes at Level 6-10 NFQ)

NEW TAUGHT PROGRAMME EVALUATION PANEL REPORT – MAJOR AWARDS

1.   GENERAL INFORMATION

1.1   Provider: **Institute of Technology Carlow**

1.2   Provider Locations: All Campuses

1.3   Date of Visit: 20 May 2020

1.4   Overview:
1. The Faculty of Engineering at IT Carlow has been involved in aviation training since 2003 when it commenced its Higher Certificate in Science in Avionics programme.
2. Currently the Faculty offers degree programmes in Aerospace Engineering, Aviation Management, Pilot Studies, Flight Dispatch and Flight Operations and shorter programmes in areas such as technical aircraft management and critical incident stress management.
3. Specialist Level 9 programmes in Flight Test Engineering will add to the aviation programme portfolio for IT Carlow.
4. IT Carlow is an approved Irish Aviation Authority Part 147 Training Organisation.
5. IT Carlow is the only Irish member of the Air Transport and Aeronautics Education and Research Association (ATAERA).

1.5 Review Documentation: The following is the list of documents made available to the Panel for evaluation:

1. Submission for the Validation of New Taught Programme, Faculty of Engineering, Level 9 Master of Engineering in Flight Test Engineering, Level 9 Postgraduate Diploma in Engineering in Flight Test Engineering and associated Minor Awards.
2. Book of Modules
3. Assessment Schedule
4. CVs for Programme Development Team
5. IT Carlow Award Standards for Engineering
6. Powerpoint Presentation by Dr Frances Hardiman, Head of Faculty of Engineering, IT Carlow

1.6 Programmes Proposed for Evaluation by Panel:

	Proposed Award Titles	Exit Award Option	Level	Award	Credits
1	Master of Engineering in Flight Test Engineering	Postgraduate Diploma in Engineering in Flight Test Engineering	9	Major	90
2	Postgraduate Diploma in Engineering in Flight Test Engineering		9	Major	60
3	Certificate in Aerial Vehicle Platforms		9	Minor	5
4	Certificate in Unmanned Aerial Vehicles		9	Minor	5
5	Certificate in Flight Control Systems		9	Minor	5
6	Certificate in Electric and Hybrid Propulsion		9	Minor	5
7	Certificate in Data Acquisition and Analysis		9	Minor	5
8	Certificate in Flight Testing		9	Minor	10
9	Certificate in Aviation Finance and Legislation		9	Minor	10
10	Certificate in Avionics Hardware and Software Certification		9	Minor	5
11	Certificate in Spacecraft Systems Engineering		9	Minor	5
12	Certificate in Research Methods for Engineering		9	Minor	5

1.7   Evaluation Panel Membership:

Position on Panel	Title	First name	Surname	Position	College / Company
Chairperson	Ms	Naomi	Jackson	Dean of Academic Affairs	CCT College Dublin
Secretary	Mr	David	Denieffe	Vice President for Academic Affairs & Registrar	Institute of Technology Carlow
Academic Representative	Mrs	Nele	Tootsi	Head of CNS Training and Lecturer	Estonian Aviation Academy
Academic Representative	Prof	Antonin	Kazda	Lecturer	University of Žilina, Slovakia
Industry Representative	Mr	Shane	McNicholas	Airline Pilot / Organisational Psychologist	Proteus Group & Aer Lingus
Industry Representative	Mr	Michael	Bevan	Line Maintenance Engineer	Aer Lingus
Admin Support	Ms	Dolores	McCann	Office of VP for Academic Affairs & Registrar	Institute of Technology Carlow

1.8   Attendance Register:

1.   Dr Patricia Mulcahy, President
2.   Dr Frances Hardiman, Head of Faculty of Engineering
3.   Dr Cathal Nolan, Head of Dept of AME
4.   Gerard Gibbs, Joint Programme Leader
5.   Dr Edmond Tobin, Joint Programme Leaders
6.   Paul Gibbons, Academic
7.   Roddy McNamee, Academic
8.   Diarmuid O Gorman, Academic
9.   Dr Niall Creery, Academic
10. Dr Mark Wylie, Academic
11. Dr Kevin Hannigan, Academic
12. Michael Mahon, Academic
13. Dr Ashish Vashishtha, Academic
14. Prof Dr Leonardo Manfriani, Lecturer in Flight Testing in ZWAH - Zurich University of Applied Science
15. Anne Meaney, Extended Campus Coordinator

1.9   Agenda:

Date: **Wednesday 20 May 2020**
Time: **9.30 am**
Venue: **Remotely *via* MS Teams**

	Time
Private Meeting of Panel Members - *consideration of Preliminary Evaluation Panel Report*	9.30 – 10.30
Meeting with President, Head of Faculty of Engineering, Head of Department of Aerospace, Mechanical and Electronic Engineering and the Programme Leaders in relation to:	10.30 – 11.15

i.   Proposed new programmes and their context within the Institute's strategic planning.
ii.   Rationale for the programmes
iii. Entry requirements, access, transfer and progression
iv.   Structure, aims and objectives.

Break

Evaluation Session with programme development team to discuss:	11.30 – 1

i.   Programme curriculum, module content, learning outcomes
ii.   Teaching, learning and assessment methodologies.

Break

Private Meeting of Panel Members – *agree conditions, recommendations and outline draft of Evaluation Panel Report*	1.30 – 2.30
Feedback to Programme Development Team and Conclusion	2.30

2. EVALUATION AGAINST THE VALIDATION CRITERIA

2.1 Examination of the Programmes:

<u>Preliminary Evaluation Report</u>: The Panel conducted a preliminary evaluation of draft 1 of the programme submission document; following this, the Panel shared their comments with the Programme Development Team and asked that they take these comments on board before they submitted their final draft for evaluation by the Panel at today's meeting. Please see *Appendix 1* for copy of Preliminary Evaluation Report.

The Panel note the alignment of the validation to the criteria set out in the *Core Policies and Criteria for the Validation by QQI of Programmes of Education and Training 2016* (including sub criteria set out in the QQI template for *Independent Evaluation Report on an Application for Validation of a Programme of Education and Training*).

To examine the programmes against the criteria for the Institute's *Policy and Procedures for the Design, Development, Validation and Withdrawal of all Programmes at Award Levels 6-10 in the NFQ 2016.*	The Panel agreed that the proposed programmes are in-line with the Institute of Technology Carlow's *Policy and Procedures for the Design, Development, Validation and Withdrawal of all Programmes at Award Levels 6-10 in the NFQ.*
To examine the programmes against the requirements of the *Qualifications and Quality Assurance (Education and Training) Act 2012.*	The Panel is satisfied that the programmes meet the requirements of the *Qualifications and Quality Assurance (Education and Training) Act 2012.*
To examine the programmes so that they fit with the Institute's *Strategic Plan*.	The Panel is satisfied that these programmes are consistent with the Institute's current *Strategic Plan 2019-2023*.
	The President advised that IT Carlow has prepared its 10-year Self Evaluation Report; a panel of international experts will conduct evaluation visits with staff from IT Carlow and its stakeholders *via* MS Teams during the month of June as part of the review process.
To examine the programme against the relevant *IT Carlow Awards Standards.*	The Panel examined the programmes against the *IT Carlow Awards Standards for Engineering*, Level 9.

	The Panel were satisfied that the programmes met the Award Standards; discussion took place regarding possible inclusion of research methods within the Postgraduate Diploma Award to strengthen satisfaction of award standards in relation to research practice.
	The Programme Team might review all documentation to ensure that language used is at a Level 9 Award Standard (in the context of the revised assessment strategy).
To examine the interaction the programme team have had with relevant prospective employers of graduates	Following discussions with the Programme Team, the Panel is satisfied with the research undertaken, including consultation with prospective students, industry, recruitment agencies, *etc.*
	The revised submission document would be strengthened by the inclusion of the details of this research and the involvement of industry in the programme design.
To examine the rationale and requirements for the programmes, including the graduate attributes associated with the programmes.	Overall the Panel agreed that the development of these new level 9 programmes in the area of flight test engineering is very well-timed.
	Following discussions with the Programme Team, the Panel recognise the requirement by Industry for the Level 9 major awards.
	Following discussion with the Programme Team, the panel is satisfied that provision of CPD opportunities for industry is a suitable rationale for the minor awards. Clarification on the more limited nature of progression from the Certificate in Aviation Finance and Legislation will further cement this.
	The Panel note the graduate attributes.
To examine the proposed programme titles and ensure that they are fit for purpose, reflect the intended programme learning outcomes and award level.	The Panel agree that the proposed titles for each of the 12 new awards are accurate and fit for purpose; they reflect the intended learning outcomes and award level.

To ensure that the programme objectives and outcomes are clear and consistent with award sought.	The Panel note the proposed programme objectives and learning outcomes for each of the awards.

The Panel note the proposed module aims and learning outcomes.

In relation to the requirement linked to changing assessment strategy, the Panel ask that these be revisited and rewritten so that language used is clear and transparent and that it is appropriate to NFQ Level 9 and to IT Carlow Award Standards for Level 9 programmes in Engineering. |
| **To examine the access, transfer and progression arrangements** | Access:
- The Panel note that entry to all programmes will be *via* direct application to Institute of Technology Carlow.
- The Panel ask the Team to provide clear and transparent entry criteria within the submission document for each of the 12 proposed awards. Ensure that the entry criteria for applicants that don't come through the IT Carlow route, or apply using RPL, is articulated.
- The Panel ask the Team to provide clarity on what are the prerequisites for entry to both of the major award programmes.
- The Panel ask the Team to provide a framework for those who come in through non-engineering disciplines.

Progression:
- The Programme Team to specify that progression from the Minor Awards is subject to satisfying entry requirements. |

To examine the procedures and criteria for recognition of prior learning.	The Panel ask the Team to provide a clear and transparent RPL policy and procedure within the submission document which is specific for entry into these 12 programmes. To avoid ambiguity, it must outline how experience would map to relevant level 8 learning outcomes.

To examine curriculum content so that it is well structured and fit for purpose	1. The Panel welcome the use of external industry experts as Guest Lecturers; this will help ensure that content is appropriate and current.
	2. The Panel note the functionality of the following review processes that help to ensure that the curriculum for each of programmes are appropriate and current:
	  • Programme Board
	  • Annual Programme Review
	  • Annual Updates Submissions
	  • Programmatic Review
	  • Institutional Review.
	3. Any typographical and layout errors to be corrected in the final draft of the documents which will accompany the response to this report.
	4. A programme schedule for each of the 12 programmes proposed must be included in the submission document and also attached to the response by the Programme Team to this report. As the programme schedule is the Institute of Technology Carlow's contract with the learner, the Programme Team must ensure that it is correct and that it reflects all relevant special regulations and exit award options where applicable.
	5. The Panel note that the programme modules may be offered to learners in an access delivery capacity; this option must be articulated in the submission document.
	6. From discussions, the Panel note that learners will have independent learning days; more detail on independent learning expectations, etc., to be provided in the document.

7. Human Factors to be strengthened and made explicit in programme and module content, *e.g.* Aviation Finance and Legislation.
8. The Panel ask that 'flight experience' be included as part of the curriculum for the major awards.
9. Consider including the module Research Methods as part of the Postgraduate Diploma award.
10. Exposure to the use of drawing software at the beginning of the Level 9 Major Awards to be explicit in the programme documentation.
11. Introduce some UAV platforms into the module Aerial Vehicle Platforms.
12. Consider including helicopters and high speed flight in the module Flight Control Systems.
13. The Panel note that lifecycle of vehicles will be included in the syllabi for Quality and Environmental Testing but ask that this be clearly documented.
14. Make explicit how learners who have a strong-focused technical background will be supported in the non-technical modules*, e.g.,* Aviation Finance and Legislation.
15. Make explicit how learners will be supported through their Dissertation. Also document how learners are taught reflective writing.

If applicable, to examine any practice placement or work based elements with regard to integration into the programme, organisation and oversight.	To ensure exposure to 'in the air'' practice and to provide employment opportunities for graduates, the Panel ask that 'flight experience' is included as part of the curriculum. The Programme Team to investigate and provide a framework for how this will work. The Panel ask the Programme Team to investigate industry-based 'practical training' opportunities for learners studying on the major award programmes. The Team to be proactive in securing these opportunities and in supporting learners who wish to engage. A framework of how

	this would work to be included in the submission document.
To examine the teaching and learning strategies to ensure that they are sound and programme specific	The Panel agree that the proposed teaching methods are appropriate for the programme (practical work, group works and lectures hand in hand). The Panel note the use of Blackboard as a VLE tool. Following discussion, the Panel recognise that many staff in the Faculty of Engineering are currently studying on, or have participated on, postgraduate teaching and learning programmes, postgraduate teaching and learning; this must be articulated in the staff CVs. The Panel ask the Faculty to further engage with the Institute's Centre for Teaching and Learning with a focus on postgraduate teaching and research supervision.
To examine the ethical perspectives of the programmes	The panel are satisfied that the Institute has appropriate mechanisms in place to ensure that any teaching, learning, placement or research activity will always be conducted in a manner that is morally and professional ethical; the Panel note the Programme Team's intention to apply these to the awards under consideration.
To examine the teacher-learner dialogue process and to ensure that learners will be well informed, guided and cared for, and any special arrangements for joint/collaborative provision are articulated	The Panel note that the current modes of communication between IT Carlow staff, learners and support staff are good. The Panel note that learners will have the opportunity to sit on their Programme Board and also on the Institute of Technology Carlow's Academic Council and Governing Body.
To examine the assessment strategies and to ensure that they are robust, reliable and valid.	The Panel heard about the various forms of assessment. The Programme Team to revise and include how assessment will be presented.

The connectivity of assessments, and how they feed into each other, to be clear and transparent.

The grading rubrics for cross-module assessment to be documented.

Group work, where it happens in the programme / module, must be explicit. Marking schemes and allocation of marks for group and the individual to be articulated.

The Panel commend the use of Peer Review learning.

To ensure the programme is well managed and resourced and that any joint/ collaborative provision has been taken into account

The Panel met with Management at IT Carlow. It is noted that there is currently a global pandemic due to COVID-19. The Panel recognise that the current uncertainties in the national and international economy, as a result of COVID-19, may impact on the resourcing of these programmes in the shorter-term. However following discussions with Management, the Panel are happy that IT Carlow are committed to resourcing these new programmes and providing investment.

The Panel note the Institute's Memorandum of Understanding with Waterford Airport.

The Panel encourage the Faculty of Engineering to develop links with the Aer Corps, with a possibility to access some of their large fleet of aircraft for practical training purposes.

The Panel encourage the Faculty of Engineering to explore developing international contracts within the aviation sector.

The Panel met with those involved in the design of the programmes; they were impressed with their levels of qualification, competence and their enthusiasm. The Panel agree that, to remain at the cutting

edge, the Programme Development Team must be encouraged to participate on continuing professional development programmes and to engage in research.

The Panel ask the Programme Team to continuously review all required resources, including reference material, to ensure that they are current, appropriate and viable.

The Programme Team to reflect the requirement to document the specific supports that will be implemented to strengthen students' potential to succeed, recognising the potential deficits that may exist upon admission to the programme through the diverse entry options.

The Panel note some of the services which are available to all registered learners at IT Carlow:
- Faculty Office
- Academic Administration & Exams Support
- Teaching & Learning Centre
- Library
- Computing Services
- Learner Support and Student Services
- Medical Centre
- Students' Union
- Sporting Activities
- Health & Fitness Suite
- Clubs and Societies
- Restaurant.

The Panel is happy that the physical facilities and resources will be made available to deliver these new programmes at the Institute of Technology Carlow.

3. DECISIONS *(For the attention of Institute of Technology Carlow Academic Council)*

3.1 Determination

The evaluation panel recommend the validation of the following programmes, subject to the following listed under 3.2, 3.3, 3.4 and 3.5 below:

	Proposed Award Titles	Exit Award Option	Level of Award	Award Type	Credits
1	Master of Engineering in Flight Test Engineering	Postgraduate Diploma in Engineering in Flight Test Engineering	9	Major	90
2	Postgraduate Diploma in Engineering in Flight Test Engineering		9	Major	60
3	Certificate in Aerial Vehicle Platforms		9	Minor	5
4	Certificate in Unmanned Aerial Vehicles		9	Minor	5
5	Certificate in Flight Control Systems		9	Minor	5
6	Certificate in Electric and Hybrid Propulsion		9	Minor	5
7	Certificate in Data Acquisition and Analysis		9	Minor	5
8	Certificate in Flight Testing		9	Minor	10
9	Certificate in Aviation Finance and Legislation		9	Minor	10
10	Certificate in Avionics Hardware and Software Certification		9	Minor	5
11	Certificate in Spacecraft Systems Engineering		9	Minor	5
12	Certificate in Research Methods for Engineering		9	Minor	5

3.2   Commendations & Comments

The Panel recognise that IT Carlow are leading the way in developing programmes for the aviation sector and commend IT Carlow for being the national sector-wide leader in these types of higher education developments.

The Panel acknowledge the preparedness of the work that IT Carlow has done in the aviation area.

The Panel thank all those whom they met as part of this evaluation process and acknowledge their openness and transparency in all discussions.

3.3   Conditions

The evaluation panel require that the Programme Development Team should take note of the following conditions and that a satisfactory response to address those conditions shall be received before the validation is considered by Academic Council of the Institute of Technology Carlow

1. Flight experience must form part of the programme; specify how this will operate.

2. Revisit Access, Transfer and Progression, particularly for those that don't come through the IT Carlow route and include RPL applicants. Provide clarity on prerequisites for entry to major award programmes and the supports to be implemented where deficits may be apparent. Specify the progression routes from the minor awards. Provide a framework for those who come in through non-engineering disciplines.

3. Assessment Strategy: revise and include how assessment will be presented.

3.4   Recommendations

Recommendations are suggestions made by the Programme Evaluation Panel in the spirit of improving the proposed programme. While these are not binding, the reasons for not incorporating a recommendation have to be clearly stated by the Programme Development Team in its response to the Evaluation Report.

1. A focus on staff development, in respect of postgraduate teaching and learning and research supervision, to be put in place.

2. Consider integrating the Research Methods into the Postgraduate Diploma.

3. Investigate practical training in industry. Review how it would form part of the programme. Be more proactive in encouraging and supporting students to engage in practical training.

3.5 Programme Schedules and Programme Abstracts

<u>Amended Programme Schedules</u> for <u>each stage of each programme</u> listed under 3.1 above, to incorporate conditions and recommendations set out in 3.3 and 3.4, and all Programme Abstracts, <u>must</u> be submitted with the Response to this Panel Evaluation Report.

3.6 Approval

Programme Evaluation Report Approved by:

_____   _____

Naomi Jackson   **David Denieffe**
Chairperson to Panel   **Secretary to Panel**
Dean of Academic Affairs   *Vice President for Academic Affairs & Registrar*
CCT College Dublin   *IT Carlow*

Date: _____   Date: _____

	Description	Panel Member 1	Panel Member 2	Panel Member 3	Panel Member 4		Action
1	**To examine the programme against the relevant *IT Carlow Awards Standards*.**	Mapping suggests clear alignment of PLOs to award standards for the major awards. Module mapping to PLOs however maps modules to PLO's numbered 1 -8, when there are 10 PLOs. It's likely this is a mapping to award standard categories and not PLOs. In the absence of mapping to PLOs it's difficult to see, for example, how PLO 9 of the PGDip (Lead and participate in projects incorporating analysis, research of advanced solutions and effective presentation of findings cognisant of ethical considerations) is attained.	No issue	No Comments, this programme fits into the wider awards standards of IT Carlow	The programme is in coherent with Awards Standards in place in IT Carlow, mapped in chapter 5.9.		
2	**To examine the interaction the programme team have had with relevant prospective employers of graduates**	Document outlines industry developments and anticipated growth. There is also reference to an industry liaison board in respect of earlier programme developments in ITC. Not clear what role industry played in informing this development. Two letters are provided in appendix 1. One from Ryanair appears to endorse an already designed programme and the second from FTE appears to simply state what the programme is comprised of. Did either of these organisations,	No issue / too soon to say	Further consideration could be given to the inclusion of a Human Factors module to this programme. An awareness of the role of Human Factors and the influence they have upon the safe conduct of flight testing and line engineering is a vital part of an organisation's Safety Management System. A HF module would provide students with exposure to the measurement and	The programme team declares that "Programmes are designed in consultation with aviation industry employers" but have not named any specific companies from the industry. Were there employers only from the traditional aviation or also from the new companies in the aviation world (for		

	or other industry representatives, influence the curriculum design and content, assessment approaches etc? What is industry's view on the employability of graduates of the PGDip versus the MEng?			mitigation of risk in flight test engineering.	example UAV companies)?
3	**To examine the rationale and requirements for the programmes, including the graduate attributes associated with the programmes.**	Strong rationale for the major awards. This is less apparent for the minor awards with them all being grouped under the rationale of professional development. This rationale may well be valid but the absence of clear evidence of demand for each of the minor awards raises the question of whether or not there is a rationale for every module also being a minor award. The entry requirements to the minor awards imply that consideration has been given to the types of people who may avail of these as CPD. Getting that clarification from the programme team will likely confirm the rationale.	No issue	As above	As the programme is unique in Europe the rationale and requirements explained in chapter 2 are clear. It is a bit unclear what is the demand in Europe, because the reference is to a US Bureau of Labour Statistics.
4	**To examine the proposed programme titles and ensure that they are fit for purpose, reflect the intended programme learning**	Programme titles are unambiguous and have longevity and appear to reflect the PLOs (subject matter experts will be better placed to comment).	*See comments outlined below.*	No Comments	The title of the programme "Engineering in Flight Testing" is appropriate for programme's learning outcomes and modules.

	outcomes and award level.					
5	To ensure that the programme objectives and outcomes are clear and consistent with award sought.	Subject matter experts will be better placed to determine suitability of outcomes for the awards sought but from a non-expert perspective, the terminology in PLOs appears light on the complexity, autonomy of decision-making, advanced knowledge / mastery at the forefront of the field of learning reflective of level 9.	No issue.	Consideration towards inclusion of what is suggested in (2) above is an important element of ensuring objectives and outcomes are consistent with the award. Also, the collaboration with an organisation conducting practical flight testing (9) would enhance the quality of the qualifications gained through this programme.	The programme objectives and outcomes are mapped clearly and are consisted with the awards.	
6	To examine the access, transfer and progression arrangements	Entry requirements differ between MEng and PGDip with no clear rationale for this. Why is 2:1 the entry standard for the MEng but at the same time a level 7 degree with distinction is also accepted? For a PGDip entry with level 8 degree is not classification specific. Presumably all learners will be taught together. Why, therefore does the entry standard differ?\n\nDirect access to the major awards outline specific degree disciplines. Access to minor awards reduces this to either a technical discipline or, in some cases, a business discipline.		The programme offers a good range of possible mechanisms to enter from.	The access, transfer and progression arrangements are defined and understandable.	

		Minor awards progression allows for full completion of the MEng. For those minor awards that permit admission with a business degree, is progression to the full MEng realistic? What are the implications for the learner experience if a business graduate joins a class who have the required background and qualifications in the aviation sector?				
7	**To examine the procedures and criteria for recognition of prior learning.**	In light of the variation in entry requirements how will the RPL policy apply? Diagram on pg. 73 suggests an applicant with no formal qualifications can gain admission to minor awards and build up to the full MEng. How does this fit with the stated need for students to already have a foundation of knowledge in the aviation sector? Is it likely that such applicants would have no formal qualifications?	Acceptance of EASA B1, B2?	Again prior learning is comprehensively considered in the attached documents.	Procedures and criteria is not defined in the curriculum document? The procedure is definitely defined in IT Carlow but I do not have access to it to evaluate.	
8	**To examine curriculum content so that it is well structured and fit for purpose**	No comment on content. Interested to establish the rationale for the credit allocation and why a predominantly 5 ects model was used. Why was it decided to remove research methods from the PGDip? What will the extra element look like for those graduates of the PGDip who	*See comments outlined below.*	The curriculum content is comprehensive and fit for purpose	Content is well structured and fit for purpose. However, there is a question how is the horizontal and vertical coherence in between the modules achieved?	

9	If applicable, to examine any practice placement or work based elements with regard to integration into the programme, organisation and oversight.		Air Corps / Airlines / MROs	While the outline of the programme footprint is comprehensive, a possible learning deficit could be identified in terms of availing of placement for practical flight testing. A partnership with the Air Corps College of the Irish Air Corps would provide IT Carlow with an excellent opportunity to place students into flight test programmes within the Air Corps, which are continuous and varied due to the wide number of fleet types on the organisations inventory. A quid-pro-quo for the Air Corps would be the availability of a number of places to student graduates of the Air Corps College Apprentice scheme. The establishment of such a relationship would be mutually beneficial to both organisations and could be facilitated initially through the contacts on this	As I understood the whole curriculum is carried out in IT Carlow Isn't there practical training in the aviation industry?	

The row above this (row continuation):

decide to go on to complete the Masters? Will they be required to do a further 3 semesters in order to complete the remaining 30 ects (being research methods as a sem 1 module and then 2 semesters of dissertation)?

				programme evaluation panel, who previously served in the Air Corps.		
10	To examine the teaching and learning strategies to ensure that they are sound and programme specific	A lot of institution level info was provided on this. Programme specific information was provided in a later section but, given references in different sections to a flight simulator, use of Waterford airport, extensive lab work etc, the T & L strategy as articulated perhaps undersells this element of the programme. It would be interesting to hear from the programme team what the student experience of this programme will be. Possibly discuss this as we go through each module.	European or USA Colleges with flight programmes	The inclusion of Human Factors training and integration of this training into the assessment of risk would be a vital element of a robust flight test engineering programme.	Teaching methods are appropriate for the programme (practical work, group works and lectures hand in hand).	
11	To examine the ethical perspectives of the programmes	Clear info on ethical matters associated with the programme and the industry. What mechanisms are in place to try counterbalance the predominantly male orientation of the programme team and the potential target market? If time allows, some discussion on ethics in research within the programme would be helpful to establish the team's intentions.	No issue. Very competent body of people.	No Comments	Teaching methods are appropriate for the programme (practical work, group works and lectures hand in hand).	
12	To examine the teacher-learner dialogue process and to ensure that learners will be well	The documentation outlines the range of supports in place for students as per standard practice for ITC programmes and students.	No issue.	No Comments		

	informed, guided and cared for, and any special arrangements for joint/collaborative provision are articulated	How will Erasmus students be supported through this programme?				
13	To examine the assessment strategies and to ensure that they are robust, reliable and valid.	Here is where I would have concerns – I count 49 pieces of assessment for the Masters and that counts reference to ongoing practical assessments, which could be multiple, as only one. The dates of assessment indicate there are very few weeks where no assessment is taking place. I question whether some of the proposed assessments should be non-graded formative assessments. Notwithstanding concerns about overassessment, using multiple smaller pieces of assessment can be problematic, particularly at Masters level – how will the team ensure a piecemeal approach doesn't contribute to grade inflation through accumulation of marks, how will the depth of knowledge and complexity of LOs be evidenced in assessments that are limited in scale and scope? Discussions with the programme team may well alleviate concerns but based on the documentation it appears that an opportunity		As discussed above, access and exposure to practical flight testing would enhance this qualification in the eyes of both prospective students and potential employers.	There are a lot of projects in the programme. Are the projects done individually or in a group? How is the assessment carried out in case of working in groups?	

		may have been missed here. The programme is clearly designed to be industry focused and utilises case studies and real work simulation activities to underpin teaching and learning. The approach to assessment appears to be siloed and modular where integrated or programme level assessment would provide valuable experience for learners, reduce the workload burden and allow for assessment that reflects real work and allows for the complexity of level 9 learning outcomes to be evidenced. Given the nature of the programme, the fact that flight test engineers are not likely to be required to complete their jobs in a segmented way, and the safety, legal or ethical implications that may arise from segmenting their work, integration of assessment prior to dissertation should be considered, if it isn't already in place. An assessment schedule, detailing the dates of each piece of assessment would be helpful. Not all module descriptors have identified the dates of assessments. There's conflicting info within the document about the assessment strategy. Section 5.22.2 specifies				

		the use of end of module exams, but this isn't reflected in programme schedules or module descriptors (many of which include exams as part of CA). Section 5.22.3 discusses CA and what types of assessments form CA but doesn't include exams which are used as CA according to module descriptors. Not a major issue but clarity is required so potential students know what to expect. Group project and presentation in included – good to see. How will this operate? How many repeat opportunities are students afforded? How is failure in a group assessment repeated?				
14	**To ensure the programme is well managed and resourced and that any Joint/ collaborative provision has been taken into account**	Clear information provided on programme management and resourcing. Requested specialist resources are identified. What is the management commitment to source these? The document suggests 1 cohort per year comprising of 16 students per cohort. Is that a total of 16 across all major and minor awards?		The programme appears to be well managed and resourced.		
15	**Additional comments**	A strong institutional commitment to professional development, research, and scholarship of teaching and	See comments outlined below.			

| | | learning was outlined in section 3 of the document, including the establishment of the teaching and learning centre and the extensive supports and resources this provides. A number of CVs were provided in the appendices. Albeit that these didn't represent the full programme team as documented, the engagement in professional development, particularly in the scholarship of teaching and learning, didn't reflect the institutional commitment. There was a strong research base apparent. Some staff have participated in training and development in industry related areas relevant to their teaching, but overall professional development was either limited or dated. Scholarship in teaching and learning was particularly limited, only 1 person undertaking a formal qualification, although some had completed workshops provided by the teaching and learning centre, again generally not recent. Having a TLC is an excellent resource that will enhance teaching, learning and the student experience. I would be interested to hear why the team don't appear to engage with it for their own | | | | |

		development. Has this been a factor in the concerns regarding assessment? Not unrelated, the CVs identified that the majority of the programme team are only experienced in teaching undergraduate students / programmes. How will they be supported to transition to teach at level 9? How do they envisage adapting their approach to teaching and supporting learners in this new context? Was their inexperience at this level factored in at the programme design stage? Overall comment: I'm conscious the above comments have focused on where I have questions or concerns so it's important to point out that, notwithstanding that I'm not a subject matter expert, the documentation provided does provide confidence that the programme team have given serious consideration to this development and how it will operate as a programme in a manner that will maintain quality and standards and provide a positive experience for learners who will, by all accounts, be			

		highly employable. A number of the concerns I have raised may well just be misinterpretations that require clarification.				

Comments:

Additional comments:

What struck me from reading thru the Modules was the lack of actual flying. Ireland does not have much of a track record in flight testing so this is an opportunity to create a first-class FTE set up from scratch, but it has to contain a strong flying element. After all, the need to be airborne to test is the core of the programme and the central element of flight test engineering.

As far as I understand the role, FTEs are expected to fly as part of the job, either as cockpit crew or as backseat crew. I think any future employer would look askance at any new FTE who came out of College with no flight experience. Certainly, in the USA, where possession of a private pilot's license is regarded as common and having a CPL is also normal, not having flight time sticks out. So many of their college programmes have flying included in the training, it's taken as a given.

I'm not advocating that students be given a formal pilot's license as part of this but they would have to gain flight time, not necessarily as a pilot but onboard to monitor instruments/record data live or conduct tests such as dropping of test equipment / deploying trailing antennae,so that they would become familiar with the airborne environment for such things as effects of flight controls, effects of gravity, temperature, pressure, exposure to rain and icing, instrument flight and so on.

Direct liaison with the Irish Air Corps: because some of us on the panel and so many of the College staff involved with this programme were members of the Air Corps, as pilots and technicians, I would suggest a formal request to the IAC to become involved directly with the FTE programme. The Air Corps has a wide variety of aircraft, including helicopters, all turbine powered and all equipped with modern electronics and avionics, a simulator on site, surveillance equipment fitted to the aircraft (considering the UAV/drone parts of the modules), such as FLIR (forward looking infra red), Thermal imaging and cameras, aircraft that can be reconfigured for different roles such as the helicopters and the Casas and in particular, aircraft that can drop things, because the aerial dropping of test pieces or the ability to fit test equipment onto external pylons. Every company that uses FTEs conducts tests by dropping, launching or carrying on pylons, or as underslung loads so I believe it is important that students have access to such aircraft and equipment and have a clear understanding how pylons and other support equipment works.

The AC also operates irregular schedules and can conduct ad-hoc flights that an airline, no matter how willing, can't or won't do. There is also so much more room to move around in Baldonnel, to visit different aircraft and to get a close look at mechanical and electronic systems in operation on the ground, especially if any of them can't be reproduced in the College.

I'm probably being very cheeky here but I suggest the College ask the IAC to donate one of the Cessna 172s that are redundant, to the College, to be kept as a flying aircraft for conducting air experience flights or for conducting live tests of towed or droppable equipment. The Cessna was the great utility workhorse of the IAC and is an excellent platform for test work. I know that issues of ownership and funding would have to be thrashed out, but going back to what I said earlier about access to flying, it would be a great asset to have, as a relatively cheap test vehicle. It could easily be kept in Waterford airport, as part of a tie-in with Waterford IT.

The point was made in one of the previous feedbacks that students needed to show more design ability. This ties into my last point, in that students need to see more emphasis placed on modifications, which happen every day in the civil and military aviation industries. Aircraft are constantly being upgraded or updated or changed or altered, either the airframe or engines or the many subsystems and the airlines and militaries are constantly dealing with Airworthiness Directives, Service Bulletins, Mandatory Modifications and so on, whereby the operators have to change their aircraft to deal with safety issues or fatigue or operational wear or obsolescence or design issues and it falls upon FTEs to be able to design repairs quickly or to design changes to systems or equipment and then actively test them in flight before the modifications get sent out to the operators. Perhaps a few hours on subjects like CAD and 3-d printing?