TUS

Ollscoil Teicneolaíochta na Sionainne:
Lár Tíre, An tIarthar Láir

Technological University of the Shannon:
Midlands Midwest

Faculty of Engineering & Technology
Department of Polymer and Mechanical Engineering

Report of External Validation Panel

External Validation Panel 6th November 2025

for the

Master of Science in Advanced Engineering Technologies

and

Post Graduate Diploma in Engineering in Advanced Engineering Technologies

And

Embedded Special Purpose Awards at NFQ Level 9

Contents

1.0 INTRODUCTION

This report outlines, in summary form, the proceedings of the external validation visit for the proposed Master of Science in Advanced Engineering Technologies held on 6th November 2025. The external validation visit was undertaken in accordance with TUS Academic Regulations for the development of taught programmes. An external validation panel makes an independent impartial judgement on a programme proposal.

2.0 GENERAL INFORMATION

2.1 Higher Education Provider

Institute:	Technological University of the Shannon: Midlands Midwest
Faculty:	Faculty of Engineering & Technology
Department:	Department of Polymer and Mechanical Engineering
Date of Visit:	6th November 2025

2.2 Programmes Evaluated

1. Major Awards

Programme Title	Award Title	NFQ Level	ECTS Credits	Delivery Mode	Proposed Start Date	Duration
Master of Science in Advanced Engineering Technologies	Master of Science	Level 9	90	Full-time	2026	1.5 year
Master of Science in Advanced Engineering Technologies (Blended)	Master of Science	Level 9	90	Full-time	2026	1.5 year
Post Graduate Diploma in Engineering in Advanced Engineering Technologies	Post Graduate Diploma in Engineering	Level 9	60	Full-time	2026	1 year
Post Graduate Diploma in Engineering in Advanced Engineering Technologies (Blended)	Post Graduate Diploma in Engineering	Level 9	60	Full-time	2026	1 year

2. Non-major Awards

Programme Title	Award Title	NFQ Level	ECTS Credits	Delivery Mode	Proposed Start Date	Duration
Postgraduate Certificate in Advanced Engineering Technologies	Postgraduate Certificate	Level 9	30	Full-time	2026	1 year
Postgraduate Certificate in Advanced Engineering Technologies (Mechanical Engineering)	Postgraduate Certificate	Level 9	30	Full-time	2026	1 year
Postgraduate Certificate in Engineering Technologies (Polymer Engineering)	Postgraduate Certificate	Level 9	30	Full-time	2026	1 year
Postgraduate Certificate in Advanced Engineering Technologies (Automation Engineering)	Postgraduate Certificate	Level 9	30	Full-time	2026	1 year

Postgraduate Certificate in Advanced Engineering Technologies (Biomedical Engineering)	Postgraduate Certificate	Level 9	30	Full-time	2026	1 year
Postgraduate Certificate in Advanced Engineering Technologies (Energy Engineering)	Postgraduate Certificate	Level 9	30	Full-time	2026	1 year
Certificate in Advanced Manufacturing Systems	Certificate	Level 9	10	Full-time	2026	1 Semester
Certificate in Digital Manufacturing Technologies	Certificate	Level 9	10	Full-time	2026	1 Semester
Certificate in Advanced Polymer Processing & Design	Certificate	Level 9	10	Full-time	2026	1 Semester
Certificate in Advanced Polymer Characterisation & Application	Certificate	Level 9	10	Full-time	2026	1 Semester
Certificate in Automation & Control Systems	Certificate	Level 9	10	Full-time	2026	1 Semester
Certificate in Advanced Biomaterials	Certificate	Level 9	10	Full-time	2026	1 Semester
Certificate in Medical Device Engineering & Design	Certificate	Level 9	10	Full-time	2026	1 Semester
Certificate in Renewable Energy & Sustainability	Certificate	Level 9	10	Full-time	2026	1 Semester
Certificate in Resource Energy Economics	Certificate	Level 9	10	Full-time	2026	1 Semester

2.3 External Validation Panel of Expert Assessors

Name	Affiliation
Dr. Aodhmar Cadogan	Assistant Registrar, ATU Sligo
Dr. TJ McDonald	Senior Lecturer, Academic Integration Lead, SETU
Conall Doran	Lecturer, ATU Sligo
Catherine Collins	Manager, First Polymer Training
Eymard Gorman	Senior Principal Engineer Global Engineering, Stryker
Secretary to Panel	Dr. Brendan Murphy
Quality Officer	Amanda Ryan

2.4 TUS Staff

Vice President, Academic Affairs and Registrar	Dr. Maria Kyne
Dean of Faculty of Engineering & Technology	Dr. Sean Lyons
Head of Department of Polymer & Mechanical Engineering	Breda Lynch
Programme Lead	Professor Austin Coffey

Programme Team:

Professor Austin Coffey, Dr. Niall Burke, Patrick Doran, Keith Vaugh, Cian Bregazzi-Nevin, Dr. Declan Devine.

3.0 FINDINGS AND RECOMMENDATIONS OF EXTERNAL VALIDATION PANEL

3.1 Main Findings

The External Validation Panel of Assessors recommends approval of the following programmes:

Major Awards

- Master of Science in Advanced Engineering Technologies (Full-time) (90 ECTS)
- Master of Science in Advanced Engineering Technologies (Blended) (90 ECTS)
- Post Graduate Diploma in Engineering in Advanced Engineering Technologies (Full-time) (60 ECTS)
- Post Graduate Diploma in Engineering in Advanced Engineering Technologies (Blended) (60 ECTS)

Non-major Awards (Special Purpose Awards) At Level 9

- Postgraduate Certificate in Advanced Engineering Technologies (30 ECTS)
- Postgraduate Certificate in Advanced Engineering Technologies (Mechanical Engineering) (30 ECTS)
- Postgraduate Certificate in Engineering Technologies (Polymer Engineering) (30 ECTS)
- Postgraduate Certificate in Advanced Engineering Technologies (Automation Engineering) (30 ECTS)
- Postgraduate Certificate in Advanced Engineering Technologies (Biomedical Engineering) (30 ECTS)
- Postgraduate Certificate in Advanced Engineering Technologies (Energy Engineering) (30 ECTS)
- Certificate in Advanced Manufacturing Systems (10 ECTS)
- Certificate in Digital Manufacturing Technologies (10 ECTS)
- Certificate in Advanced Polymer Processing & Design (10 ECTS)
- Certificate in Advanced Polymer Characterisation & Application (10 ECTS)
- Certificate in Automation & Control Systems (10 ECTS)
- Certificate in Advanced Biomaterials (10 ECTS)
- Certificate in Medical Device Engineering & Design (10 ECTS)
- Certificate in Renewable Energy & Sustainability (10 ECTS)
- Certificate in Resource Energy Economics (10 ECTS)

3.2 Conditions

No conditions apply.

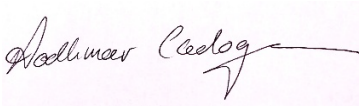
3.3 Recommendations

1) Ensure resourcing at an early stage of the role of Programme Manager which is central given its complexity.
2) Review and revise/reduce the learning outcomes for the Graduate Diploma Programme to differentiate from the Masters programme.
3) Remove the word (Blended) from the title of the award for the blended delivery mode option in the Programme specification document.
4) Develop a handbook to support the industry guest lecturers and their engagement with delivery and interface with assessment.
5) Review the allocation of assessment to the components of the modules to optimise the allocation as appropriate. Examples of modules that would benefit from this include the *Work Placement & Professional Practice* and *Digital Manufacturing Technologies*.
6) Revise Learning Outcome 1 of the *Advanced Polymer Synthesis* module to include a measurable active verb.
7) Revise Learning Outcome 3 of the *Advanced Quality Management and Regulatory Affairs* to include a measurable active verb.
8) Review the specification of independent learning hours for the *Work Placement & Professional Practice* and *Dissertation* modules. Amend the assessment to numeric grading.
9) Add a module titled *Advanced Technical Operations* as an elective option within the programme offering.

3.4 Commendations and Observations

1) The panel commends the Faculty for the evident strategic focus of the programme that aligns with the Nationals/regional skills strategies, addressing a range of gaps in postgraduate skills education.
2) The panel commends the creation of an ambitious flexible learning pathway for prospective students and emphasis on access, transfer and progression that support life-long learning and upskilling.
3) The panel commends the innovative, modular, interdisciplinary structure of the programme that combines core engineering principles with key specialisations.

4) The panel commends the innovative teaching and learning strategy including extensive use of industry expertise and cross modular assessment.
5) The panel commends the research expertise of the faculty and the co-design of a research informed programme with industry.
6) The panel commends the extensive expertise and experience of the programme team, both academic and industry.
7) The panel commends the programme team for their constructive engagement with the panel during the validation meeting.



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Dr Aodhmar Cadogan

Date: 07/ January /2026

4.0 APPENDIX

9.00am PANEL BRIEFING AND DISCUSSION

The Chairperson, Dr. Aodhmar Cadogan, welcomed all members and outlined the purpose and context of the meeting. The panel acts on behalf of the Academic Council to validate new programmes for the University. The panel finding in relation to the programme would be communicated to Academic Council.

Dr Maria Kyne, VP for Academic Affairs & Registrar joined the meeting to welcome the panel members and left thereafter.

The Chairperson asked the panel members to introduce themselves and to detail their areas of expertise. The Chairperson also asked the panel for their initial impressions of the programme and documentation. The panel members agreed that there was a strong industry need for the programme and commended the Faculty for its strategic alignment with national and regional skills strategies, which should address gaps in postgraduate skills education in this cognate area.

The panel then identified and discussed a range of areas that they would like to discuss with the programme team and seek further clarification on. These included resources, learning outcomes, and assessment, *inter alia*. It was observed that the learning outcomes for the Graduate Diploma programme should be reviewed, so as to differentiate them from the Masters programme. The panel members noted that it would be beneficial to have guidelines in place for guest lecturers, ensuring alignment with TUS requirements, particularly for delivery and assessment processes.

9.45am GENERAL OVERVIEW OF THE PROGRAMMES

TUS Senior Management was represented by the Dean of Faculty of Engineering & Technology, Dr. Sean Lyons, Head of Department of Polymer & Mechanical Engineering, Breda Lynch, Head of Department of Polymer & Mechanical Engineering and Programme Lead, Professor Austin Coffey.

The panel and management team introduced themselves. The Chairperson thanked TUS for the invitation to review the proposed programme. The Dean of Faculty, Dr. Sean Lyons and Programme Co-ordinator, Professor Austin Coffey, provided a provided a detailed presentation providing context and rationale and demand for the proposed programme.

The panel facilitated a wide-ranging discussion with the management team on the proposed programme suite, including on staffing, facilities and resources. The panel noted that the role of the Programme Manager is fundamental and that this should be put in place at an early stage. The panel queried issues relating the structure of the

programme offerings, elective streams and entry points. It was confirmed that it is envisaged the majority of students would be registered on the Major award, but that some life-long learning students would also be registered on the individual Special Purpose Awards, as appropriate. It was also confirmed that not all of the five streams would be delivered initially from day one but would be introduced on a phased basis. Further students will be registered on the major award.

11.00am MEETING WITH PROGRAMME TEAM

The Chairperson welcomed the programme team to the meeting and introduced the panel members. There was broad discussion between the panel on the overall focus of the programme, the learning outcomes and assessment strategies. The panel acknowledged and commended the creation of an ambitious flexible learning pathway and the emphasis on access, transfer and progression and supporting upskilling and life-long learning. The innovative teaching and learning strategy was commended, particularly for integrating extensive industry expertise and the implementation of cross modular assessment. The panel and programme team discussed the quality assurance and logistical aspects of the delivery by the industry experts and their involvement in assessment. In this context the panel recommended that written guidelines and protocols in the form of a handbook would be developed, as appropriate, to support the industry guest lecturers and their engagement with delivery and their interface with assessment. The panel noted that the learning outcomes for the Graduate Diploma Programme and Masters programmes were identical and noted that these would require differentiation to reflect the respective award types.

The panel and programme team reviewed each module in detail and a range of recommendations were identified with respect to the modules. These are detailed in Section 3.3 of this report. The panel noted that some of the learning outcomes require review, to ensure they are written as measurable active verbs. For example, words such as “understand” and “navigate” should be replaced. The assessment strategies were reviewed in detail. The panel recommended that the team would review the allocation of assessment to the components of the modules to optimise their allocation, as appropriate. It was also recommended that the assessment of the *Work Placement & Professional Practice* module would be revised to reflect numeric grading and not pass/fail as outlined in the documentation.

The programme team requested that an additional module be considered by the panel as an additional elective option within the programme offering. This module is titled *Advanced Technical Operations* and was shared with the panel on the day. The panel agreed to consider the proposal.

12.25pm PRIVATE MEETING OF PANEL

The panel reviewed the proceedings of the day and discussed the contributions of Management and the Programme team. In this context, the panel reviewed the draft minutes of the meeting to that point. The panel reviewed the additional elective option presented and noted it would be a valuable addition. The panel indicated that they would be happy to approve the programmes with no conditions applying. The panel indicated that a range of recommendations would be included in the report which would enhance the programme when implemented. The detailed wording of the recommendations was then developed and these are outlined in Section 3.3 of this report. The validation panel noted several commendations for the programme and these are outlined in Section 3.4 of this report.

12.45pm PANEL FEEDBACK TO FACULTY MANAGEMENT

In the concluding session, the Chairperson of the External Validation Panel, Dr Aodhmar Cadogan, briefed Dr. Sean Lyons, Breda Lynch and Professor Austin Coffey on the outcome of the day. The panel was pleased to recommend approval of the proposed programmes, with no conditions, and subject to a number of recommendations. The Chairperson noted a range of commendations including to the Faculty for the evident strategic focus of the programme that aligns with the Nationals/regional skills strategies and addresses a range of gaps in postgraduate skills education. The Chairperson then outlined the recommendations to the programme team and these were intended to further enhance the programme offering.

The Dean of Faculty, Dr. Sean Lyons, thanked the Chairperson and panel members for their time and acknowledged their detailed approach to the evaluation, noting that the recommendations were welcome and would be implemented and contribute to improving the programme offering. The Dean of Faculty expresses his appreciation to the department and Programme team for the work involved.

Head of Department, Breda Lynch and Programme Co-ordinator, Prof. Austin Coffey expressed thanks to the panel members for their constructive guidance and input during the review process.

In conclusion, the Chairperson conveyed thanks to the panel members, the programme development team and the Quality Office before bringing the validation meeting to a close.

1.15pm CONCLUSION

The external validation visit concluded.