

**Institiúid Teicneolaíochta Luimnigh
Limerick Institute of Technology**

**Dámh, Eolaíocht Fheidhmeach, Innealtóireacht agus
Teicneolaíocht
Faculty, Applied Science, Engineering and Technology**

Report of Peer Review Panel

Programmatic Review

of the

Department of Electrical and Electronic Engineering

April 2017

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1. INTRODUCTION

This report outlines, in summary form, the proceedings of the programmatic review in the Faculty of Applied Science, Engineering and Technology and the findings of the External Peer Review Group in April 2017. The programmatic review was undertaken in accordance with Section 3.8 of the LIT document 'Academic Council Regulations and Procedures for Taught Programmes: Academic Year 2016/2017: Part 1' (ACRP). The report of the Programmatic Review Panel is the academic judgement of a peer group on the academic standard and quality of the programmes of the Faculty. It confirms to the Institute the standard of the programmes in a publicly accountable manner.

2. GENERAL INFORMATION

2.1 Higher Education Provider

Institute:	Limerick Institute of Technology
Faculty:	Faculty of Applied Science, Engineering and Technology
Department:	Electrical and Electronic Engineering
Date of Review/Visit:	April 6 th & 7 th
Venues:	Institute Board Room, Moylish Park Campus Room 5C01, Moylish Park Campus

2.2 Programmes Evaluated

Department of Electrical and Electronic Engineering

- 2.2.1 Bachelor of Science (Honours) in Electrical Systems (Level 8) – *existing*
Bachelor of Engineering (Honours) in Electrical Engineering (Level 8, Ab-initio) – *proposed*

Bachelor of Engineering (Ordinary) in Industrial Electrical Engineering (Level 7) – *existing*
Bachelor of Engineering (Ordinary) in Electrical Engineering (Level 7- embedded award) – *proposed*

Higher Certificate in Electrical Installation Practice (Level 6- embedded award) – *existing*
Higher Certificate in Electrical Engineering (Level 6) – *proposed*
- 2.2.2 Bachelor of Science in Sustainable Electrical Power Systems (Level 8, Add-on) – *existing*
Bachelor of Engineering (Honours) in Renewable & Electrical Energy Engineering (Level 8 – Ab-initio) – *proposed*

Bachelor of Science in Electrical Systems (Level 8, Ab-initio) – *new programme*

Bachelor of Science (Ordinary) in Sustainable Electrical Power Systems (Level 7, Add-on) – *existing*
Bachelor of Engineering (Ordinary) in Renewable & Electrical Energy Engineering (Level 7, Ab-initio) – *proposed*
- 2.2.3 Bachelor of Engineering (Ordinary) in Electrical Technology (Level 7)
- 2.2.4 Bachelor of Engineering (Ordinary) in Manufacturing Technology (Level 7)
- 2.2.5 Bachelor of Science (Honours) in Electronic Systems (Level 8, add-on) – *existing*

Bachelor of Engineering (Honours) in Electronic Engineering (Level 8 – Ab-initio) – *proposed*

Bachelor of Engineering (Ordinary) Electronic Engineering (Level 7- embedded award)

Higher Certificate in Electronic Engineering (Level 6- embedded award)

2.2.6 Bachelor of Science in Electronic Systems (Level 8, add-on) – *existing add-on*

Bachelor of Engineering (Honours) in Industrial Automation and Robotic Systems (Level 8 – Ab-initio) – *proposed*

Bachelor of Engineering (Ordinary) in Industrial Automation and Robotic Systems (Level 7) – embedded award.

Higher Certificate in Industrial Automation and Robotic Systems (Level 6) – embedded award.

2.2.7 Bachelor of Science (Honours) in Audio and Video Production (Level 8, add-on) – *existing*

Bachelor of Science (Honours) in Creative Broadcast & Film Production (Level 8, Ab-initio) – *proposed*

Bachelor of Science (Ordinary) in Video and Sound (Level 7, add-on) – *existing*

Bachelor of Science (Ordinary) in Creative Broadcast & Film Production (Level 7) embedded – *proposed*

Higher Certificate in Video and Sound Technology (Level 6) – *existing*

Higher Certificate in Creative Broadcast & Film Production (Level 6) embedded – *proposed*

2.2.8 Bachelor of Science (Honours) in Music Production (Level 8, Ab initio)

Bachelor of Science (Honours) in Music Technology & Production (Level 8, Ab initio) – *proposed*

Bachelor of Science (Ordinary) in Music Technology and Production (Level 7, Ab initio)

2.3 External Programmatic Review Panel of Expert Assessors

Mr. Brendan Goggin,
Cork Institute of Technology (formerly) - Chairperson
Prof. John Ringwood,
NUI Maynooth
Dr. Seán Crosson,
National University of Ireland Galway
Mr. Kieran Burke,
ON Semiconductor
Ms. Lisa Ní Choisdealbha,
Independent Broadcaster of Ireland
Mr. Tony Commins,
Athlone Institute of Technology
Ms. Valerie Dolan,
Dolan's Music Venue
Mr. Mark Graham,
Waterford Institute of Technology
Mr. James Hicks,
Student Representative
Mr. Des Minihan,
Analog Devices

2.4 Institute Staff

Prof. Vincent Cunnane, Institute President (*unavoidably absent*)
Mr. Terry Twomey, Vice President Academic Affairs & Registrar
Mr. Paschal Meehan, Joint Head of Faculty of Applied Science, Engineering and Technology
Ms. Maria Kyne, Joint Head of Faculty of Applied Science, Engineering and Technology
Dr. Frances Hardiman, Head of Department of Electrical and Electronic Engineering
Ms. Frances O'Connell, Assistant Registrar

Department of Electrical and Electronic Engineering – Lecturing Staff

Dr. Maura Clancy
Dr John Samuel Greenwood
Dr. Alan Kavanagh
Dr. Eoghan Neff
Dr. Flaithri Neff
Dr. Joe Sullivan
Mr. Mark Barry
Mr. Kevin Carey
Mr. John Cosgrove
Ms. Roisin Crowley
Mr. Joseph Dunk
Mr. Seamus Faul
Mr. Ian Foley
Mr. Thomas Gallery
Mr. Peter Gorman
Mr. Pat Grace
Ms. Nora Ni Fhlatharta
Ms. Trish Jones
Ms. Marie King
Mr. Liam MacCárthaigh
Mr. Simon McGuire
Mr. Keith Moloney
Mr. Paul Morrow
Mr. Tomás Mulcahy
Mr. Ed Mullen
Mr. John O'Callaghan
Mr. Liam O'Connor
Mr. Ger O'Farrell
Mr. Michael O'Flanagan
Mr. William O'Halloran
Mr. Donagh O'Shea
Ms. Róisín Quinn
Mr. David Sims
Ms. Alice Steen
Mr. Liam Walsh

2.5 Selected Stakeholders

2.5.1 Employers/Industry & Alumni Representatives

Mr. Brian Hickey	Employer	Optel Vision
Ms. Sinead Harrold	Alumni	Vistakon
Mr. Michéal Normile	Alumni	SL Controls
Mr. Declan Staunton	Employer	Modular Automation
Mr. Patrick Byrne	Employer	Modular Automation
Mr. Michael Gavin	Employer	Even Audio

2.5.2 Current Students

Mr. Liam O’Sullivan	Renewable & Electrical Engineering
Mr. Brad Spicer	Industrial Automation
Mr. Niall Dunne	Music Technology & Production
Mr. Eoin Barry	Music Technology & Production
Mr. Matthew Laming	Music Technology & Production
Mr. Brian Aherne	Electronic Engineering
Mr. Nathy Brennan	Electronic Systems
Mr. Damien McCurry	Sustainable Electrical Power Systems

2.6 Documentation

2.6.1 Critical Self-Study, Faculty of Applied Science, Engineering and Technology

2.6.2 Department of Electrical and Electronic Engineering, Programmatic Review document

2.6.3 Bachelor of Science (Honours) in Electrical Systems (Level 8) – *existing* Bachelor of Engineering (Honours) in Electrical Engineering (Level 8, Ab-initio) – *proposed*

Bachelor of Engineering (Ordinary) in Industrial Electrical Engineering (Level 7) – *existing*
Bachelor of Engineering (Ordinary) in Electrical Engineering (Level 7– embedded award) – *proposed*

Higher Certificate in Electrical Installation Practice (Level 6– embedded award) – *existing*
Higher Certificate in Electrical Engineering (Level 6) – *proposed*

2.6.4 Bachelor of Science in Sustainable Electrical Power Systems (Level 8, Add-on) – *existing* Bachelor of Engineering (Honours) in Renewable & Electrical Energy Engineering (Level 8 – Ab-initio) – *proposed*

Bachelor of Science in Electrical Systems (Level 8, Ab-initio) – *new programme*

Bachelor of Science (Ordinary) in Sustainable Electrical Power Systems (Level 7, Add-on) – *existing*
Bachelor of Engineering (Ordinary) in Renewable & Electrical Energy Engineering (Level 7, Ab-initio) – *proposed*

2.6.5 Bachelor of Engineering (Ordinary) in Electrical Technology (Level 7)

2.6.6 Bachelor of Engineering (Ordinary) in Manufacturing Technology (Level 7)

2.6.7 Bachelor of Science (Honours) in Electronic Systems (Level 8, add-on) – *existing* Bachelor of Engineering (Honours) in Electronic Engineering (Level 8 – Ab-initio) – *proposed*

Bachelor of Engineering (Ordinary) Electronic Engineering (Level 7- embedded award)

Higher Certificate in Electronic Engineering (Level 6- embedded award)

Higher Certificate in Electronic Engineering (Level 6- embedded award)

2.6.8 Bachelor of Science in Electronic Systems (Level 8, add-on) - *existing add-on*

Bachelor of Engineering (Honours) in Industrial Automation and Robotic Systems (Level 8 - Ab-initio) - *proposed programme*

Bachelor of Engineering (Ordinary) in Industrial Automation and Robotic Systems (Level 7 - embedded award)

Higher Certificate in Industrial Automation and Robotic Systems (Level 6) - embedded award.

2.6.9 Bachelor of Science (Honours) in Audio and Video Production (Level 8, add-on) - *existing*

Bachelor of Science (Honours) in Creative Broadcast & Film Production (Level 8, Ab-initio) - *proposed*

Bachelor of Science (Ordinary) in Video and Sound (Level 7, add-on) - *existing title*

Bachelor of Science (Ordinary) in Creative Broadcast and Film Production (Level 7) embedded - *proposed*

Higher Certificate in Video and Sound Technology (Level 6) - *existing*

Higher Certificate in Creative Broadcast and Film Production (Level 6) embedded - *proposed*

2.6.10 Bachelor of Science (Honours) in Music Production (Level 8, Ab initio) - *existing*

Bachelor of Science (Honours) in Music Technology and Production (Level 8, Ab initio) - *proposed*

Bachelor of Science (Ordinary) in Music Technology and Production (Level 7, Ab initio)

3. FINDINGS AND RECOMMENDATIONS OF EXTERNAL PROGRAMMATIC REVIEW PANEL

3.1 Main Findings

The External Validation Panel of Assessors, recommends the ongoing approval and re-validation for a further five years of the submitted programmes and associated amendments, in the Department of Electrical and Electronic Engineering, Faculty of Applied Science, Engineering and Technology, with the exception of the proposed Bachelor of Engineering (Honours) Electrical Engineering and the Bachelor of Engineering (Honours) in Renewable & Electrical Engineering programmes, where the current existing (level 8 add-on) titles should remain (see condition 3.2.3), subject to the following conditions and recommendations.

3.2 Conditions

Music Technology & Production (Only)

- 3.2.1 Additional resources will need to be put in place to facilitate the Bachelor of Science in Music Technology and Production programmes.
- 3.2.2 Expanding to a Bachelor of Science programmes will require extra space to facilitate programme development.

Electric & Electronic (Only)

- 3.2.3 The panel members have a concern with regard to volume of change proposed on both the Bachelor of Engineering (Honours) Electrical Engineering and the Bachelor of Engineering (Honours) in Renewable & Electrical Engineering programmes (i.e. BSc to BEng, title changes, module changes and changing to an ab-initio). The panel feels that both programmes should be reviewed under the LIT new programme validation process. In the expert judgement of the panel, the proposed changes are extensive in nature and, in accordance with the approved Quality Assurance procedures, each should be considered as a new programme proposal.
- 3.2.4 A similar argument could be applied to the Bachelor Engineering (Honours) in Electronic Engineering and Bachelor of Engineering (Honours) in Industrial Automation and Robotic Systems. The Institute are required to provide clarification of their current procedures around this, in particular, how a Bachelor of Engineering Level 7 plus a Bachelor of Science Level 8 (Add-on) is equal to a Bachelor of Engineering (Honours) Level 8. (Refer to minutes in Bachelor of Engineering Renewable and Electrical Energy programme document page 287.)

3.3 Recommendations

Music Technology & Production and Creative Broadcast & Film Production Programmes

- 3.3.1 The panel notes that there is a lack of a studio production facility in LIT, and supported the introduction of a studio for both programmes.
- 3.3.2 The panel acknowledges the importance of professional experience and professional practice of the staff in maintaining and developing the quality and relevance of the courses. These are also valued by students and by external stakeholders. The panel recommends that the Institute should recognise and support such

experience. The panel also recommends that the Institute should support staff more with regards to their extra-curricular work, as this work benefits the Institute, and the students. Also, additional support should be given to the co-ordination of research, and a budget should be set aside to support the Film Festival and Music Festival, if necessary.

- 3.3.3 Additional resources will be required if student numbers were to increase as the labs are at full capacity all of the time. As well as additional resources for expansion, because of the courses being at the leading edge of the relevant technologies, there is a need across the board for continuing investment in resources for the programmes.
- 3.3.4 The panel felt that the Programme Boards should meet regularly, and that arrangements should be in place to enable full attendance.
- 3.3.5 The panel recommends that the current cameras be replaced as soon possible, as they are almost ten years old.
- 3.3.6 The panel recommends that a budget be assigned to updating the hardware in approximately three years.
- 3.3.7 The panel notes that the lighting in the Millennium Theatre will need a major investment soon.
- 3.3.8 The panel considers that re-branding will be necessary because of the programme title change.
- 3.3.9 The panel recommends that additional work be done in the document in relation to the module Work Placement with regards to monitoring, assessing and teaching and learning strategies. (Work placement will need flexibility to take account of the nature of the work in the arts.)

Electrical & Electronic Engineering (Only)

- 3.3.10 Gaps in knowledge which have been identified such as the lack of fast *Fourier* transform etc., need to be addressed.
- 3.3.11 The Mathematics entry requirements for level 6, level 7 and level 8 programmes should be clarified, as there are inconsistencies in the documentation provided. (For example on page 64 of the Departmental Critical Self-Study, it is stated that the Mathematics entry requirement for a level 8 programme is O4 and on page 115 it is stated that it is O5 for all programmes.) The panel noted that the Mathematics and Points entry study undertaken was excellent.
- 3.3.12 The year 1 and 2 project attract 5 credits, consider is this sufficient and also the value of a 5 credit full year module.
- 3.3.13 Year 3 Project, this module attracts 10 credits, consider if this is sufficient considering the student effort and time allocation (10 weeks)?
- 3.3.14 Bachelor of Engineering (Honours) in Electrical Engineering programme document pages 61 to 64; While the panel have found this programme should be separately assessed, the programme outcomes HCR (Competence Role) and HCL (Competence Learning to Learn), appear to be minimally addressed. The Level 8 programme objectives and learning outcomes should also be reviewed as to level (PO2, PO6 and PO7).

General Recommendations

- 3.3.15 Module descriptors across all programmes require attention. There are some loose modular descriptors across the board. The panel questioned the manner in which module descriptors are put together. Spelling mistakes were common across module descriptors. Evidence of cut and paste from module to module.
- 3.3.16 The verbs used in the Learning Outcomes in a number of the level 8 modules need attention. Reading lists (currency) and suggested material need to be looked at throughout all modules. (Learn to Learn was mentioned)
- 3.3.17 The panel recommends that the Institute should give some consideration in obtaining a Placement Officer, to source and support work placement students across all programmes.
- 3.3.18 While the panel recognises that value of the many informal and ad-hoc links between the staff and relevant industries, it recommends that formal industrial liaison links to the associated industries be established for each programme.

3.4 Commendations and Observations

- 3.4.1 The panel commends the engagement of staff throughout the programmatic review process. The overriding view of the external panel was that of excellent programmes, which are well organised and well run and it commended the staff and students involved.
- 3.4.2 The panel lauds the Electrical Technology and Manufacturing Technology programmes. They are an excellent offering. They work and are well suited to the students' needs.
- 3.4.3 The panel notes that students and staff were of a high calibre. It is clear that the programmes are working with extraordinary strengths. Staff overloading was highlighted to the panel as a drawback and. an example was given of the extent of the recognition of supervision of postgraduate students.
- 3.4.4 The panel highlighted the paradox of their role in assessing formal links when there is ample evidence of informal good practice. The panel noted the evidence of industry links and the transition of industry endorsed content in modules.
- 3.4.5 The panel notes the content and the project stream as well as the lab/lecture as exemplars.
- 3.4.6 The panel notes positively the efforts to promote module commonality between programmes. The related increase in efficiency was welcomed.
- 3.4.7 The panel notes the positive and effective integration of mature students in the programmes at LIT.
- 3.4.8 Highlights of exemplar modules include "*Event Management and Staging 2*"
- 3.4.9 The panel were impressed with the general candour of the group, their enthusiasm and connections.
- 3.4.10 The work done on the Mathematics requirements for entry to the engineering programmes is informative and valuable. The panel supports the intention to broaden the study.

23/11/14

3.4.11 The introduction of work experience as an integral part of the Music Technology & Production and Creative Broadcast & Film Production programmes is a new and welcome development. Staff members are to be commended for organising it in a manner that recognises the particular requirements of the relevant industries. Attention is drawn to many models of good practice in LIT and in other institutions relating to work experience that should inform the operation of the modules.


Signature of Chairperson and Date