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Technological University of the Shannon:
Midlands Midwest
Ollscoil Teicneolaíochta na Sionainne:
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Dámh an Ghnó agus Fáilteachais
Faculty of Engineering and Informatics

Report of Peer Review Panel

Programmatic Review

of the

Faculty of Engineering and Informatics
Department of Computer and Software Engineering

External Validation Visit, 9th May 2023

Contents

1.0 INTRODUCTION

This report outlines, in summary form, the proceedings of the Programmatic Review Panel for the Faculty of Engineering and Informatics, and the findings and conclusions of the External Validation Panel conducted on 9th May 2023. The external validation visit was undertaken in accordance with TUS Academic Regulations. A Programmatic Review Panel external validation panel makes an independent impartial judgement on a programme proposal.

2.1 GENERAL INFORMATION

2.2 Higher Education Provider

Provider	Technological University of the Shannon: Midlands Midwest
Faculty	Engineering and Informatics
Department	Computer and Software Engineering
Date of Visit	9th May 2023

2.3 External Re-Validation Panel of Expert Assessors

Name	Affiliation
Dr Huw Lewis	Former Dean of Graduate Studies, University of Limerick
Dr Frances Hardiman	Head of Faculty of Engineering, SETU, Carlow
Dr Martin McHugh	Head of Department of Visual and Human-Centred Computing, Dundalk Institute of Technology
Professor Kevin Curran	Professor of Cyber Security Faculty of Computing, Engineering and the Built Environment, Ulster University
Peter Windle	Lecturer, Department of Computing and Mathematics, SETU
John Mee	Co-Founder and Director at Sidero

Paul Connolly	Director of Cicrcana Labs (Circana Group
Earl Gaylard	Project Manager at Ericsson / Zinkworks

Secretary to Panel: Dr. Michael F. Ryan.

2.4 TUS Staff

Name	Role
Dr Sean Lyons	Dean of Engineering and Informatics
Dr Enda Fallon	Head of Department of Computer and Software Engineering
Department Staff: Tony Commins, Nigel Flynn, Karol Fitzgerald, Martina Nolan, Peter Vargovcik Theresa Costello, Michael O'Rourke, Mairead Seery, Frank Doheny, Eoin McLoughlin Kevin McDermott, Martina Cunningham James Mooney, Cormac MacGiollaEain, Roger Young, Ronan Flynn, Michael Thornton Guilherme Gomes, Declan Byrne, Michael Russell Enda Farrell, Sheila Fallon, Robert Stewart, Amit Hirway, Seamus Ryan, Paul Jacob, Mary Pidgeon, Tom Bennett, Conor Keighrey, Jackie Stewart	

2.5 Employers/Industry & Alumni Representatives

Representative	Affiliation
Paul James	Integra Life
Michael Gallagher	Integra Life
Pierce Treacy	Zinkworks
Dmitrijus Ponomarenko	TUS Athlone
Kshitij Malvankar	NPD
Kieran Flanagan	NPD
Jimmy O'Meara	Ericsson
Joss Armstrong	Ericsson

2.6 Current Student Representatives

Joanne Mc Menamin	Conor Gavin
Saumil Sharma	Vladyslav Hontar
Kevin Stephens	

3.1 FINDINGS AND RECOMMENDATIONS OF EXTERNAL VALIDATION PANEL

3.2 Main Findings

The External Validation Panel of Assessors recommends reapproval of the following programmes in the Department of *Computer and Software Engineering* subject to the conditions recommendations as specified in Sections 3.2 and 3.3.

List of programmes presented for review:

Computer Engineering

- Bachelor of Engineering in Computer Engineering Ab-initio, Level 7 AL_KCENG_7
- Bachelor of Engineering (Hons) in Software Engineering, Add-on, Level 8 AL_KSENG_B

Embedded/Related Programmes

- Bachelor of Engineering in Computer Engineering Add-on, Level 7 AL_KCENG_D
- Higher Certificate in Engineering in Computer Engineering, Level 6 AL_ECOMP_6

Computer Engineering with Network Infrastructure

- Bachelor of Science (Hons) in Computer Engineering with Network Infrastructure Ab-initio, Level 8 AL_KCENI_8

Embedded/Related Programmes

- Bachelor of Science (Hons) in Computer Engineering with Network Infrastructure Add-on, Level 8 AL_KCENA_8
- Bachelor of Science in Computer Engineering with Network Infrastructure Ab-initio, Level 7 AL_KCENI_7
- Bachelor of Engineering in Science with Network Infrastructure Add-on, Level 7 AL_KCENA_7
- Higher Certificate in Science in Computer Engineering, Level 6 AL_ECOMP_6

Computer Engineering for Robotics

- Bachelor of Engineering (Hons) in Computer Engineering for Robotics Ab-initio, Level 8 AL_KCERO_8

Embedded/Related Programmes

- Bachelor of Engineering (Hons) in Computer Engineering for Robotics Add-on, Level 8 AL_KCERA_8
- Bachelor of Engineering in Computer Engineering for Robotics Ab-initio, Level 7 AL_KCERO_7
- Bachelor of Engineering in Computer Engineering for Robotics Add-on, Level 7 AL_KCERA_7
- Higher Certificate in Engineering in Computer Engineering for Robotics, Level 6 AL_KCERO-6X

3.3 Conditions

No conditions apply.

3.4 Recommendations

General:

I. For all programmes, review and update modules to expand the learning outcomes, flesh out the indicative content and where applicable, the resources, both reading & online (An exemplar module is Network Operating Systems 2).

II. Clearly outline processes for managing, supervising and assessing work placement in the documentation (to include processes for participants who are already full-time employees).

III. Document alternative provision for students who do not secure an industry placement in the module descriptor.

IV. For all programmes, review and update the assessment schedule, especially where there are multiple submissions in one week and where this occurs week after week (for e.g. there is a module with three deliverables in Week 7 and three in Week 8).

V. Ensure that the assessment schedule for each semester is communicated to student cohorts in advance.

VI. Clearly outline processes for repeat assessments for each module, to ensure there is consistency across repeat procedure for modules.

VII. Consider multiple forms of assessments where applicable to accommodate different learning needs and to improve alignment with universal design principles.

VIII. Develop strategies to ensure academic integrity in assessment - including innovative assessment design & deployment of plagiarism detection software (to address new challenges with 'ChatGPT').

IX. For all programmes, consider strengthening the theme of sustainability (SDGs) across each programme, especially in lieu of seeking Engineers' Ireland accreditation as mentioned by the programme board.

X. Review the adequacy of current provision to relevant computer labs, specifically open access labs.

XI. Consider using real-time communication platforms similar to that used in industry to optimise lecturer-student communication and student to student peer communication/engagement (e.g. slack and MS Teams).

<u>Computer Engineering/Group 1 Programmes:</u>

I. Consider the current status of Cloud Computing in the programmes and the provision for Hybrid Cloud.

II. Review the streaming of programming e.g. java/python and ensuring continuity throughout the programme.

III. Pursue opportunities for professional accreditation (Engineers & other professional bodies).

<u>Computer Engineering with Network Infrastructure/Group 2 Programmes:</u>

I. Consider the importance of the link between the capstone project in Year 4 to the specialist theme of either infrastructure/robotics. (Exemplar module where this is done very well: PROJ08022 Applied Robotics and Integration Project 4).

II. Consider further opportunities for cloud network engineering and cloud architecture and software deployment in the cloud.

<u>Computer Engineering for Robotics/Group 3 Programmes:</u>

I. That the panel approve the proposed name change to: Bachelor of Engineering (Hons) in Computer Engineering for Robotics.

II. Review opportunities for further integration of learning outcomes and programme content to include a clear focus on 'security systems' in the programme.

3.5 Commendations and Observations

The panel commend the programme team regarding the following:

I. The excellent documentation and well-designed programme - coherent in themes, consistent across modules and logical in its progression through the stages.

II. The excellent engagement with industry regarding relevance of programme themes to enhance potential employability of graduates.

III. The international engagement and acknowledgement of tertiary educational links with ETBs.

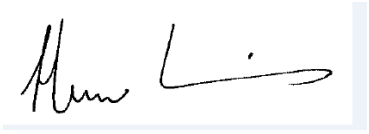
IV. The mix/balance of CA and exams – especially in Semester 1 where there are only two exams, hence helping students to adjust to Higher Education.

V. The balance between lectures and practicals – given the applied nature of the programme.

VI. The successful streaming of modules across 4 x streams of relevance and the use of effective module titles.

VII. The integrated role of work placement in the programmes and the integration of a good placement preparation module for students.

VIII. The Applied Robotics & Integration Project 4 with the presentation of work at a workshop as an excellent module.



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Signature of Chairperson

Date: 17/05/2023