



**TUS**

**Technological University of the Shannon:  
Midlands Midwest**

Ollscoil Teicneolaíochta na Sionainne:  
Lár Tíre Iarthar Láir

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**Dámh an Innealtóireachta agus na Faisnéisíochta  
Faculty of Engineering and Informatics**

**Department of Technology Education**

**Report of External Validation Panel**

**External Validation Visit, 11th December 2023**

**for the**

**Bachelor of Technology (Honours) in Design Engineering**

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## 1.0 INTRODUCTION

This report outlines in summary form, the proceedings and findings of the External Validation Panel visit for the proposed:

### **Bachelor of Technology (Honours) in Design Engineering**

held on the 11<sup>th</sup> of December 2023. 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

Provider	Technological University of the Shannon: Midlands Midwest
Faculty	Faculty of Engineering and Informatics
Department	Technology Education
Date of Visit	11 <sup>th</sup> December 2023

### 2.2 Programmes Evaluated

Programme Title	Bachelor of Technology (Honours) in Design Engineering
Award Title	Bachelor of Technology (Honours) in Design Engineering
Exit Award	Bachelor of Technology in Design Engineering
NFQ Level	Level 8
ECTS Credits	240 ECTS
Award Class	Bachelor of Technology (Honours)
Delivery Mode	Full Time
Duration	4 years
Proposed Starting Date	September 2024

Contact	Dr. Ronan Dunbar/Mr. Deaglan Campbell
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### 2.3 External Validation Panel of Expert Assessors

Name	Affiliation
Mr. John Vickery	Former Registrar, IT Tallaght (Chairperson)
Prof. Dave Tanner	Assistant Dean for Academic Affairs, Faculty of Science and Engineering University of Limerick
Conor Hayes	Mechanical Design Engineer, Stripe
Rich Brady	Director of UX, YouTube
Joanne Fayne	Director of R&D, Teleflex Medical

Secretary to Panel: Dr. Patrick Donohue

### 2.4 TU STAFF

Name	Affiliation
Dr. Sean Lyons	Dean of Faculty of Engineering and Informatics
Mr. Marcus Rahilly	Head of Department of Technology Education
Dr. Niall Seery	Chair of Technological Education
Dr. Ronan Dunbar	Programme Lead
Mr. Deaglán Campbell	Design Lecturer
Programme Team: Niall Colgan, Gavin Keane (CISD), Joe Keogh, Katherine Larkin, Marcus Rahilly, Clodagh Reid	

### **3.0 FINDINGS AND RECOMMENDATIONS OF EXTERNAL VALIDATION PANEL**

#### **3.1 Main Findings**

The External Validation Panel of Assessors recommends approval of the proposed programmes and associated embedded awards:

#### **Bachelor of Technology (Honours) in Design Engineering**

#### **3.2 Conditions**

Update the documentation to ensure Programme Learning Outcomes are included for the Level 7 exit award component and mapped to the Award Standard.

#### **3.3 Recommendations**

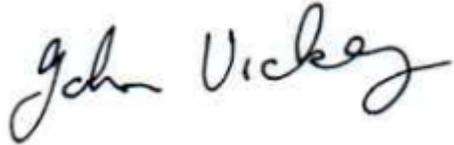
- 1) Clearly outline in the programme document the transfer routes available to students.
- 2) Review the assessment calendar to ensure it captures the individual assessments as stated in the module descriptors.
- 3) Ensure the overall project management methodologies are covered on completion of the course.
- 4) Improve consistency in terms of formative assessment and further reference Independent Learning components.
- 5) Clarify the balance between Design and Engineering in the programme documentation and in programme promotion. Benchmark current Engineering Ireland accreditation requirements and determine if the programme is suitable going forward. Ensure students are aware of accreditation options.
- 6) Review modules to ensure that the full product development process is threaded through and embedded in the programme. It is important to reflect the iterative process of Engineering Design.
- 7) Consider how students will collaborate with industrial designers and engineers in terms of how they think and work.
- 8) Increase and embed content on Sustainability through the modules at each stage.

- 9) Increase and embed reference to Industry 5.0 requirements; how the human/machine collaboration and personalisation is accelerating and changing how we create. This needs to continually evolve in the programme.
- 10) Expand content on Ideation, Human Factors/Usability, Ergonomics and Metrology.
- 11) Include medical device regulation.
- 12) Ensure students have the pre-requisites to cover FEA and validate the FEA models. Address fluidic and non-linear content in Computer Aided Engineering Design and Analysis.
- 13) Look at opportunities to incorporate content on Polymer and Manufacturing processes.
- 14) Ensure that same content (e.g. CNC) is not repeated within different modules.
- 15) Examine opportunities to incorporate 3D CAD modelling earlier in the programme.
- 16) Change the module title '*Robotics 2*' to '*Robotics 1*'.
- 17) Ensure rubrics are included in the assessment strategy when required.
- 18) Adjust title of '*Elective*' in Year 4. Provide greater clarity that this is a module taken from other approved programmes.
- 19) Aim to benchmark further with similar programmes and examine how this programme fits into other Design Engineering programmes.
- 20) Update the document to reflect the dedicated project workspaces, laboratories and equipment available for students to use.
- 21) Include details on the Industrial Advisory Panel where appropriate.
- 22) Review and provide more up-to-date reading materials for the programme.
- 23) Review the use of CDIO acronyms and update to the 12 accepted CDIO standards and complete a self-assessment.
- 24) Ensure that product costing is covered in the programme.
- 25) Rephrase module learning outcomes as outlined in the appendix and review the further comments provided.

### **3.4 Commendations and Observations**

- 1) The panel appreciated the detailed discussions and clarifications provided by the programme team.
- 2) The panel commends the quality of the programme submission and documentation and noted its comprehensive nature.

- 3) The panel commends the strong Industry links and the ongoing observation of opportunities to expand and strengthen Industry ties.
- 4) The panel would like to commend the team for their active and enthusiastic engagement with the panel.
- 5) Consider allowing systems to be more open and agile in terms of changing module titles where appropriate.

A handwritten signature in black ink that reads "John Vickey". The signature is written in a cursive, flowing style.

Signature of Chairperson

Date: 21/12/2023