



Programme Validation Report

Master of Engineering in Mechanical Engineering/
Bachelor of Science in Engineering in Mechanical Engineering

<i>Version of Report</i>	<i>Author</i>	<i>Date</i>
1	Jan Cairns	07/06/2024
2	Jan Cairns	14/06/2024
3	Jan Cairns	16/06/24

<i>Approval</i>	<i>Date</i>
Programme Proposal approved by Faculty Board	22/11/2023
Programme Proposal approved by University Programmes Board	12/12/2023
Programme approved by Faculty Board	20/06/2024
Programme approved by University Programmes Board	Click or tap to enter a date.

Section A - Programme Details

Title	Master of Engineering in Mechanical Engineering
NFQ Level	9
ECTS Credits	60
Mode of delivery	Part-time Full-time <input checked="" type="checkbox"/>
Duration	Part-time: Full-time: 1 Year
Mode of provision	Face-to-Face <input checked="" type="checkbox"/> Blended <input type="checkbox"/> Online <input type="checkbox"/>
Faculty Board	Faculty of Engineering & Built Environment
Schools involved in delivery	School of Mechanical Engineering
Delivery location	TU Dublin Bolton Street
Collaborative Partner (where applicable)	NA
Date of Commencement	September 2025

Title	Bachelor of Science in Engineering in Mechanical Engineering
NFQ Level	8
ECTS Credits	240
Mode of delivery	Part-time Full-time <input checked="" type="checkbox"/>
Duration	Part-time: Full-time: 4 Years
Mode of provision	Face-to-Face <input checked="" type="checkbox"/> Blended <input checked="" type="checkbox"/> Online <input type="checkbox"/>
Faculty Board	Faculty of Engineering & Built Environment
Schools involved in delivery	School of Mechanical Engineering
Delivery location	TU Dublin Bolton Street
Collaborative Partner (where applicable)	NA
Date of Commencement	September 2024

Section B - Awards

Award Title (1)	Master of Engineering in Mechanical Engineering
NFQ Level	9
Award Class	Major
ECTS Credits	60
Classification of award	First Class Honours; Second Class Honours, First Division; Second Class Honours, Second Division; Pass
Award Title (1)	Bachelor of Science in Engineering in Mechanical Engineering
NFQ Level	9
Award Class	Major
ECTS Credits	60
Classification of award	First Class Honours; Second Class Honours, First Division; Second Class Honours, Second Division; Pass

Section C - Programme Derogations (if required)

<i>Derogations from Assessment Regulations/Marks and Standards already approved by University Programmes Board</i>	
None sought	
Date of University Programmes Board Approval	Click or tap to enter a date.

Section D Validation Process

Please tick the process that was followed:

Validation Panel <input checked="" type="checkbox"/>	AQEC Meeting <input type="checkbox"/>	AQEC Sub-Group <input type="checkbox"/>
Date: 7 June 2024	Date:	Date:

Panel Members

Name	Role	Affiliation
Dr Daniel Trimble	External Panel Member	School of Mechanical & Manufacturing Engineering, Trinity College Dublin
Dr Ciarán O'Leary	Panel Chair	Head of Teaching and Learning, Faculty of Computing, Digital & Data, TU Dublin
Miriam Daly	Internal Panel Member	School of Architecture, Building & Environment, TU Dublin
Elaine Edmonds	Internal Panel Member	School of Architecture, Building & Environment, TU Dublin
Frank Harrington	Internal Panel Member	School of Surveying & Construction Innovation, TU Dublin
Jan Cairns	Academic Quality Advisor	Academic Affairs, TU Dublin

Section E - Programme Evaluation

Governance & Management		
<i>Is the programme designed in accordance with the University's Strategic Plan, Educational Model and Quality Framework?</i>	Yes ✓	No <input type="checkbox"/>
Comment: The Programme Proposal Form, in particular, addresses the alignment with the TU Dublin Strategic Plan and People, Planet and Partnership. In relation to the Educational Model, it is noted that the Masters offers some module choice to students. However, the Panel recommends that the School should explore existing approved modules in topics where new modules are drafted, in order to avoid duplication of modules in accordance with the Educational Model.		
<i>Will the proposed strategies for programme management and quality assurance ensure that the programme is well managed and continuously enhanced and is in accordance with the University's Quality Framework?</i>	Yes ✓	No <input type="checkbox"/>
Comment: Approved TU Dublin policies and processes in this regard will be followed.		

Awards Standards		
<i>Are the programme aims and learning outcomes clearly written using appropriate terminology?</i>	Yes ✓	No <input type="checkbox"/>
Comment:		
<i>Are the programme aims and learning outcomes aligned to the proposed level of the award on the NFQ in accordance with applicable Award Standards?</i>	Yes ✓	No <input type="checkbox"/>
Comment:		
<i>Will the curricula, teaching, learning and assessment methods enable students to reach the appropriate standard to qualify for the award(s)?</i>	Yes ✓	No <input type="checkbox"/>
Comment:		

<i>Was the programme development appropriately informed by internal and external stakeholder input (including industry/practice, professional/regulatory bodies, and community organisations)?</i>	Yes ✓	No <input type="checkbox"/>
Comment: The Panel commends external stakeholder engagement in the development of this programme.		
<i>Has the programme been benchmarked against similar programmes nationally and internationally?</i>	Yes ✓	No <input type="checkbox"/>
Comment: The Programme Team were particularly mindful of Integrated Masters programmes in other HEIs in Ireland when developing these programmes.		
<i>Did the programme development take account of relevant external discipline benchmarks and Professional Statutory and Regulatory Body requirements?</i>	Yes ✓	No <input type="checkbox"/>
Comment: Engineers Ireland requirements were taken on board in the development of the programme, such as the opportunity to undertake a Work Placement, which is included in the final semester of the undergraduate programme.		

Programme Design		
<i>Is the programme design informed by current development in the discipline and associated subject areas, having taken into consideration current trends, stakeholder feedback and market analysis?</i>	Yes ✓	No <input type="checkbox"/>
Comment: The engagement with industry in the programme development was noted, as was the link to research strengths within the Programme Team.		
<i>Will there be opportunities for students to input into curriculum design decisions in the future?</i>	Yes ✓	No <input type="checkbox"/>
Comment: Programme development will be informed by student feedback on the programmes and modules.		
<i>Is there a mechanism to ensure the input of external stakeholders in the ongoing development of the programme?</i>	Yes ✓	No <input type="checkbox"/>
Comment: This is met through ongoing engagement with Engineers Ireland, through guest lectures, and external examiners.		
<i>Is the programme curriculum well-structured with a logical progression of learning and development across the modules and stages?</i>	Yes ✓	No <input type="checkbox"/>
Comment: The progression in learning and development from the undergraduate programme to the Masters was clear.		
<i>Are there appropriate opportunities for students to undertake work-based learning, through work placements or work-based projects or assignments?</i>	Yes ✓	No <input type="checkbox"/>
Comment: A 20 ECTS Work Placement is now included in the final semester of the undergraduate programme.		

<i>If applicable, have the relevant Blended Learning Checklists (i.e. Learning Experience Context & Programme Context) been fully completed and submitted to the Panel?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<p>Comment: The Panel discussed the proposed blended approach to the delivery of two modules during the final semester of the undergraduate programme when students will be on work placement. Please see the Recommendation of the Panel in this regard.</p>		
<i>Is the required programme and module information provided in the correct format?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<p>Comment: The Panel received programme submission documents as well as the programme and module information downloaded from TU Dublin's Programme and Module Catalogue. Student Handbooks were submitted and a Condition of the Panel relates to the need to revised Student Handbook for the Bachelor of Engineering (Honours) in Mechanical Engineering.</p>		

Learning, Teaching & Assessment		
<i>Is there an effective student-centred teaching and learning strategy that aligns with the University's strategies and Education Model?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment: The Panel discussed the proposed approach to the delivery of two modules during the final semester of the undergraduate programme when students will be on work placement. Please see the Recommendation of the Panel in this regard.</p>		
<i>Does the assessment strategy provide an appropriate mix of assessment types that will enable students to demonstrate that they have met the module and programme learning outcomes?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<p>Comment: The Panel notes the assessment strategy of 60% Examination and 40% Other Assessment for the Masters programme.</p>		
<i>Do the learning outcomes and assessment strategy ensure that academic integrity can be maintained and attempted breaches of academic integrity are minimised/easily detected?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<p>Comment: Please see Condition of the Panel in respect of module learning outcomes and assessment</p>		
<i>Is there a comprehensive mapping of assessment methods and module learning outcomes and between module learning outcomes and programme learning outcomes?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<p>Comment: A heat map was provided in the documentation on the alignment between Programme Learning Outcomes and modules.</p>		
<i>Are there opportunities in all modules to provide students with timely and constructive feedback on their learning and development?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment: All modules include continuous assessments providing opportunities for feedback to students.</p>		
<i>Do the teaching and assessment methods consider the diversity of the student cohort?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<p>Comment:</p>		

Student Supports & Learning Environment		
<i>Are there sufficient and appropriate resources (e.g. human, financial and physical) to support the proposed programme aims and objectives, to deliver the programme as specified?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comment: The need to consider the resourcing of the Work Placement in terms of staff time for the organisation of placements, liaison with employers and supervision of students was identified by the Panel and it has made a recommendation in this regard.		
<i>Are there sufficient staff that are appropriately qualified and capable to support the programme delivery, from both context and pedagogy perspectives?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comment: Are there appropriate arrangements in place to support the student experience and to monitor student performance?		
<i>Are there appropriate arrangements in place to support the student experience and to monitor student performance?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Comment: Please see earlier comment in relation to the support of the Work Placement.		
<i>Are the access, transfer and progression arrangements clearly defined and appropriate, and aligned to TU Dublin policy/strategy in this regard?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Comment: Please see Condition of the Panel in relation to the threshold of performance in the Bachelor of Engineering programme required to progress to the Integrated Masters programme.		
<i>Do the student supports and learning environment cater for equality, diversity and inclusivity of students?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comment: <i>Is the relevant programme information clearly communicated to the students to ensure they are informed, guided and cared for?</i>		
<i>Is the relevant programme information clearly communicated to the students to ensure they are informed, guided and cared for?</i>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Comment: Student Handbooks were submitted to the Panel. Please see the Condition of the Panel in relation to the need to revise the Bachelor of Engineering Student Handbook to include reference to the new programmes and to provide guidance to students on the process for application and transfer to the Masters pathway.		
<i>Has the Checklist for First Year Student Success (where applicable) been fully completed and submitted to the Panel?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Comment: N/A		

Collaborative Provision (if applicable)		
<i>Are the roles and responsibilities of each partner clearly defined?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Comment: N/A		
<i>In the case of Joint or Multiple Awards, has due diligence on capacity of partner institution meeting the QA-QE requirements for the programme been undertaken?</i>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Comment: N/A		

Section F - Overall Recommendation

1.	Recommend approval of programme as submitted, without amendment	<input type="checkbox"/>
2.	Recommend approval of programme, subject to minor amendments/editorial changes to be completed as soon as possible and with recommendations for consideration. Note: recommendations are attached where it is considered that the programme would benefit from particular changes, or from a review of certain aspects of the programme over a period of time, with changes made if required. While recommendations are advisory in nature, there is an expectation that all recommendations are responded to appropriately and acted upon as appropriate.	<input type="checkbox"/>
3.	Recommend approval of programme subject to the fulfilment of conditions. Recommendations for consideration may also be attached. Note: conditions are attached where it is agreed that changes must be made to the programme / programme documentation prior to the commencement of the programme. Conditions must be set where issues are identified that relate directly to academic standards or to University regulations or procedures. It should be clear what is required in order to meet the conditions. A new programme cannot go forward to Faculty Board for consideration/approval unless a response to the Validation Report is submitted with revised programme documentation and the Academic Quality Enhancement Committee is satisfied that all conditions are met.	<input checked="" type="checkbox"/>
4.	Do not recommend approval of programme.	<input type="checkbox"/>

Areas for commendation

1.	The creation of a pathway to an Integrated Masters programme that will be attractive to existing TU Dublin Mechanical Engineering students.
2.	Significant industry stakeholder involvement in the development and design of the programme.
3.	The embedding of sustainability throughout the programme.

Conditions of Approval

1.	The Panel considers that there should be a threshold for entry to the B.Sc.Eng./M.Eng that is higher than a pass in year three and that this threshold should reflect the entry requirement for the existing Masters programme. It recognises that this might not be appropriate in the first cohort where students have already completed the third year of the programme. This threshold should then be kept under review upon reflection on student progression through the programme.
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	<p>Response: From June 2025, students are required to achieve a minimum average of 50% based on the successful completion of the taught modules delivered at TU Dublin from Year 3 of the BE (TU822/3) programme, prior to entering the BSc(Eng)/ME route. There will be an <u>exception</u> for the planned first year of the entry to the BSc(Eng) programme (September 2024) as students have already completed the academic year for TU822/3. In this situation, for the initial academic year (2024-2025) of the BSc(Eng) programme, a minimum of a pass grade of 40% on average will be accepted subject to all modules been successfully passed in TU822/3. Students who therefore fail a module in TU822/3 will not be able to progress to the BSc(Eng) and a “no carry” policy is in place for the School.</p>
2.	<p>The Panel agrees that the proposed B.Sc. Eng. award should be classified as it represents 240 ECTS of student achievement. However, this classification should not be based solely on the 40 ECTS that are graded in the final year and should include a contribution from the third year, or earlier years, of the programme.</p> <p>Response: The BSc(Eng) award classification will be based on the weighted average of the 40 Credits from the taught modules from Year 4 (2/3) and 1/3 from the average of the Year 3 results of TU822/3 as follows:</p> <p>The overall award classification will be based on the student’s results from Stage 3 and Stage 4. One third of the average mark from Year 3 and Two thirds from Year 4 (All taught Modules in year 4) will be used to determine the classification as follows:</p> <p>Therefore the average mark for each year used for award classification is calculated on an ECTS weighted average aggregate basis as follows:</p> <p style="text-align: center;">Average Mark For the year = M AVERAGE Mark Module Mark = $M(k)$ for module k Module ECTS = $E(k)$ for module k No. of modules = N</p> $M = \frac{\sum_{k=1}^N M(k)E(k)}{\sum_{k=1}^N E(k)}$ <p>The average mark for award calculation M_{award} is based on the average for year 3 (M_3) and the average of the taught modules for year 4 (M_4) calculated as follows:</p> $M_{award} = \frac{M_3}{3} + \frac{2M_4}{3}$
3.	<p>TU Dublin approved Graduate Attributes need to be included in the Masters programme documentation, including the Student Handbook, and how these attributes are achieved within the programme.</p> <p>Response:</p>

In July 2023, Academic Council approved the adoption of three overarching TU Dublin Graduate Attributes.

The programme committee has considered the listed attributes and detail where these attributes are currently embedded or made explicit and assessed in their programme. These are outlined as follows:

People: Digitally capable, life-long learners:

This attribute ensures that graduates will be empowered to adapt and thrive in an ever-changing digitally connected world.

Graduates will have skills in Technical, Design, Concept and innovation development, Business knowledge management and entrepreneurship which will allow them to be innovators capable of bringing to fruition new concepts, products and ideas with an understanding of the benefits and impacts on business and society in general. Typical modules covering this attribute include:

Medical Devices, Engineering Design, 3-D printing, Robotics, Research Methods, Work Placement, a vast range of Technical modules suitable for Mechanical Engineering and a very broad range of specialist technical tools such as; FEA, CAD, CFD, Excel, Matlab, Internet of things, Programming, Minitab and ANSYS. Design modules are supported by Management and Business case studies. More Engineering and business competitions offered by Industry or the University.

Use of technical tools and software in various modules such as Fluid Mechanics, Thermodynamics, Control Engineering, Renewable Energy, Electrical and Electronic Engineering are delivered on the programme supported by Laboratory activities, experimental work and independent learning in the multi-disciplinary aspects of the programme. The Module covering Robotics and Machine Learning is designed to develop skills and technology for graduates in the advanced manufacturing and automation industry.

Learning Outcomes and assessment methods are reflected in the module descriptors in AKARI to show this.

Planet: Sustainability-focussed, global citizens:

This attribute ensures that graduates will be socially engaged and responsible graduates leading the sustainability and equity agendas with passion, purpose, and resilience.

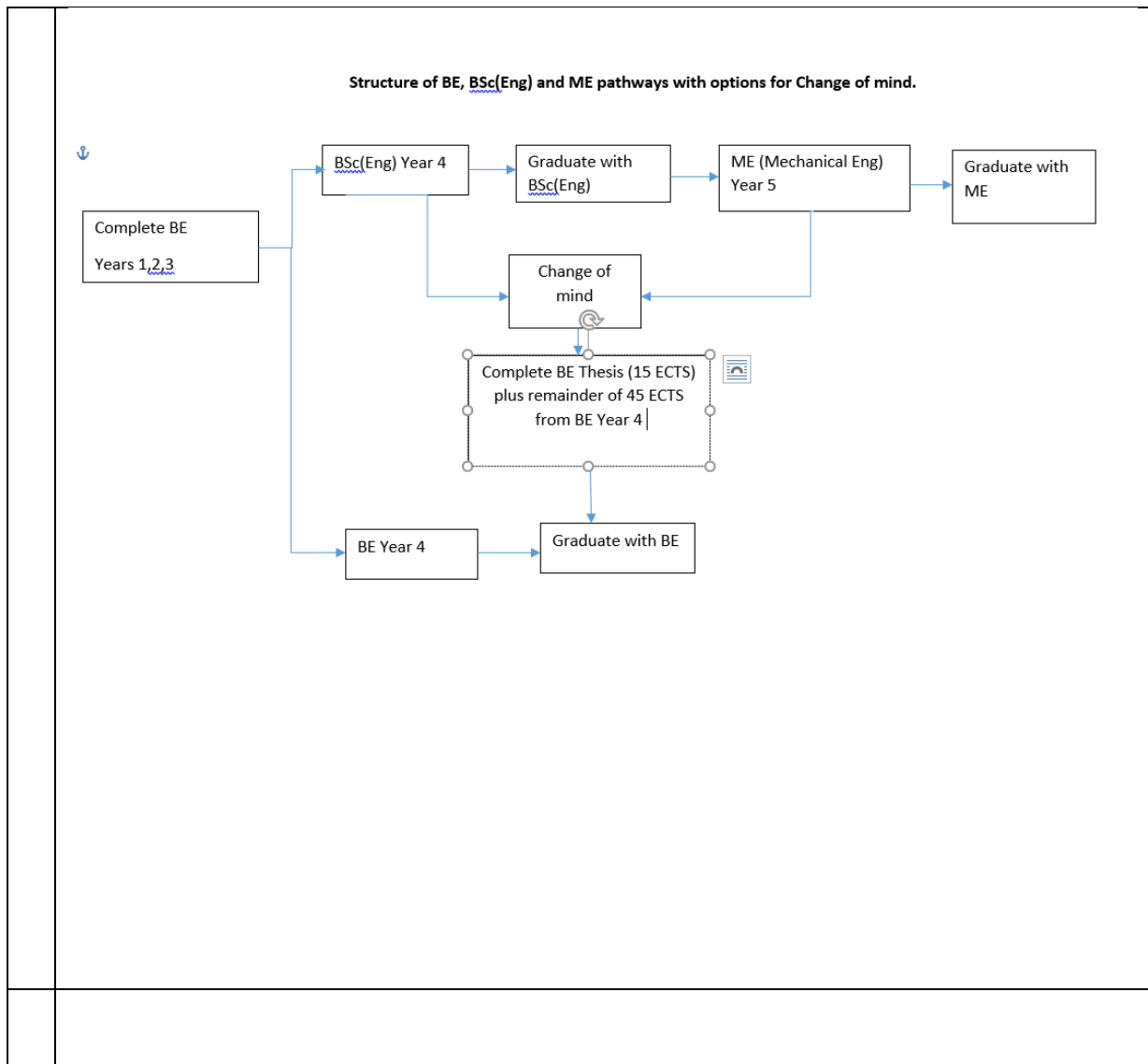
Students on the BSc(Eng)/ME programme will have developed skills and knowledge in a wide range of Technical, Personal Development and teamwork skills, allowing them to perform ethically, sustainably and communicate effectively with each other and with society at large. These Outcomes or Attributes are explicitly met in Accreditation activities with Engineers Ireland, embedding Teamwork, Communication, Presentation, Lifelong Learning, Ethical, Business, ability to work in multi-disciplinary settings and conduct Research with Industrial partners. Graduates work with multinational organisations, study abroad on ERASMUS programmes and engage with students from other programmes on competitions such as the Bolton Trust, ESB EngCom Competitions and Glan-Aqua water treatment and sustainability. Encompassing Work-placement, Design Projects, Team and group work, Modules focusing on Biomedical, Sustainability, Ethical and UN SDGs', the attribute is explicitly highlighted and assessed within the programme.

Graduates will be engaged and socially responsible, aware of societal and environmental issues around renewable energy, Sustainability, Global Design and proper applications of Materials and the elimination of unnecessary waste and recycling in production processes. Graduates will also have an awareness of the principle of respect for people underpinning Lean culture. Modules such as the 20-Credit Work- Placement and ERASMUS experience will broaden students and graduate skills in this attribute. These will be demonstrated and assessed in Individual and Team work challenges throughout the 5 year programme.

Graduates of the programme will be confident and effective practitioners and leaders, having developed the ability to communicate complex ideas, consult with experts from inside and outside their discipline and lead the work of these experts if required, with an awareness of the

	<p>sustainable, ethical and financial implications of their work on project costs. Learning Outcomes and assessments are shown in the module descriptors in AKARI to reflect the above.</p> <p>Partnerships: Collaborative, real-world problem solvers: This attribute ensures that graduates will be equipped with the skills and abilities to respond proactively and effectively to future challenges</p> <p>Graduates will have the ability to research and solve complex topics and apply this knowledge to their practice, having developed deeper insights into key areas of engineering science and technology, critical thinking and research skills in the development of their chosen research topics.</p> <p>Key modules to support the assessment and deep learning of this include Work placement activities, mathematical and Design Modules.</p> <p>Further means to develop this may include CASE STUDIES on Engineering failures and Industry problem solving via Brainstorming and teamwork activities.</p> <p>The Research Project, Work placement and Research Methods module will form a major part of this development in graduates whereby they are engaged in the industry, learning and combining and reinforcing practical and R&D skills with the knowledge and theory of the taught modules. Students with advanced knowledge of Energy Systems, IT Software, Report writing and presentation skills have previously demonstrated their abilities with Industry in this skill set.</p> <p>This attribute is embedded in the Programme Outcomes of Engineers Ireland, represented by the Learning outcomes and Areas required for an accredited Mechanical Engineering Degree. Students will undertake a 20 Credit Research Project in year 5 of the programme which will also assess this attribute in detail.</p> <p>Graduates of the BSc(Eng)/ ME will have an enhanced level of engineering skills across a number of areas and will be able to practice in an independent and reflective manner at an advanced technical or managerial level, with a high awareness of the ethical and societal impact of their work.</p> <p>This attribute is developed and measured by a wide range of Technical Modules from Robotics, Design projects, Thermodynamics, Sustainable and Renewable Energy, Medical Devices, CFD analysis, Business Modules, and a wide range of Teamwork Activities. On the final year project, students will undertake individual specialist R&D projects either with Industry or based on PhD research work. These skills will be assessed in detail and prepare graduates for contributing expertise to a wide range of Industries.</p> <p>Mechanical Engineering Technologies are constantly under development in the Industry and the programme can convert the needs of Industry into suitably assessed modules through Industrial Partnerships and R&D. Examples include Machine Learning, Biomedical applications, Nanotechnology, Electric Transport and battery storage technology, Drone technology, Energy supply, Simulations, AI, Water and food production.</p> <p>Learning Outcomes and assessment methods are provided in the module descriptors in AKARI to reflect these.</p>
4.	<p>All module learning outcomes in the Masters programme should be reviewed and revised to ensure that they are appropriately written and are at the correct NFAQ level.</p>
	<p>Response: All staff responsible for their relevant modules have updated their module descriptors accordingly and this is reflected in the AKARI database.</p>
5.	<p>The continuous assessment components within modules should be reviewed and revised to ensure that these are appropriately described and that the alignment to module learning outcomes is appropriate.</p>

	Response: All staff responsible for their relevant modules have updated their module descriptors and are available in AKARI accordingly.
6.	The Student Handbooks, including the Handbook for the existing B.Eng. in Mechanical Engineering, should include a description of the routes available to students to the B.Eng, B.Sc.Eng. and M.Eng awards. They should also clarify the route back to the Engineers Ireland accredited B.Eng. award for those who do not complete the M.Eng.
	<p>Response:</p> <p>Students who decide to pursue the BSc(Eng) and ME route will undertake 30 credits of learning in Semester 2 of Year 4 assigned to the BSc(Eng) option. The modules undertaken in this option consists of:</p> <p>Research Methods; 5 ECTS Engineering Mathematics; 5 ECTS and Work Placement; 20 ECTS. (This is a pass/fail grade.)</p> <p>The Research Methods module and the Engineering Mathematics module may be delivered in block format at the start of Semester 2, before students engage with work placement activities. On successful completion of these modules, students can then register for the 5th year of study and pursue the ME; Master of Engineering in Mechanical Engineering (TU249).</p> <p>There may be extenuating circumstances under which a student may make a written request to withdraw from the ME route and revert back to the BE option.</p> <p>If the student completes the BSc(Eng) option, thus earning 240 Credits, they will be entitled to graduate with a BSc(Eng) award in Mechanical Engineering with standard TU Dublin classifications as detailed in the General Assessment Regulations (GARs).</p> <p>In the event that the student has not completed the BSc(Eng) option, then they can repeat the failed modules until the learning outcomes are met and thus complete the 240 credits successfully.</p> <p>They may also, under Extenuating Circumstances withdraw from the BSc(Eng)/ME path and complete the BE Thesis (15 ECTS) plus the remainder of 45 ECTS from BE Year 4 in the following academic year(s). On successful completion of these they will be able to graduate with the BE Honours classified award. In such an event, students will need to register for the BE (Currently TU822/4) for 30 credits with the University and complete the 30 Credits specified in Semester 2 of year 4. See Structure below.</p>

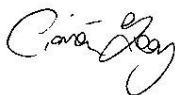



Recommendations	
1.	<p>The Programme Team should keep under review the resources in particular staffing model for the organisation and supervision of the work placement, being cognisant of the administrative load on academic staff. The Panel recommends that the Team consider similar work placements elsewhere in the Faculty and compare the roles and responsibilities of staff and the level of student support and employee liaison provided.</p> <p>Response: The Programme committee and Head of Discipline will make every effort to balance the work load on staff, depending on the number of students undertaking the Work Placement activity each year.</p> <p>Currently the Discipline manages Erasmus activities effectively with a dedicated Erasmus Officer within the Mechanical Engineering School. This Erasmus activity has been listed within the programme as an alternative for Work Placement.</p> <p>The Work placement module has been updated to reflect the management, coordination and successful delivery and assessment of this.</p>

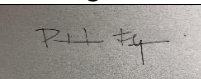
2.	<p>The Programme Team should keep under review the suite of elective modules open to students, with a view to expanding these as appropriate and reviewing whether some of the current elective modules might become mandatory.</p>
	<p>Response: The Programme Team will progress this recommendation and review all programme modules with respect to this. The Committee will also examine new modules developed by other L9 Programme Teams to ensure that the programme is delivered in an efficient manner.</p>
3.	<p>The Programme Team should, in line with the University Educational Model, identify within the Programme and Module Catalogue (Akari) currently approved modules that might remove necessity to create new modules in topics such as Data Analytics and Machine Learning.</p>
	<p>Response: Machine Learning Module: This technology is one of the fastest growing areas in Mechanical Engineering and Manufacturing with recent developments in Sustainability, Circular Economy, Robotics, Internet of things and Automation. Upon careful review of currently approved module descriptors on Akari involving machine learning elements, the module coordinator of the proposed AI and Machine Learning module has not identified a similar connection to traditional engineering theories which is the focus of the new module. The main goal of the proposed module is to make sure that students know how to apply the new principles to engineering problems and engineering project work.</p>
4.	<p>The Panel considers that the delivery of the two 5 ECTS modules in the second semester of Year 4 while students are on work placement is not student-centred. Consideration should be given to adjusting the timeline of the work placement to allow block delivery of these modules.</p>
	<p>Response: 2 modules, Research Methods and Engineering Mathematics were initially proposed to be delivered while students were on Work Placement activities. Following careful consideration of this approach and having reviewed the structure and timeline for delivery, the Programme Team have identified block delivery of these modules prior to students taking up work placement in Semester 2 in Year 4 of the BSc(Eng) programme. The rationale for this is as follows:</p> <ol style="list-style-type: none"> 1. Students will be better prepared for undertaking projects and research work with the Industry following completion of the Research Methods Module. They will also be in a better position to identify a Research project with the Industry on completion of the Research Methods Module. 2. Students will be better placed to discuss their Yr5 research project with the research project supervisors on early completion of the Research Methods Module. 3. The Engineering Mathematics module will be better received and applied to by students while in house, rather than online, prior to work placement activities. 4. Students will have more time and dedication to their work placement on completion of the Research Methods and Engineering Mathematics modules. 5. The Programme Team has identified time at the start of the Semester for students to undertake these two modules in block format, prior to their entry to the Industry for work placement. Following the 12 weeks of work placement, from March to May in Semester 2, adequate time for assessment of the work placement experience will be available (400 hours) and students can continue with their work experience following the assessments, in agreement with the relevant industrial partner.

Other matters to be brought to the attention of Faculty Board and/or University Programmes Board	
1.	<p>The Panel recognises that the structure of the Integrated Masters programme, which currently includes a B.Sc.Eng. award, has been developed and approved by the Faculty and University. However, the Panel considers this structure to be unnecessarily complicated and that a simpler structure would be easier to explain and promote to potential students.</p> <p>This will be reviewed in the future based on regulations of the University.</p>
2.	<p>It is noted that the Programme Proposal Form for these programmes has not yet received approval and sign-off from Finance. While the Panel has some concerns regarding the staff resourcing of the management of the Work Placement, it notes that no new resources including staff are required for this programme.</p> <p>Based on verbal communications, it was the understanding of the Programme Team, Head of Discipline and Head of School that the programme was approved by all stake holders of the University including Finance. Resources to deliver the programme, especially if student numbers expand in the future will be required to deliver the programme effectively. New Module delivery and management of activities may require extra resources also.</p>

Section G - Approvals

Validation Report	
This report has been agreed by the Validation Panel and is signed on their behalf by the chairperson.	
Chairperson: Dr Ciarán O'Leary	
Signed: 	Date: 14/06/2024

School Response	
The response to the conditions and recommendations has been agreed by the School and is signed by the Head of School.	
Head of School: Dr. Charlie Cullen	
Signed: 	Date: 21/06/2024

Faculty Board	
The report and response have been approved by Faculty Board	
Head of Teaching and Learning	
Signed: 	Date: 20/06/2024

University Programmes Board (Programmes of 30 ECTS or great)	
The report and response have been approved by the University Programmes Board	
Registrar:	
Signed:	Date: Click or tap to enter a date.