



VALIDATION REPORT

1.	Title of Programme(s): (incl. Award Type and Specify Embedded Exit Awards)	Bachelor of Engineering (Honours) in Advanced Manufacturing Systems
2.	NFQ Level(s)/ No. ECTS:	60 ECTS
3.	Duration:	1 year
4.	ISCED Code:	0720 - Manufacturing and processing
5.	School / Centre:	School of Engineering
6.	Department:	Mechanical & Industrial Engineering
7.	Type of Review:	Validation
8.	Date of Review:	May 10 th , 2022
9.	Delivery Mode:	Blended
10.	Panel Members:	Dr Brendan O'Donnell, Niall Morris, Camila D Bastiani, Neasa Flannery, Dr Des Foley
11.	Proposing Staff:	Carine Gachon Aurora Dimache Gabriel J Costello David Gorman Trevor Clohessy Jack Saad Trish Breen, Ibec Ann O'Connell, Ibec
12.	Programme Rationale:	Industry 4.0 is the digital transformation of the manufacturing sector where computers and automation come together to monitor and control the physical processes of the factory and integrate the factory with all elements of the supply chain. Advanced Manufacturing has significant potential growth for the Irish economy, with a range of key drivers shaping the performance of the sector, most with a skills dimension, including growing 'computerisation and digitalisation' of production processes. Employers perceive that these changes will continue to significantly impact on the skills required from workers in these key occupations. Several skills gaps have been identified, these are in critical roles that will become even more in demand as manufacturing continues to evolve, including, for example engineering, electronics, software, tool design, robotics and analytics.
13.	Proposed Student Intake:	20
14.	Stakeholder Engagement:	The Institute is proud of its identity and the recognition that it has achieved at sectoral, national, and international levels as a higher education institution of repute. It is held in high esteem by its stakeholders, who consider the diversity, quality and

		innovativeness of staff, students, programme offerings, and learning and teaching resources to be key attributes in its ongoing development. The Programme Board includes a range of stakeholders in reviewing the programme including inter alia students, graduates, employers and industry/professional bodies.
15.	Graduate Demand/Employment:	<p>This programme is specifically designed for holders of a B.Eng. in Manufacturing Engineering (level 7), working in the manufacturing industry and wishing to up-skill with the aim to support their organisation in the transition to Industry 4.0. The survey conducted showed that 38 of the 47 employers surveyed would like to see a progression route for their level 7 employees, and would support them by releasing them to conduct their studies.</p> <p>The apprentices were also surveyed (see Appendix D) and they are all interested in registering for the programme.</p> <p>Additionally, most multi-national companies do not recognise level 7 qualifications for the purpose of promotion. Being able to obtain a level 8 qualification in one calendar year by studying part-time is a very attractive proposition if students can be supported by Springboard or Skillnet funding.</p>
16.	Entry Requirements, Access, Transfer & Progression:	<p>The entry requirement for the programme is a B.Eng. in Manufacturing Engineering or cognate discipline with a minimum of one year experience in the manufacturing industry. As the Industrial engineering project is an applied project to be conducted in industry, applicants should either be employed or have an agreement with a company that will allow them to conduct their project in their manufacturing facilities.</p> <p>In line with ATU entry requirements and access routes and RPL policy.</p>
17.	Programme Structure:	<p>The structure of this programme is based on the lessons learnt, in particular:</p> <ul style="list-style-type: none"> • offering a flexible mode of delivery by combining online and blended modules, • offering some practical on-site, so students can get hands-on experience on some of our software and equipment, • spreading the workload over 36 weeks of tuition and 52 weeks for the completion of their Industry project. <p>The programme is a one-year add-on structured in two 18-week semesters of taught modules in addition to a 52 weeklong project. In both semesters, students will have two taught modules running for 12 weeks and the other two running for 18 weeks. Students will also undertake a 20-credit project. In semester 1 students will get one hour per week with the module coordinator to prepare for the project, concentrating on project management. In semester 2, they will be assigned a supervisor that will offer individual guidance.</p>
18.	Learning, Teaching & Assessment Strategies:	<p>This programme aims to up-skill, from a level 7 to a level 8, mature learners working (or having worked) in the manufacturing industry. Taking into consideration their background and work</p>

		situation, the programme is designed to take advantage of this prior or/and current experience to allow flexibility in their learning while minimising the requirement for face-to-face interaction with their lecturers.	
19.	Resource Implications:	Two additional lecturers are required for the suite of programmes that this is part of	
20.	Synergies with Existing Programmes:	<p>MTU Cork offers a B.Eng (H) in Manufacturing Technology with a similar mode of delivery, but it takes 2 years to complete the degree and the focus is more on traditional manufacturing technologies as opposed to the emphasis on Industry 4.0 and the digitalisation of manufacturing proposed by this programme.</p> <p>TUS - Athlone campus offers a B.Eng. (H) in Manufacturing Technology (add-on) but full-time students. The distinguishing features of the proposed programme are that it merges traditional Industrial Engineering content with Industry 4.0 and is delivered in one calendar year (52 weeks) in a part-time mode suitable for applicants in full-time employment.</p>	
21.	Findings and Recommendations:	Commendations: The team is commended for the rationale and identified demand and target cohort for this programme.	
		Conditions: No conditions	
		Recommendations: <ul style="list-style-type: none"> • Review the arrangements for project supervision especially in relation to cover over the summer. Project workbook needs to specify level of supervision at various times, so that the student understands the level of supervision available at different stages of the programme. • Review the balance of asynchronous/synchronous delivery to ensure maximum student engagement and participation in the programme • There is a lot of complex material/topics across modules leading to possible mismatch of learning outcomes at level 8 with apparent content. Consider reduction in content in some areas. • Review the expected level of knowledge of applicants Topics are excellent but programme board will need to review level of content and expectation being placed on student • SDG Goals need to be brought to the fore more explicitly in the document 	
22.	FAO: Academic Council:	Approved:	
		Approved subject to recommended changes:	x
		Not approved at this time:	
	Signed:		

		<i>Ben D...</i>	
		Chair	Secretary