

Overview

Programme Code	36323
Programme Title	Mechatronics Engineering
Awarding Institution	Liverpool John Moores University
Programme Type	Level 3/4/5 Qualification
Language of Programme	All LJMU programmes are delivered and assessed in English
Programme Leader	
Link Tutor(s)	Karl Jones

Partner Name	Partnership Type
International College of Business and Technology	Validated

Awards

Award Type	Award Description	Award Learning Outcomes
Target Award	Higher Diploma - HD	See Learning Outcomes Below
Alternative Exit	Certificate of Higher Education - CHE	Undertake basic mathematical analysis. Apply the basic principles of applied mechanics, thermodynamics and fluid mechanics, materials science, electrical and electronic engineering and control to routine engineering problems. Design and manufacture simple engineering components and assemblies. Demonstrate key skills appropriate to the professional engineer.

Alternate Award Names	
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External Benchmarks

Subject Benchmark Statement	UG-Engineering (2019)
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Programme Offering(s)

Mode of Study, Mode of Delivery	Intake Month	Teaching Institution	Programme Length
Full-Time, Face to Face	March	ICBT, Colombo	18 Months
Full-Time, Face to Face	September	ICBT, Colombo	18 Months

Aims and Outcomes

Educational Aims of the Programme

Develop knowledge of scientific and engineering principles to be able to apply them to produce routine solutions to familiar engineering problems and to model and analyse mechatronic systems. Develop specialist knowledge and understanding of the key mechanical and electrical principles which underpin the design and operation of a mechatronic system. Develop a range of relevant transferable skills such as team working, communication, management, problem solving, computing and technical computing. Prepare students for employment by equipping them with the with knowledge, understanding and skills expected of holders of a Higher Diploma in Mechatronics to enable them to progress to a range of technical and management careers or to progress to an undergraduate degree or further professional qualification in automotive engineering or related area Provide the engineering base for progression to Incorporated Engineer level.

Learning Outcomes

Code	Description
PLO1	Demonstrate their knowledge and understanding of essential facts, concepts, theories and principles of mechanical and electrical systems and the underpinning science and mathematics.
PLO2	Demonstrate an understanding of appropriate codes of practice and industry standards.
PLO3	Illustrate an awareness of quality issues.
PLO4	Demonstrate an ability to work with technical uncertainty.
PLO5	Review and select appropriate mathematical methods, tools and notations proficiently in the analysis and solution of routine engineering problems.
PLO6	Use appropriate scientific, technical or engineering principles to analyse key engineering processes.
PLO7	Demonstrate an ability to apply quantitative methods and computer software relevant to Mechatronics and related engineering disciplines to solve engineering problems.
PLO8	Demonstrate a knowledge of management techniques which may be used to achieve engineering objectives.
PLO9	Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.
PLO10	Understand the need for a high level of professional and ethical conduct in engineering.

Code	Description
PLO11	Understand the use of technical literature and other information sources.
PLO12	Demonstrate an awareness of nature of intellectual property and contractual issues.

Programme Structure

Programme Structure Description

The award of the Higher Diploma in Mechanical Engineering requires the completion of 120 credits at Level 4 and 120 credits at Level 5. The award of the Certificate of Higher Education in Mechanical Engineering requires the completion of 120 credits at Level 4.

Structure - 240 credit points	
Level 4 - 120 credit points	
Level 4 Core - 120 credit points	CORE
[MODULE] 4500ICBTTEG Engineering Mathematics Approved 2022.01 - 15 credit points	
[MODULE] 4500ICBTME Engineering Mechanics Approved 2022.01 - 15 credit points	
[MODULE] 4500ICBTMT Fundamentals of Mechanics and Electrical Circuits Approved 2022.01 - 15 credit points	
[MODULE] 4502ICBTEL Digital Electronics Approved 2022.01 - 15 credit points	
[MODULE] 4503ICBTEL Analogue Electronics Approved 2022.01 - 15 credit points	
[MODULE] 4503ICBTME Engineering Materials and Manufacturing Processes Approved 2022.01 - 15 credit points	
[MODULE] 4504ICBTEL Programming Concepts Approved 2022.01 - 15 credit points	
[MODULE] 4506ICBTEL Signals and Systems Approved 2022.01 - 15 credit points	
Level 5 - 120 credit points	
Level 5 Core - 120 credit points	CORE
[MODULE] 5500ICBTTEG Analytical Mathematics Approved 2022.01 - 15 credit points	
[MODULE] 5500ICBTEL Design Project Approved 2022.01 - 15 credit points	
[MODULE] 5501ICBTTEG Engineering Economics Approved 2022.01 - 15 credit points	
[MODULE] 5501ICBTMT Industrial Robotics Approved 2022.01 - 15 credit points	
[MODULE] 5502ICBTEL Control System Approved 2022.01 - 15 credit points	
[MODULE] 5504ICBTEL Programmable Logic Controllers and Industrial Automation Approved 2022.01 - 15 credit points	
[MODULE] 5505ICBTEL Principles and Applications of Microcontrollers Approved 2022.01 - 15 credit points	
[MODULE] 5509ICBTEL Electrical Machines and Drives Approved 2022.01 - 15 credit points	

Module specifications may be accessed at <https://proformas.ljmu.ac.uk/Default.aspx>

Approved variance from Academic Framework Regulations

Variance

The approved variance is to utilise 15 credit modules in this programme.

Teaching, Learning and Assessment

Lectures, tutorials, problem solving sessions, seminars, workshops, computer sessions, participation in projects. Examinations, assignments, preparation of reports, essays, technological reports, oral presentations, workshops, peer review, computer-based exercises.

Opportunities for work related learning

Work-related learning is included within this programme, so students will have the opportunity to engage in real world projects and activities. The programme has active links with industry and involves employers in the industrial projects, utilising real world case studies wherever possible.

Entry Requirements

Type	Description
Other international requirements	English Language requirements: Students are required to have a minimum English language level of Sri Lankan General Certificate of Education (Ordinary Level) English Grade C or above, or a pass in the ICBT Academic English Studies course or recognised equivalent, such as the below: • GCSE/O-Level in English from a UK awarding body grade C • IGCSE English as a First Language grade C • IGCSE English as a Second Language grade C • Internet based TOEFL with an overall score of 72 (UG), 79 (PG) including 17 in Listening, 20 in Writing, 18 in Reading and 18 in Speaking • Pearson Test of English (PTE) • International Baccalaureate (Standard Level Grade 5/Higher Level grade 4 in English) • Cambridge Advanced English Grade C (minimum of “weak” in all four components (listening, reading, speaking and writing)). Mature entry: In exceptional circumstances, candidates with non-standard qualifications, may qualify for entry to the course on the basis of considerable work experience in the automotive engineering industry.
Alternative qualifications considered	Completion of 13 years of formal education in Sri Lanka (or equivalent) and have studied A levels in subjects that include Maths, a Science or Technology. Ordinary level qualifications plus the successful completion of a NARIC approved Foundation programme in a mechanical or electronic/electrical subject. A programme of study that is equivalent to a UK level 3 qualification.

Extra Entry Requirements