Engineering Practice

Module Information

2022.01, Approved

Summary Information

Module Code	4306MECH
Formal Module Title	Engineering Practice
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	11
Online	11
Practical	40
Tutorial	11

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	28 Weeks

Aims and Outcomes

Aims	This module aims to introduce students to a range of general engineering practices and standards.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Create and interpret CAD models and engineering drawings which are produced to current standards.
MLO2	2	Safely carry out a range of engineering workshop procedures using standard processes.
MLO3	3	Plan and record self-learning and development as the foundation for lifelong learning and the requirement to become a professional engineer.
MLO4	4	Use practical laboratory skills to investigate complex problems by carrying out experimental procedures, processing the data collected, and effectively communicate the findings.

Module Content

Outline Syllabus	Technical and Design Communication: • British Standard (BS) for technical product documentation and specifications (BS 8888:2011). • Engineering graphics: orthographic projections and oblique/isometric drawings. • Drawing layouts, sections views and dimensioning. • Geometric tolerancing, datums, limits and fits. • Generating 3D CAD models and creating engineering drawings from these to current technical standards. • Introduction to general engineering components (shafts, bearings, gears, keyways, fasteners) and associated standards.Engineering Workshop Practice: • Hands-on experience in an engineering workshop environment. • Practical workshop skills, training in machining processes and operations. • Use of hand-tools, machine-tools, digital manufacture processes, and an appreciation of human skills needed in manufacture. • Reading and interpreting engineering drawings • Understanding tolerances and fits and taking accurate and precise measurements. • Health and safety in engineering workshops. Continuing Professional Development: • Residential field trip with team working. • Environmental, sustainability and ethical responsibilities for engineers (UN Sustainable Development Goals). • Career planning (workshop, personal reflection, and careers guidance). • Introduction to skills for study. • Professional body exposure and student membership. • Health and Safety Executive (HSE). • Introduction to online security and data security.Experimental Methods and Laboratory Skills: • Physical quantities, SI units, magnitudes and order of operations. • Representation of data/calculations: significant figures, tables and graphs. • Accuracy, precision, uncertainty and errors. • Introduction to numerical methods and software required for performing data analysis and effective communication of results. • Performing experiments: recording notes, measurements and observations, and handling and processing experimental data. • Analysis of results using spreadsheets, formulation of discussion and conclusions. • Technical reports and presentations.
Module Overview	
Additional Information	This module provides students with an insight into the environmental, sustainability and ethical responsibilities for engineers. As part of the Continuing Professional Development module component students are taken on a field trip to the learn about the following: renewable energy (wind turbines, photovoltaic solar panels, hydroelectric power), eco sanitation (compositing toilets, vertical flow reed bed filtering system), natural building materials / associated construction techniques, and Zero Carbon Britain (an initiative to provide the knowledge, confidence and skills to transform complex economic, social and political systems and achieve net zero greenhouse gas emissions by 2040). This module includes content which relates to the following UN Sustainable Development Goals: SDG6 – Clean Water and Sanitation SDG7 – Affordable and Clean Energy SG11 – Sustainable Cities and Communities SDG13 – Climate Action

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Jack Mullett	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings