Module Proforma

Approved, 2022.01

Summary Information

Module Code	5519USST
Formal Module Title	Engineering Design 2
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Dante Matellini	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings

Partner Module Team

Contact Name	Applies to all offerings	Offerings

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
University of Shanghai For Science and Technology

Learning Methods

Learning Method Type	Hours
Lecture	22
Tutorial	22

Module Offering(s)

Offering Code	Location	Start Month	Duration
SEP-PAR	PAR	September	12 Weeks

Aims and Outcomes

Aims	This module aims to build on the skills developed in the Level 4 Engineering Practice module by introducing systematic approaches to the design process and to the analysis of mechanical engineering designs. It will provide participants with a practical experience of the design process, allow them to further practice the analytical skills relating to mechanics and to document their work to appropriate design standards.

Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Design a mechanical system which incorporates properly specified standard components.
MLO2	Perform appropriate engineering analysis to support the design process.
MLO3	Evaluate designs in terms of engineering standards, sustainability and safety.
MLO4	Document design outputs to appropriate standards.

Module Content

Outline Syllabus
- Application of appropriate design methodologies. - Collaborative design briefs, needs recognition and creation of effective design specifications. - Concept generation and presentation. - Evaluation of ideas. - Design for Manufacture, Bills of Process and process planning. - Cost estimation. - Evaluation of the sustainability of a design in terms of the materials and processes which are used and its operational lifecycle. - Embodiment design, layout planning, part modelling. - Writing design reports. This module will build upon the students' knowledge of standard engineering components by considering design factors such as strength and service life. This will include the use of specifications to communicate design intent and other constraints on the design and/or selection of components. In particular: Shafts, Bearings, Gears, Fasteners (Nuts, Bolts and Screws). Standards relating to the design of engineering components will also be incorporated into the requirements of the assessment, to include dimensioning practice, tolerances, surface finishes.

Module Overview

Additional Information
This module includes content which relates to the following UN Sustainable Development Goals: SDG12 – This module considers the issues of waste and recycling when designing engineering solutions. SDG10 – This module will consider how engineering designers can consider accessibility when developing new products.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Portfolio	Design Portfolio	100	0	MLO1, MLO2, MLO3, MLO4