Building Services Engineering Project 2

Module Information

2022.01, Approved

Summary Information

Module Code	5218BEUG
Formal Module Title	Building Services Engineering Project 2
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Civil Engineering and Built Environment

Learning Methods

Learning Method Type	Hours
Lecture	30
Tutorial	30

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-CTY	CTY	January	12 Weeks

Aims and Outcomes

Aims	To provide students with the knowledge and skills necessary to interpret the mechanical and electrical building services needs and requirements of a range of simple and moderately complex buildings and develop practical schemes.To develop and refine skills necessary for the development, management and successful completion of a significant project.To develop and refine written, verbal, graphical and presentation skills.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Analyse a variety of buildings ranging from simple domestic buildings to moderately complex commercial and industrial buildings, to identify, evaluate and justify the need for mechanical and electrical building engineering systems.
MLO2	2	Evaluate alternative strategies for the mechanical and electrical building engineering systems across the range of buildings to encourage energy efficiency and sustainable design.
MLO3	3	Produce detailed designs for a range of mechanical and electrical building engineering systems for a range of buildings and evaluate these in terms of utility, building user requirements, sustainability and energy efficiency;
MLO4	4	Apply the principles and practices of planning, time and task management effectively.
MLO5	5	Communicate concepts, proposals and strategies to technical and non-technical audiences using a variety of media.

Module Content

Outline Syllabus	Analysis of client and building needs related to all electrical and mechanical building engineering systems. Analysis of alternative engineering design solutions with due regard to life cycle costing and sustainability.Accommodation of distribution services: distribution patterns, horizontal, vertical, provision for future development, access and maintenance. Co-ordination of services – under-floor distribution, rising mains, trunking, conduit etc.Design of all systems with due regard to published design guidance, standards and relevant legislation, consideration of health, safety and welfare arrangements, and energy efficiency and sustainability considerations.Cold water supply systems: water sources, treatment & supplies, direct and indirect distribution systems, typical plant requirements, boosted systems for tall buildings.Hot water supply systems: common systems (point of use, centralised, cistern fed and unvented), plant and energy requirements.Drainage: building drainage systems, above and below ground, legislation and standards, systems, sizing.Building heating systems: primarily LTHW heating systems, heat emitters and plant, fuels and energy requirements, pipework arrangements, layout, specification and control systems, integration of heating requirements with other services installations.Ventilation: ventilation requirements and air supply rates, utilisation of natural ventilation, mechanical systems selection and design, sizing and selection of plant and ductwork.Air conditioning systems: small packaged systems and split systems, large centralised systems. Typical control techniques and systems, sizing and selection of plant, ductwork and pipework.Large and small power requirements for fixed equipment and plant.Electrical power distribution, 3-phase and single phase distribution.Electrical control systems and building management systems.Telecommunications and data distribution.Lighting systems and design.
Module Overview	This module provides you with an opportunity to demonstrate your learning from all modules across your programme. The module requires you to complete a specific building engineering project working within small teams, which should be multi-disciplinary where the mixture of specialisms within a student cohort allow.
Additional Information	This module provides the students with an opportunity to demonstrate their learning from all modules across their programme. The module requires the students to complete a specific building engineering project working within small teams, which should be multi-disciplinary where the mixture of specialisms within a student cohort allow.In this module, the knowledge learning outcomes are K1, K2, K4, K5, K6, K7, K8, the behaviours learning outcomes are B1, B2, B3, B4, B5, B6, B7 and the skills learning outcomes are S1, S2, S3, S4, S5, S6, S7, S8.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Artefacts	FEASIBILITY REPORT	40	0	MLO1, MLO2, MLO5
Centralised Exam	DETAILED DESIGN FOLIO	60	0	MLO3, MLO4, MLO5

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Laurence Brady	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings