Module Proforma

Approved, 2022.02

Summary Information

Module Code	5567NCCG
Formal Module Title	Sustainable HVAC Systems
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Graham Sherwood	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
Nelson and Colne College Group

Learning Methods

Learning Method Type	Hours
Lecture	48

Module Offering(s)

Offering Code	Location	Start Month	Duration
SEP-PAR	PAR	September	28 Weeks

Aims and Outcomes

Aims	The aim of this module is to provide students with the knowledge and skills to select, design, install and operate sustainable heating, ventilation and air conditioning (HVAC) technologies and create the awareness of the social, technical and economic aspects of its implementation. The module will introduce the student to building services, principally heating, natural and mechanical ventilation, air conditioning and its environmental control systems. Assessments of heat gains and losses, thermal comfort, air quality, and relevant climatic data will be covered; system types and associated secondary plant introduced; plant selection, location, sizing and design alternatives discussed to provide students with an understanding on the opportunities from using sustainable HVAC systems

Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Demonstrate an understanding of sustainable HVAC systems
MLO2	Assess HVAC needs of buildings
MLO3	Identify and size appropriate systems to heat, cool, and maintain acceptable air quality inside a building
MLO4	Evaluate the implementation of sustainable HVAC technology

Module Content

Outline Syllabus
Principles of energy efficiencyEnergy flows in buildings and heating and cooling loadsNatural ventilation systems and designMechanical ventilation systems and designAir conditioning and cooling systemsPsychrometry and psychrometric designThermal comfortIndoor air qualityPost occupancy evaluation

Module Overview

Additional Information

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Practice	HVAC Needs Assessment	50	0	MLO1, MLO2
Report	Solutions Proposal	50	0	MLO3, MLO4