LIVERPOOL JOHN MOORES UNIVERSITY

Water and Wastewater Treatment

Module Information

2022.01, Approved

Summary Information

Module Code	7106CIVPG
Formal Module Title	Water and Wastewater Treatment
Owning School	Civil Engineering and Built Environment
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

Teaching Responsibility

LJMU Schools involved in Delivery
Civil Engineering and Built Environment

Learning Methods

Learning Method Type	Hours
Lecture	22
Seminar	11

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	To critically appraise current practice in the treatment of water and wastewater.To develop an understanding of the characteristics of wastewaters, and associated sludges, and the selection, process design and operation of treatment works to meet discharge standards.To contextualise water and wastewater treatment within the overall management of public water supply and sanitation.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Critically evaluate alternative proposals and designs for water treatment, wastewater treatment and sludge treatment (utilisation and disposal).
MLO2	2	Critically appraise the current problems in water and wastewater treatment management and suggest improvements.

Module Content

Outline Syllabus	Organisational Framework:1. Global overview of levels of provision of water supply services.2. European and national policy on water supply.3. Variations between England, Wales, Scotland and Ireland.4. Drinking water quality standards and the standards to be achieved by water treatment.Water Sources:1. Relationship to water resource planning, licensing, drought control and water pollution prevention measures.2. The types and characteristics of water sources and the extent of treatment required.3. The quality of water for abstraction for use in public water supply.4. Quality of water for abstraction.5. Reservoir and raw water aqueduct management; safety, quantity, quality, recreation, amenity and environmental issues.Water Treatment Processes:1. The influence of WHO, EU and national legislation and regulations on water treatment processes.2. Design and operation of Water treatment plants to meet environmental standards.3. Private and industrial water supplies: outline of the treatment for small potable supplies.4. Process flow selection as a function of the quantity and quality of raw water to be treated and the final water quality to be achieved.Water treatment plant management:1. Operational and maintenance tasks.2. Water supply hygiene procedures and emergency procedures to protect water quality.3. Water sampling and examination: physical, chemical and biological.4. Plant control data and records. Wastewater Treatment1. European and national policy on wastewater treatment, the modern legal framework governing wastewater management, the responsible organisations and interaction with interested parties, including the variations between England, Wales, Scotland and Ireland.2. The types of trade effluent and the nature of raw wastewater.3. The design and operation of wastewater treatment plants to meet environmental standards and avoid nuisance4. Physico-chemical and biological treatment processes.5. Wastewater treatment management6. Engineering design of sedimentation tanks to meet the quality and quantity of influent requirement.7. The nature of wastewater sludges and the design and operation of treatment and disposal systems to meet environmental standards.
Module Overview	
Additional Information	The module provides a thorough grounding in the design and operation of water and wastewater treatment plants. It ensures the awareness, competencies and methodology for consideration of specific issues in water and wastewater management.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Examination	60	3	MLO1, MLO2
Report	Essay	40	0	MLO1, MLO2

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings

| Ed Loffill | Yes | N/A |

Partner Module Team

Contact Name	Applies to all offerings	Offerings