Liverpool John Moores University

Title:	SUSTAINABLE INFRASTRUCTURE IN DEVELOPING COUNTRIES
Status:	Definitive
Code:	**7004BEPG** (102413)
Version Start Date:	01-08-2020
Owning School/Faculty:	Civil Engineering and Built Environment
Teaching School/Faculty:	Civil Engineering and Built Environment

Team	Leader
Iacopo Carnacina	Y
Atif Rasheed	

Academic Level:	FHEQ7	**Credit Value:**	20	**Total Delivered Hours:**	63
Total Learning Hours:	200	**Private Study:**	137		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	30
Seminar	30

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Closed book	40	3
Presentation	AS2	Presentation	30	
Report	AS3	Report	30	

Aims

To develop understanding of the operation, design and management of infrastructure in the Developing World. From this students will develop the capability for critical assessment of the sustainability of infrastructure throughout the developed world.

Learning Outcomes

After completing the module the student should be able to:

1	Develop and undertake the critical evaluation of alternative proposals and designs for water supply, water treatment, wastewater treatment systems, energy supply and air pollution control.
2	Design and critically evaluate town planning options, including highways and transportation systems and the management of waste
3	Investigate and critically assess infrastructure problems
4	Design sustainable solutions to infrastructure problems

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

EXAM	1	2
PRESENTATION	3	
REPORT	4	

Outline Syllabus

Water, sanitation and health. Global view of levels of provision of water supply and sanitation. water, waste and health relationships; water and waste related infections. Urban sprawl and environmental degradation. Cultural attitudes and impact on the environment. Health and environmental education and communication.
International standards for infrastructure and infrastructure management at local and national levels.
Water Supply. A review of current water supply systems including surface water, groundwater, tankers, fog, sea water and rainwater. Components of supply systems, selection of systems and the protection and transport of water. Potable water treatment processes, and the sizing and operation of treatment components.
Wastewater collection, treatment and transport. Sustainable sewerage and drainage systems. Wastewater and sludge treatment methods and the sizing of their component parts. Wastewater and sludge reuse.
Sanitation systems. Pit, VIP and communal latrines, Aqua privies and other waterless technologies. Septic tanks, soakaways, lagoons and reedbeds. Sullage disposal.
Solid Waste Management. A critical review of current practices of management systems including waste collection and transfer, landfill, recycling, re-use, incineration.
Energy Supply. Fossil fuel systems and renewable systems.
Town planning with respect to infrastructure design, operation and management.
Design and critical evaluation of highways and transportation systems. Air pollution control.

Learning Activities

lectures and seminars.

Notes

The module develops students' understanding, and critical awareness, of the sustainability of infrastructure.