

Liverpool John Moores University

Title: Design and Construction of Transport Infrastructure
Status: Definitive
Code: **7108BEUG** (120608)
Version Start Date: 01-08-2016

Owning School/Faculty: Built Environment
Teaching School/Faculty: Built Environment

Team	Leader
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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	40
Tutorial	20

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	Report 1		15	
Report	Report 2		15	
Exam	Exam		70	3

Aims

To enable students to acquire basic knowledge of design principles for transport infrastructure development;

To enable students to design and manage the major transport infrastructures including road drainage, road pavement, road junction, railways, airport runway and

port construction;

To enable students to assess engineering judgment on alternative transport infrastructure designs and construction management.

To enable students to write formal laboratory test reports and project reports as well as analyse and present the data in a logical way.

Learning Outcomes

After completing the module the student should be able to:

- 1 Evaluate and apply the design principles of transport infrastructure for different modes of transport including highways, railways, airports and ports.
- 2 Undertake modelling analysis and evaluate the results for a range of transport infrastructure scenarios with different design parameters
- 3 Evaluate the impact of construction methodology and practice to the delivery of transport infrastructure projects
- 4 Analyse information requirements for transport projects and develop a construction plan for a transport infrastructure project using appropriate tools and techniques.

Learning Outcomes of Assessments

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

Report	3	
Report	4	
Exam	1	2

Outline Syllabus

Introduction of transport infrastructure and its importance in national economy

Background of Land, air and water transportation system.

Land transportation: Highways, railways and airports

Basic consideration of transport infrastructure developments. Current development programmes and design concept.

General considerations of highway drainage system. Types of drainage structure.

Design and construction of surface drainage and sub-soil drainage.

Railway development. Railway capacity. Railway alignment. Rail joints and ballast.

Airport activity systems. Airport planning procedure, runway orientation, and runway length and layout design.

Port construction: basic design principles, and construction methodology.

Infrastructure specification: Drawings, detailing and specification.

Methods and control of construction: Construction process, plant and equipment

Field data collection exercises will be undertaken and case studies will augment this course.

Learning Activities

Lectures and tutorials / lab-work.

Notes

This module will introduce students to the principles of design and construction of various types of civil and transport infrastructure. This module will also teach students to specify problems and analyse alternative engineering solutions for transport infrastructures. A comprehensive coursework based on a real scenario is the basis of assessment in this module, in which students will be involved with the design and construction practices of various types of infrastructures, including highway pavement, drainage, railways, airport runways and port construction.