

Subject Description Form

Subject Code	CSE40407
Subject Title	Design of Transport Infrastructure
Credit Value	3
Level	4
Pre-requisite/ Co-requisite/ Exclusion	Pre-requisites: CSE304/ CSE312/ CSE30312 Exclusion: CSE407
Objectives	1. To enable students to acquire basic knowledge of design principles for transport infrastructure development; 2. To enable students to design major transport infrastructures including road drainage, road pavement, road junction, railways; 3. To enable students to assess engineering judgment on alternative transport infrastructure designs.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Apply the basic principles and professional judgement in the planning and design of transport infrastructure; b. Utilise common design computer packages as well as manual calculations in transport infrastructure design; c. Conduct appropriate measurement and test for traffic design and evaluation; d. Communicate effectively through writing, calculation, and drawing; e. Work effectively in teams with shared responsibilities; f. Understand and discuss the contemporary issues in transport infrastructure design and development.
Subject Synopsis/ Indicative Syllabus	1. <u>Introduction</u> (0.5 week) Basic consideration of transport infrastructure developments. Current development programmes. Design concept. 2. <u>Highway Drainage</u> (1.5 weeks) General considerations. Types of drainage structure. Design and construction of surface drainage and sub-soil drainage. Effects on pavement support. Filter layer design. 3. <u>Pavements</u> (2.5 weeks) Design principles for flexible and rigid pavements. Loading on

	The laboratory sessions and reports targets at students' development in ILO b,c , d, and e. Through individual or group tasks, students would acquire hands-on learning experience in design packages, field measurements and material testing. Students would have the opportunity to develop technical communication skills through writing of laboratory reports. The examination will help students consolidate knowledge learnt in lectures and tutorials and thus achieving intended learning outcomes a, b, f.	
Student Study Effort Expected	Class contact:	Average hours per week
	▪ Lectures/Tutorials/Laboratory	3 Hrs.
	Other student study effort:	
	▪ Reading and studying	3 Hrs.
	▪ Completion of project assignment/Lab reports	3 Hrs.
	Total student study effort	9 Hrs.
Reading List and References	1. Roess R. P., Prassas E.S., and McShane W.R., Traffic Engineering, 4th Edition, Pearson, 2011. 2. Mallick R.B. and Korchi T.E., Pavement Engineering: principles and practice, CRC Press, 2009. 3. Vuchic, Vukan., Urban Transit Systems and Technology, John Wiley, 2007. 4. Wright, P., Highway Engineering-sixth edition, John Wiley & Sons, 2004. 5. Watson, J., Highway Construction & Maintenance, Longman Scientific & Technical, 1994. 6. Transport Planning Design Manual, Transport Department, HKSARG. 7. Guidance Note on Road Pavement Drainage Design, Highways Department, RD/RN/035, 2010. http://www.hyd.gov.hk/eng/public/publications/road_notes/index.htm. https://www.td.gov.hk/en/publications_and_press_releases/publications/index.html https://www.hyd.gov.hk/en/publications_and_publicity/publications/index.html http://www.pland.gov.hk/pland_en/p_study/comp_s/hk2030/	