

Subject Description Form

Subject Code	CSE232
Subject Title	Introduction to Environment
Credit Value	2
Level	2
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject aims to provide students with a comprehensive understanding of the environmental elements in architectural design, including air, noise, micro-climate, and overall comfort. It discusses the physics of air and noise pollution and the principles of micro-climate control in the context of climate change. How these environmental factors interact with each other is also included in this subject.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. have basic knowledge of air pollution, noise, and micro-climate in built and natural environments; b. learn the challenges in pollution control in the context of climate change and extreme weather; c. integrate environmental considerations into the architectural design process to improve overall comfort.
Subject Synopsis/ Indicative Syllabus	1. <u>Environmental Factors in Architectural Design</u> 2. <u>Air Pollution and Control</u> Definitions of air pollution, common sources and sinks of main air pollutants. Principle of dispersion and transport of air pollutants. Stationery and mobile sources of air pollutants and their control. Indoor air pollution. Air pollution control devices and engineering systems 3. <u>Noise Pollution and Control</u> Definition of noise pollution, spreading of sound from simple sources. Noise assessment. Noise control. 4. <u>Outdoor Lighting, Wind, and Urban Climate</u> Urban climate, heat island effect, microclimate design principles. Ventilation and thermal comfort. 5. <u>Field visit/ Case studies</u> Field visits/ case studies of real projects to understand how the environmental considerations are integrated in the building design.

Teaching/Learning Methodology	Fundamental knowledge will be covered in lectures. Tutorials will provide opportunities for discussion of lecture materials and also will be conducted in the form of example class and problem-solving session to supplement understanding from lectures.				
Assessment Methods in Alignment with Intended Learning Outcomes	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed		
			a	b	c
	1. Quiz	15%	✓	✓	✓
	2. Field visit / case study report(s)	15%	✓	✓	✓
	3. Final Exam	70%	✓	✓	✓
	Total	100%			
	Students must pass the final examination and achieve a passing overall score / grade to pass the subject. Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes: The students will be assessed with three components, i.e. assignments, field study/ case study report(s), and final examination. The assignments mainly focus on practicing specific conceptual knowledge covered in various lecture topics (ILO a, b, c), the field study/ case study report helps students to apply the theoretical concept in the appreciation of real architectural structures (ILO a, b, c). The final examination will consolidate students’ learning throughout the course (ILO a, b, c).				
Student Study Effort Expected	Class contact:		Average hours per week		
	▪ Lectures/ Tutorials/ Laboratory Sessions		2 Hrs.		
	Other student study effort:				
	▪ Reading and studying		2 Hrs.		
	▪ Quiz		2 Hrs.		
	Total student study effort		6 Hrs.		
Reading List and References	Rosenzweig, C., Solecki, W. D., Romero-Lankao, P., Mehrotra, S., Dhakal, S., & Ibrahim, S. A. (Eds.). (2018). <i>Climate change and cities: Second assessment report of the urban climate change research network</i>. Cambridge University Press. Daniel A. Vallero, <i>Fundamentals of Air Pollution (5th Edition)</i>, Academic Press, Elsevier, 2014.				

	Hassan O.A.B. <i>Building Acoustics and Vibration</i>, World Scientific, 2009. Jian Kang, <i>Urban Sound Environment</i>, Taylor & Francis, 2007. Lawrence E. Kinsler, <i>Fundamentals of Acoustics</i>, John Wiley, 2000. Landsberg, H. E. (1981). <i>The urban climate</i>. Academic press.
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