Subject Description Form

Subject Code	**BSE1D02**
Subject Title	**Light, Man and Environment**
Credit Value	3
Level	1
Pre-requisite Co-requisite Exclusion	Nil Nil Nil
Objectives	The specific objective of this subject is to enlighten students on the importance of light to our living and work, and to the natural and built environment. Through the learning activities, the subject aims at achieving the following overall objectives of GURs: • Expansion of intellectual capacity and interdisciplinary learning (CAR) • Healthy living, self understanding and interpersonal skills • Critical and creative thinking and problem solving skills • Global outlook and lifelong learning
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) give an account of the importance of light in their daily life (b) describe the nature of light and compare the properties of natural and artificial light sources (c) illustrate the interrelationship between light, human and the environment (d) explain the requirements of lighting to satisfy human biological, psychological and physiological needs (e) discuss the impact of artificial lighting on people and the environment
Subject Synopsis/ Indicative Syllabus	<u>Subject Synopsis</u> We see things every moment from the time we get up in the morning until we go to sleep. Light is the link between us and the things we see, i.e. the environment which is defined here as everything that surrounds humanity. The importance of light to our living and work has often been taken for granted and hence easily forgotten and ignored. This subject is to awaken students to the awareness of this key element to lives. It is also designed to enlighten students on the importance of light to human living and activities and to the natural and built environment. <u>Indicative Syllabus</u> • Light, colour and human vision: basic terminologies • Interaction of light with matter: reflection, refraction, scattering, absorption • Overview of natural and artificial light sources • Working principles and photometric characteristics of artificial light sources • Overview of human factors in lighting • Requirements of a high quality visual environment • Light as an architectural design element: interior and exterior • Lighting systems for functional applications • Energy efficiency in lighting • Light and healthy living • Light pollution: nuisance, glare and sky glow

Teaching/Learning Methodology	This subject is designed for students, who are not equipped with building engineering background, to develop a full understanding of the interrelationship between light and the natural and built environment. The course approaches the core of lighting science by explaining the importance and effect of lighting to human living and activities using examples from daily lives. Lectures with demonstrations will be used to deliver fundamental knowledge of theories and facts which will lead to the achievement of all intended learning outcomes, in particular (b)-(d). A communicative and student-centered approach will be adopted in the lectures. Students will be encouraged to take initiative in learning and classes will be designed to be interesting and practical. Case-study seminars and workshops on selected area will be given. They allow students to search for information, conduct measurements and experiments, and to present their findings, so that their problem-solving ability will be enhanced. These seminars and workshops will facilitate learning to achieve all intended learning outcomes, in particular (a), (d) and (e). Tutorials will be provided to supplement lectures and the seminars and workshops. The tutorials will facilitate learning to achieve all intended learning outcomes. Independent study by students, such as literature and information searching, coursework assignments and case study analysis, is required to achieve all intended learning outcomes.
Assessment Methods in Alignment with Intended Learning Outcomes	

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		a	b	c	d	e	
1. In-class tests	35	✓	✓	✓	✓	✓	
2. Case study seminars	35	✓	✓	✓	✓	✓	
3. Coursework*	30	✓	✓	✓	✓	✓	
Total	100 %						

* For details, refer to the 2020/21 Semester 1 Subject teaching scheme/schedule.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The understanding of the basic terminology and theory of lighting science as well as the design concept of a lighting environment can be effectively assessed using in-class tests, case study seminars and examination. The assessment methods cover all the intended learning outcomes.

Assessment of students' performance in the subject will comprise 100% of continuous assessment.

The continuous assessment includes:

- In-class test in form of Multiple Choice type questions
- Case study oral presentation and written report with group size of 4 to 5 students
- Coursework assignment

Student Study Effort Expected	Class contact:	
	▪ Lecture	18 Hrs.
	▪ Tutorial	6 Hrs.
	▪ Seminar	9 Hrs.
	▪ Workshop	6 Hrs.
	Other student study effort:	
	▪ Preparation for seminar and workshop	32 Hrs.
	▪ Self study	49 Hrs.
	Total student study effort	120 Hrs.
Reading List and References	(1) Brandston H. Learning to see – A matter of light. IESNA, 2008. (2) Kirkland K. Light and optics. New York: Facts on File, 2007. (3) Major M., Speirs J. and Tischhauser A. Made of light: The art of light and architecture. Basel: Birkhauser, 2005. (4) Meyers V. Designing with light. New York: Abbeville Press, 2006. (5) Phillips D. Lighting modern buildings. Oxford: Architectural Press, 2000. (6) Phillips D. The lit environment. Oxford: Architectural Press, 2002. (7) Rossing T.D. and Chiaverina C.J. Light science: physics and the visual arts. New York: Springer, 1999. (8) Valberg A. Light, vision, color. Chichester: John Wiley & Sons, 2005.	