

Subject Description Form

Subject Code	BRE2031
Subject Title	Environmental Science
Credit Value	3
Level	2
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	This subject is intended to: Equip students with a holistic understanding of the factors that contribute to the quality and performance of the built environment with respect to the technical knowledge learned in construction technology.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: - Understand the means of controlling the internal environment and provide standards of utility and comfort whilst utilizing principles of passive design to minimize the consumption of energy - Review the causes of indoor air pollution and the means to provide a healthy environment. - Consider the effect of building construction and operation on the environment and appraise the role of sustainable development in minimizing impact on the external environment – use of resources, waste generation, and pollution.
Subject Synopsis/ Indicative Syllabus	Brief Syllabus Content: Man and heat, heat transfer mechanisms, conduction, convection, radiation, thermal comfort. Climate and shelter, classification, global mechanisms, climatic data, micro-climatic building design. Design variables for energy efficient design and thermal performance of a building. Passive and active thermal controls, heating, refrigerators, ventilation and air conditioning. Principles of light, electromagnetic radiation, vision, luminance, glare, natural lighting and artificial lighting. Principles of sound, noise, noise transfer, insulation, acoustic design. Use of resources, energy efficiency, waste reduction, land use, damage to the environment, sustainable development. Environment assessment.

Student Study Effort Expected	Class contact:	
	▪ Lectures	26 Hrs.
	▪ Tutorials including experiments	13 Hrs.
	Other student study effort:	
	▪ Independent Study including assignments and project works	81 Hrs.
	Total student study effort	120 Hrs.
Reading List and References	Reading List: Burberry P. (1997) <i>Environment and Services</i>, Addison Wesley Longman. Langston, C. (Ed.) (1997) <i>Sustainable Practices: ESD and the Construction Industry</i>. Envirobook, Sydney Aus. Thomas, R. (Ed) (1996) <i>Environmental Design</i>, E & F N Spon, London & N.Y. Hyde, R. and Woods, P. (2000) <i>Climate Responsive Design</i>, E & F N Spon, London & N.Y. McMullan R. (1992) <i>Environmental Services in Building</i>. The Macmillan Press Ltd. Wathern P. (1990) <i>Environmental Impact Assessment, Theory and Practice</i>. Routledge Supplementary: BRE (various) <i>Digests and Current Papers</i>. Building Research Establishment, Garston, Watford, U.K. BSIRIA (1987) <i>Building Services Materials Handbook</i>, E & F N Spon, London & N.Y.	