UNIVERSITI TEKNOLOGI MARA

AAR604: ARCHITECTURAL SCIENCE II

Course Name (English)	ARCHITECTURAL SCIENCE II APPROVED
Course Code	AAR604
MQF Credit	2
Course Description	This course covers both the visual and aural environments in buildings. Principles and functions in artificial lighting and basic acoustics concept will be covered. As this is the final architectural science course, environment design assessment will be introduced so as to cover current and pertinent issues on the environment.
Transferable Skills	Reflective learner: Demonstrate ability to identify and articulate self skills, knowledge and understanding confidently and in a variety of contexts. Resourceful and responsible: Demonstrate ability to manage personal performance to meet expectations and demonstrate drive, determination and accountability.
Teaching Methodologies	Lectures, Seminar/Colloquium, Case Study, Tutorial, Discussion, Presentation, Supervision
CLO	CLO1 Demonstrate the utilisation and effects of environmental sciences in building design. CLO2 Discuss related issues and events on the environment.
Pre-Requisite Courses	No course recommendations

Topics
1. Introduction to the visual environment 1.1) Terminology 1.2) Functions 1.3) Visual efficiency, glare and visual tasks.
2. Principles in the artificial lighting 2.1) Types of lamps and their uses 2.2) Lights distributions 2.3) Basic light calculations 2.4) PAL and PSALI
3. Integrated lighting design 3.1) Effects of lighting designs on interiors 3.2) Integrated design system to include air conditioning, acouctics and lighting for the ceiling 3.3) Some basic rules of good lighting designs (both quantitative and qualitative)
4. Principles of Sounds 4.1) Sound properties, terminology of acoustics 4.2) Sounds measurements – decibels, dBA etc
5. Effect of Noise on Man and Noise Control 5.1) Physical and psychological effects 5.2) Noise control approaches and methods 5.3) Noise insulation, absorption and isolation
6. Architectural Acoustics 6.1) Principles of good acoustical design for the interiors 6.2) Calculation of reverberation time 6.3) Exemplary examples of auditorium designs.
7. Environmental Design Assessment 7.1) Current and relevant issues and events on the natural and the built environment will be covered and discussed 7.2) Site visits shall be conducted.

8. Introduction to Basic Instrumentation
8.1) Use of light meter, sound level meter and the environmental data logger.

Assessment Breakdown	%
Continuous Assessment	40.00%
Final Assessment	60.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Assessment on the utilisation and effects of environmental sciences in building design. (Importance of noise control, application of acoustics and artificial lighting in building design.)	40%	CLO2

Reading List

Reference Book Resources

- **Lam W.M.C. 1992, *Perception and Lighting as formgivers for ar*, N.Y., V.N.R**
- **Flynn J.E. 1991, *Architecture interior systems: Lighting acous*, 3 Ed., Butterworth-Heinemann**
- **Charles J.K. 2007, *Sustainable construction: green bulding desig*, USA: John Wiley & Sons, Inc**
- **Slessor, Catherine 2001, *Eco tech ; Sustainable Architecture and High* , Thames & Hudson, London**
- **Woods J.E. 1991, *Evaluation and Control of the interior enviro*, N.Y., V.N.R**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources