



Course File Summary (Spring 2014)

Course Information:

Course Title:	Environmental Studies 1		
Code:	AR362		
Hours:	Lectures: 2	Tutorials: 2	Credits: 3
Prerequisites:	None		
Lecturer:	Dr. Sherif Ezzeldin		
Assistant:	Arch. Mai Aboul Dahab		
Class Time:	Monday, 10:30 to 2:10		
Room:	A415		

Grading:

7th Week Grade Total	30%
12th Week Grade Total	20%
Pre-Final Grade Total	10%
Final Exam	40%

Course Description and Overall Aims:

This course introduces students to the field of environmental design placing a strong emphasis on the importance of sustainability and the need to minimize the negative impact of buildings on the natural environment.

The course aims to:

- Provide students with an understanding of the impact of buildings upon the global environment through the consumption of non-renewable and polluting forms of energy.
- Provide students with an understanding of traditional and contemporary environmental design strategies to achieve indoor thermal comfort.
- Introduce students to such topics as passive and active uses of solar energy, natural and artificial lighting, noise control in buildings, and room acoustics.

Text Books:

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- McMullan, Randall, *Environmental Science in Building*, 5th ed., Houndmills, Palgrave, 2002.

Reference Books:

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- Evans, Martin, *Housing Climate and Comfort*, London, Architectural Press, 1980.
 - Givoni, Baruch, *Man, Climate and Architecture*, New York, Van Nostrand Reinhold, 1981.
 - Watson, Donald, *Climatic Design*, USA, McGraw-Hill, 1976.
 - Reid, Esmond, *Understanding Building*, Singapore, Longman, 1995.

Course Outline:

Week No. 1:

Introduction, Natural & Built Environments, Natural Environment & Design.
Climate, Climate & Vernacular Architecture, Reasons for Climate-Sensitive Design.

Week No. 2:

Climate & Human Comfort, Thermal Comfort, Olgyay's Bioclimatic Chart.

Week No. 3:

Sun & Solar Radiation: Orientation, Control & Shading.

Week No. 4:

Sun & Solar Radiation: Design of Shading Devices.

Week No. 5:

Principles of Heat, Heat Transfer through Building Envelope.
Control of Temperature in Buildings.

Week No. 6:

Principles of Heat, Heat Transfer through Building Envelope.
Control of Temperature in Buildings.

Week No. 7:

Midterm # 1.

Week No. 8:

Passive & Active Use of Solar Energy, Other Sources of Renewable Energy.

Week No.9:

Wind, Air Movement, Ventilation (Natural vs Forced).
Humidity, Air Humidification.

Week No. 10:

Principles of Light, Natural & Artificial Lighting.

Week No. 11:

Principles of Light, Natural & Artificial Lighting.

Week No. 12:

Midterm # 2.

Week No. 13:

Principles of Sound, Noise & Sound Insulation, Room Acoustics.

Week No. 14:

Green Buildings, Sustainability, Pollution, Energy Conservation, Sick & Healthy Buildings.

Week No. 15:

Course Review.

Week No. 16:

Final Examination.