**Number & Title of Course:** ARPL 232/532, Environmental Design I, Three credits.

**Course Description:** Thermal and lighting issues in design and electrical power systems; passive and active (mechanical) responses to achieving thermal comfort; climatic and solar conditions; day lighting.

**Course Goals & Objectives:**
To develop an intuitive understanding of architectural strategies regarding shading and passive solar heating and cooling, human visual perception, electric lighting, day lighting, mechanical systems for heating and cooling, electrical power systems including low voltage, energy efficiency, and ecologically sustainable design.
To provide an understanding of the principles, concepts and calculations required for ARPL 331/731 Environmental Design II.
The information in the course is presented in a three-tier approach:
1. Avoiding loads though excellent architectural design.
2. Using natural energies.
3. Using electrical systems and mechanical equipment efficiently.

**Student Performance Criterion/a addressed:**
B.8. Environmental Systems  
B.10 Building Envelope Systems  
B.11 Building Service Systems

**Topical Outline (include percentage of time in course spent in each subject area):**
Thermal Issues (10%)  
Lighting Issues (15%)  
Electric Power (15%)  
Passive and active (mechanical) responses to achieving thermal comfort (50%)  
Climatic and solar (5%)  
Day lighting (5%)

**Prerequisites:**
ARCH 209/509 (Intro to Sustainability)

**Textbooks/Learning Resources:**
See Bibliography attached behind syllabus for other learning resources.

**Offered:**
Spring and summer; annually

**Faculty assigned:**
James L. Binkley, FAIA (Faculty Associate, P/T)  
Jim Webster, Illuminating Engineering Society of North America (P/T)  
David Peabody, AIA (P/T)