Architectural Engineering Courses for Graduate Credit

ARE 620. Problems in Architectural Engineering. (Var.) I, II, S. A study of specific design problems under the direct supervision of a member of the architectural engineering faculty. Pr.: Approval of the department head.

ARE 630. Introduction to LEED. (V). Introduction to green building design and construction principles and practices based on the Leadership in Energy and Environmental Design (LEED) Green Building Rating System of the United States Green Building Council (USGBC). One or two hours rec. a week. Pr.: Professional Program standing.

ARE 710. Building Energy Analysis. (2) I. Study of building energy consumption and current modeling techniques to analyze overall energy usage including: economic evaluation and energy efficient system selection for new construction. Two hours rec. a week. Pr.: ARE 640 or instructor permission.

ARE 711. Building Energy Codes and Standards. (2) II. Study of the background, importance, impact, and application of the energy codes to the mechanical and electrical systems design process.

ARE 720. Topics in Architectural Engineering. (V) I, II, S. A study of specific design problems in architectural engineering. Pr. or conc.: ARE 590.

ARE 723. Timber Structures. (3) II. Analysis and design of timber structures including dimension lumber, glu-lam members, and engineered wood products. Three hours rec. a week. Pr.: CE 537 and ARE 522.

ARE 724. Advanced Sanitation Systems. (3) I. Water quality and treatment, pressure control, and hydraulics in domestic water and waste systems. Three hours rec. a week. Pr.: ARE 536 or CNS 536.

ARE 731. Advanced Lighting Design. (3) II. Lighting modeling and analysis used in lighting design practice and computer assisted lighting analysis. Two hours rec. and two hours lab a week. Pr.: ARE 532.

ARE 734. Building Thermal Systems Design. (3) II. Design and specifications of selected thermal and mechanical systems for structures. The course uses all the modern techniques of thermal/mechanical system design for buildings. Students are required to develop term research design projects. Two hours rec. and three hours lab a week. Pr.: ARE 640.

ARE 735. Electrical Systems Design. (3) I. Complete design and specifications of electrical systems for a selected structure. The course uses the National Electrical Code in conjunction with all the modern techniques of electrical systems design for buildings. Two hours rec. and three hours lab a week. Pr.: ARE 533.

ARE 740. Environmental Control Systems in Buildings. (3) II. Electric, electronic, and pneumatic control systems to optimize energy usage and environmental comfort in buildings. Three hours rec. a week. Pr.: ARE 640 and EECE 519.

ARE 741. Building Communication Systems. (3) I. Detailed design and analysis of special electrical systems for buildings including, fire alarm, and communication systems. Three hours rec. a week. Pr.: ARE 533.

ARE 760. Masonry Structural Design. (3) I. Introduction to masonry materials, specifications, testing and construction methods. The design of unreinforced and reinforced masonry structures according to applicable building codes. Three hours rec. a week. Pr.: ARE 528 or equivalent first course in reinforced concrete design.

ARE 780. Advanced Structural Topics. (3) II. Continuation of of Steel Structures and Reinforced Concrete Structures with special emphasis on the complete problem of the structure as a whole. Three hours rec. a week. Pr.: ARE 524 and ARE 528.

ARE 890. Problems in Architectural Engineering. (Var.) I, II, S. A study of a specific problem under the direct supervision of a member of the architectural engineering faculty. Pr.: Approval of Major Professor. May be repeated.

ARE 898. Master's Report. (Var.) I, II, S. Topics selected with approval of major professor and department head.

ARE 899. Master's Thesis. (Var.) I, II, S. Topics selected with approval of major professor and department head.