Architectural Engineering Courses for Graduate Credit

ARE 620 - Problems in Architectural Engineering. A study of specific design problems under the direct supervision of a member of the architectural engineering faculty.
Credits: Variable. **Prerequisite:** Approval of the department head. **Typically Offered:** Fall, Spring, Summer.

ARE 630 - Introduction to LEED. 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).
Credits: Variable. **Prerequisite:** Professional program standing. **Typically Offered:** On sufficient demand.

ARE 711 - Building Energy Codes and Standards. Study of the background, importance, impact, and application of the energy codes to the mechanical and electrical systems design process.
Credits: 2. **Prerequisite:** ARE 562. **Typically Offered:** Spring.

ARE 712 - Energy Modeling Lab. Study of current building energy sources and trends, basic engineering economics applied to building energy use, energy calculations for building systems, and software-based whole building energy simulation using eQUEST.
Credits: 1. **Requisite:** ARE 562. **Typically Offered:** Spring.

ARE 715 - Problems in Architectural Engineering. Participation in student design competition teams under the direct supervision of a member of the architectural engineering faculty.
Credits: Variable. **Prerequisite:** Approval of the department head. **Typically Offered:** Fall, Spring.

ARE 720 - Topics in Architectural Engineering. A study of specific design problems in architectural engineering.
Credits: Variable. **Prerequisite or concurrent enrollment:** ARE 590. **Typically Offered:** Fall, Spring, Summer.

ARE 723 - Timber Structures. Analysis and design of timber structures including dimension lumber, glu-lam members, and engineered wood products.
Credits: 3. **Prerequisite:** CE 537. **Typically Offered:** Spring.

ARE 724 - Advanced Steel Design. Structural design computations for beams, girders, columns and beam-columns. Design of connections (bolted & welded). Structural working drawings (plan, elevation and connection details). Overview of failure mechanisms and design procedures for plate girders. AISC requirements for prevention of various failure mechanisms.
Credits: 3. **Prerequisite:** ARE 553 or CE 542. **Typically Offered:** Fall.

ARE 725 - Cold-Formed Steel Design. Principles of behavior, design, fabrication, and construction of cold-formed steel structures.
Credits: 3. **Prerequisite:** ARE 553 or CE 542. **Typically Offered:** On sufficient demand.

ARE 726 - Masonry Structural Design. Introduction to masonry materials, specifications, testing and construction methods. The design of unreinforced and reinforced masonry structures according to applicable building codes.
Credits: 3. **Prerequisite:** ARE 528 or CE 544. **Typically Offered:** Fall.

ARE 729 - Building Seismic Design. Continuation of ARE 553 and ARE 563 with special emphasis on

seismic design as applied to a complete structure.
Credits: 3. **Prerequisite:** ARE 553 or CE 542 and ARE 563. **Typically Offered:** On sufficient demand.

ARE 731 - Advanced Lighting Design. Design and application of lighting systems for commercial buildings, using current industry practices and computer-assisted analysis.
Credits: 3. **Prerequisite:** ARE 561. **Typically Offered:** Spring.

ARE 733 - Advanced Mechanical Hydronic Systems Design. Design and application of mechanical systems for buildings, focusing on hydronic and steam systems, expanding on the material and topics presented in prior HVAC courses.
Credits: 3. **Prerequisite:** ARE 562. **Typically Offered:** Spring.

ARE 734 - Advanced Mechanical Air Systems Design. Design and application of mechanical systems for buildings, focusing on air systems, expanding on the material and topics presented in prior HVAC courses.
Credits: 3. **Prerequisite:** ARE 562. **Typically Offered:** Fall, Spring.

ARE 735 - Electrical Systems Design. Design and application of various electrical distribution system for commercial buildings. The course uses the National Electrical Code in conjunction with current industry practices.
Credits: 3. **Prerequisite:** ARE 561. **Typically Offered:** Fall, Spring.

ARE 736 - Advanced Plumbing Design. Design and application of domestic water and waste systems, storm water systems, fuel gas systems, medical gas systems and fire protections systems.
Credits: 3. **Prerequisite:** ARE 561. **Typically Offered:** Fall.

ARE 741 - Building Communication Systems. Detailed design and analysis of special electrical systems for buildings including, fire alarm, and communication systems.
Credits: 3. **Prerequisite:** ARE 561. **Typically Offered:** Fall.