DESGN 360

Title: Commercial Engineering Design and Drafting

Units: 5.00

Prerequisite: DESGN 302 (Technical Documentation with CADD), AND DESGN 325 (Architectural Modeling and Design) or DESGN 328 (Engineering Modeling and Design) AND DESGN 310 (Graphic Analysis), or ENGR 312 (Engineering Graphics) with grades of "C" or better

Hours: 54 hours lecture, 108 hours laboratory

Description: This course employs individual and group exercises simulating typical design and engineering problems in commercial structures, commercial building systems, and environmental systems in buildings. The fundamentals of construction materials and methodology, basic code requirements, and the introduction of applied engineering concepts for heavy construction are introduced. Topics include defined programs, environmental analysis, sustainable design applications, and the development of various mass prototyping based on the given theme. Design solutions are presented by various freehand concept drawings, physical modeling and electronic media applications. A formal graphic portfolio including all course work is required.

Learning Outcomes and Objectives

Upon completion of this course, the student will be able to:

- apply basic organizational and spatial principles to the conception and development of a commercial design project
- solve and use design process methodologies to identify problems, analyze criteria, and apply learned principles to synthesize solutions to a specific commercial design project
- illustrate the skills associated with representing envisioned ideas, objects, and environments
- employ appropriate representational media including study and presentation models (electronic and physical); freehand and conceptual drawing; technical documentation and diagramming to convey visualize ideas and convey essential formal elements at each stage of the programming, design process, and construction documents
- interpret commercial construction methodologies and techniques including, materials, systems, and apply learned principles to create documents that control the construction of a building
- describe the primary building systems including structure, structural engineering concepts and environmental systems that are integrated into a building and apply learned principles to create the drawings that control building development
- organize a set of documents including cross-referencing, code review, checklists, coordination, and other planning methods to create the documents that control building development
- identify diverse roles that utilize individual talents when working as members of a team to maximize accomplishment
- to demonstrate ability at active participation and contribution to a team effort as well as individual effort
- identify historical, cultural, human, aesthetic, environmental (sustainable), and social issues to be able to create change in the development of built environment
- exhibit a communication skillset in group discussions and formal oral presentation in regards to design thinking
- justify design solutions through multiple academic disciplines including, research documentation, three dimensional (3D) graphics, and two dimensional (2D) technical documentation