

ELECTRONIC DESIGN (ELDS)

ELDS 225 Graphic Representation in the Building Arts (5 Credits)

Graphic representation conveys conceptual ideas and built work through both traditional and innovative visual approaches. In this course, students build upon and strengthen foundational skills, leading to visual narratives that effectively convey spatial experiences and material qualities. Through hands-on exploration of analog and digital tools, students develop skills in sketching, diagramming, and rendering with an emphasis on perspective, line work, shading, and composition.

Prerequisite(s): SBLD 115; DRAW 115; IDUS 213; SDES 213; IDUS 225; FOUN 111 or DRAW 100.

Attributes: Studio Elective Requirement

ELDS 325 Electronic Design II: Digital Modeling, Rendering, and Spatial Simulation (5 Credits)

This course emphasizes managing and communicating design data, tools and presentation information during the three phases of the design process: programmatic design, schematic design, and design development. Students utilize several 3D design tools. In addition, desktop publishing, Web authoring, rendering tools, digital manipulation tools, and digital cameras enable students to effectively communicate form and space related to either the building arts or the product-based design professions.

Prerequisite(s): ARCH 225; ELDS 225; SDES 205; ELDS 205; ELDS 305 or IDUS 231.

Attributes: Studio Elective Requirement

ELDS 330 Visualization in Digital Design (5 Credits)

This course explores the use of visualization and 3D design-based software, focusing on their applications within the building arts. Students are expected to gain an in-depth knowledge of effective communication formats such as raster graphics for the presentation of form and space.

Prerequisite(s): ELDS 225.

Attributes: Studio Elective Requirement

ELDS 335 BIM for Interior Design (5 Credits)

Students in this course use advanced Building Information Modeling techniques to explore a variety of interior design related issues that build on fundamental tools learned in prerequisite coursework. Emphasis is placed on the design tools, documentation and management of a project to give students an understanding of workflow strategies associated with current software technology.

Prerequisite(s): ELDS 225.

ELDS 425 Digital Design Practice and Project Management (5 Credits)

This course teaches principles of practice and project management related to product and/or building documentation. Students apply CAD to produce the electronic documentation of product, form and space that is utilized by the building and product design professions for 3D construction documents.

Prerequisite(s): ELDS 225.

Attributes: Studio Elective Requirement

ELDS 445 Digital Prototyping for Building Design (5 Credits)

This course teaches fundamental principles of digital prototyping and fabrication methods for architecture and building. It focuses on the inherent value of digital prototypes to evaluate the viability and performance of the design intent with respect to material selection and method of assembly. The course also explores techniques of digital fabrication and the implications on assembly. Students use a variety of digital techniques to evaluate, document, fabricate and assemble a series of architectural components at various scales and using different materials.

Prerequisite(s): (ARCH 241 or ARCH 250) and ELDS 225 and ELDS 425.

ELDS 475 Spatial Simulation and Visualization in the Building Arts (5 Credits)

This course explores the methodology involved in applying electronic simulation and communication tools to the design process. Students are expected to learn in-depth techniques for 3D modeling, applied knowledge on simulation-orientated rendering and animation tools, and digital image manipulation tools. Students produce presentations for the three phases of an electronic design process—programmatic, schematic, and design development.

Prerequisite(s): ELDS 325 or ELDS 425.

Attributes: Studio Elective Requirement

ELDS 704 Electronic Design (5 Credits)

This course initiates advanced study of computer-aided design as it relates to the building design professions. The course covers the advanced application and utilization of network operating systems, the digital creation and manipulation of scanned images, 2D drafting, and 3D modeling to visually communicate building-oriented form.

Attributes: Studio Elective Requirement

ELDS 708 Communication in Electronic Design (5 Credits)

This course begins the advanced study of computer aided design through the management and communication of design data, as well as tools and presentation information utilized in the three phases of the design process: programmatic design, schematic design and design development. Students gain experience and proficiency with multiple 3D digital design, rendering and digital manipulation programs to visually communicate form and space as related to the building design or product-based design professions.

Attributes: Studio Elective Requirement

ELDS 713 Imaging and Digital Rendering for the Building Arts (5 Credits)

In this course, students focus on integrating electronic visualization tools to communicate and promote individual design concepts and approaches. The tools applied include imaging, rendering and image manipulations. Students also transfer their designs to different output media.

Prerequisite(s): (ELDS 704; ELDS 225 or ELDS 225).

ELDS 720 Geospatial Analysis and Digital Design for Urban Environments (5 Credits)

This course provides experience with the use of computers for assessment and representation of the environmental landscape, as applications to urban design and development through appropriate systems and software. Data collection, assessment and synthesis are incorporated as a component of the urban design and development process.

ELDS 727 Advanced Digital Applications for Practice and Project Management (5 Credits)

Students apply the principles of practice and project management regarding product and/or building documentation in this course. By utilizing Building Information Modeling software, students produce documentation of both construction processes and design details utilized within the building and product design practices. Students also master evaluating documentation through an advanced focus on assessment and analysis.

ELDS 745 Digital Prototyping and Fabrication Methods for Building Design (5 Credits)

This course teaches graduate students the fundamental principles of advanced digital prototyping and fabrication methods for architecture and building. It focuses on the inherent value of digital prototypes to evaluate the viability and performance of the design intent with respect to material selection and method of assembly. In addition, the course explores higher techniques of digital fabrication and the implications on assembly. Students use a variety of digital techniques to evaluate, document, fabricate and assemble series of advanced architectural components at various scales and with different materials.

Prerequisite(s): ELDS 727.

ELDS 775 Simulation, Animation, and Visualization in the Building Arts (5 Credits)

This course explores the methodology involved in applying electronic simulation and communication tools to the design process. Students are expected to learn in-depth techniques for 3D modeling, applied knowledge on simulation-orientated rendering and animation tools and digital image manipulation tools. Students produce presentations for the three phases of an electronic design process—programmatic, schematic and design development.

Prerequisite(s): (ELDS 704; ELDS 225 or ELDS 225).

Attributes: Studio Elective Requirement