

PATHWAY | ENGINEERING AND ARCHITECTURAL DESIGN



PATHWAY DESCRIPTION

YEAR 1

Introduction to Engineering Design is a foundational pre-engineering course that introduces students to the engineering design process through hands-on, project-based learning. Students apply design thinking individually and in teams while using industry-standard sketching and 3D modeling tools to develop, document, and communicate solutions to real-world problems.

- Engineering design process using sketches, 3D CAD, and engineering notebooks
- Hands-on projects progressing from structured activities to open-ended problem solving
- Professional skills development, including planning, communication, documentation, and ethics



4802 Intro to Engineering Design

- IDOE Course 4802, 2 Semesters
- Dual Credit: DESN 113
- Certification: Fusion 360

YEAR 2

Mechanical and Architectural Design introduces students to the fundamentals of technical drawing for both manufacturing and building design. The course blends mechanical drafting standards with core architectural design concepts.

- **Mechanical design fundamentals:** Working drawings, manufacturing detailing, assembly, surface textures, and parts documentation
- **Technical documentation standards:** Use of title blocks, revision blocks, and parts lists
- **Architectural design principles:** Site analysis, facilities programming, and space planning for building design
- Create hands on architectural project scale models



7196 Mechanical and Architectural Design

- IDOE Course 7196, 2 Semesters
- Dual Credit: DESN 104/105

YEAR 3

BIM Architecture introduces students to Building Information Modeling (BIM), a 3D, model-based design process used by architecture, engineering, and construction professionals.

- Develop advanced **3D CAD and BIM software** skills for architectural and commercial construction projects
- Use BIM tools to **model, analyze, and refine design** concepts
- Create **professional client presentations** aligned to real-world commercial construction practices



7197 BIM Architecture

- IDOE Course 7197, 2 Semesters
- REVIT Certification

Students MUST complete all pathway classes with a 73% or better



CAREER OPTIONS

- Mechanical Engineer
- Civil Engineer
- Electrical Engineer
- Software Engineer
- Biomedical Engineer
- Aerospace Engineer
- Environmental Engineer
- Chemical Engineer
- Industrial Engineer
- Structural Engineer
- Robotics Engineer
- Project Engineer
- & more!



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