

# DESIGN THINKING-IDEA (IDEA)

## IDEA 110 Design Your Life with Social Impact (GT-SS3) Credits: 3 (3-0-0)

**Course Description:** Practical application of methods and tools from the behavioral sciences to construct an individualized approach to designing fulfilling life experiences. Topics include strategies for building self-awareness, being open to diverse perspectives, managing ambiguity, developing a bias toward action, and re-framing problems as opportunities, toward developing a “whole human” lifeworld.

**Prerequisite:** None.

**Registration Information:** Sections may be offered: Online.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**Additional Information:** Social & Behavioral Sciences 3C, Human Behavior, Culture, or Social Frameworks (GT-SS3).

## IDEA 155 EcoDesign History and Theory Credits: 3 (3-0-0)

**Course Description:** Historical interpretative lens to examine ecological design from the 1800s to present day through an interdisciplinary design thinking approach that considers the environmental system as part of the design of products and environments. Examination of the trajectories of parallel EcoDesign movements, grounded in different worldviews, and how these were shaped by historical events, technological developments, and social movements.

**Prerequisite:** None.

**Registration Information:** Sections may be offered: Online.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

## IDEA 210 Introduction to Design Thinking (GT-AH1) Credits: 3 (3-0-0)

**Course Description:** Design thinking is a creative, flexible process that fosters innovation. Content and projects promote building creative competence and an appreciation for thinking across disciplines to develop a new mindset and skillset that guides innovation. Learning tools to develop compelling ideas for meaningful societal and marketplace impact will be explored.

**Prerequisite:** None.

**Registration Information:** Credit not allowed for both IDEA 210 and IDEA 280A1.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**Additional Information:** Arts & Humanities 3B, Arts & Expression (GT-AH1).

## IDEA 310A Design Thinking Toolbox: Paper Products Credit: 1 (0-2-0)

**Course Description:** Employing design theories and methods to projects using paper-based media that promote “iterative tinkering” through exploration of various design processes.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** This is a partial semester course.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

## IDEA 310B Design Thinking Toolbox: 3D Modeling Credits: 3 (2-2-0)

**Course Description:** Learn the primary features of 3D Modeling Software (e.g., Rhinoceros 3D), including workflows for outputting to the laser cutter and 3D printer, and a brief introduction to Computer Numeric Controlled (CNC) equipment.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** Must register for lecture and laboratory.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

## IDEA 310D Design Thinking Toolbox: Digital Imaging Credit: 1 (0-2-0)

**Course Description:** Design theories and methods employing digital imaging projects that promote “iterative tinkering” experiences through exploration of various design processes.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** This is a partial semester course.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

## IDEA 310E Design Thinking Toolbox: Foundations of Woodworking Credits: 3 (2-2-0)

**Course Description:** Introduction to wood fabrication. Learn foundational techniques with power tools and hand tools to produce a series of functional projects that focus on user interaction. Additional content will cover an introduction to Computer Numeric Controlled (CNC) technology and its application in woodworking, as well as wood processing, including harvesting, milling, and solar drying.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** Must register for lecture and laboratory.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

## IDEA 310F Design Thinking Toolbox: Foundations of Textile Design Credit: 1 (0-2-0)

**Course Description:** Employ design thinking theories and methods to textile projects that promote “iterative tinkering” through exploration of various design processes in a maker space setting.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** This is a partial semester course.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

## IDEA 310G Design Thinking Toolbox: Infographics Credit: 1 (0-2-0)

**Course Description:** Employ design theories and methods to infographic projects that promote “iterative tinkering” through exploration of various design processes.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** This is a partial semester course.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

## IDEA 310H Design Thinking Toolbox: Mixed Reality Design Credits: 3 (3-0-0)

**Also Offered As:** CS 310H.

**Course Description:** Introduction to topics in virtual and augmented reality. Learn how to create virtual (i.e., artificial) worlds using a game engine to provide hands-on experience and promote “iterative tinkering” through exploration of various design processes.

**Prerequisite:** CS 214 with a minimum grade of C or CS 253 with a minimum grade of C or IDEA 210.

**Registration Information:** Sophomore standing. Sections may be offered: Online. Credit not allowed for both CS 310H and IDEA 310H.

**Term Offered:** Fall (even years).

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**IDEA 310I Design Thinking Toolbox: Foundations of Metal Fabrication Credits: 3 (2-2-0)**

**Course Description:** The fundamentals of cutting, forming, and joining metal, primarily mild steel.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** Must register for lecture and laboratory.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**IDEA 310J Design Thinking Toolbox: Graphic Noveling Credits: 3 (3-0-0)**

**Course Description:** Creation of visual stories using sequential art.

Use thumbnail sketches, the method of erasure, design layouts using hierarchy and emphasis, hand lettering, ink, and color to communicate a design proposal in graphic novel format.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** Sections may be offered: Online.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 310K Design Thinking Toolbox: Technical Sketching and Drawing Credit: 1 (0-2-0)**

**Course Description:** Employing design thinking theories and methods to projects using technical sketching and expanded view drawing techniques that promote "iterative tinkering" through the exploration of various design processes.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** This is a partial semester course.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 310L Design Thinking Toolbox : Creating Things That Think Credits: 2 (0-4-0)**

**Course Description:** Employing design thinking theories and methods to projects using microcontrollers and single-board computers that promote "iterative tinkering" through the exploration of various design processes related to embedding computation devices into a design.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**IDEA 310M Design Thinking Toolbox: Co-designing with Communities Credit: 1 (0-2-0)**

**Course Description:** Employing design thinking theories and methods to projects using best practices for participatory design with community partners as co-designers to promote "iterative tinkering" and equitable relationships.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** This is a partial semester course.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 310N Design Thinking Toolbox: Screen Printing Credit: 1 (0-2-0)**

**Course Description:** Employing design thinking theories and methods to projects using post-digital imaging that promotes "iterative tinkering" through the exploration of various design processes related to screen-printing and other forms of post-digital imaging.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** This is a partial semester course.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**IDEA 310O Design Thinking Toolbox: Digital Interaction and Game Design Credits: 3 (2-2-0)**

**Course Description:** Create interactive experience and serious games using design thinking strategies and digital game development engines (e.g., Unity 3D).

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** Must register for lecture and laboratory.

Sections may be offered: Online.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 310P Design Thinking Toolbox: Low-Fidelity Prototyping Credits: 3 (2-2-0)**

**Course Description:** Develop skills, tools, and techniques to design and create low-tech prototypes based on users' needs by employing design thinking principles and processes.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** Must register for lecture and laboratory. Credit not allowed for both IDEA 310P and IDEA 380A1.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**IDEA 310Q Design Thinking Toolbox: 3D Animation and Storytelling Credits: 3 (2-2-0)**

**Course Description:** Basics of 3D modeling and animation with open source software (e.g., Blender 3D) to explore narrative expression.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** Must register for lecture and laboratory.

Sections may be offered: Online.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 310T Design Thinking Toolbox: Mobile Applications Credits: 3 (2-2-0)**

**Course Description:** Design, development, and evaluation of a variety of application platforms, including web, phone, tablet, and desktop. Apply human-centered design practices while working with a variety of development platforms and technologies to build app solutions to interdisciplinary problems.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** Must register for lecture and laboratory.

Sections may be offered: Online.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 310U Design Thinking Toolbox: Artificial Intelligence Credits: 3 (3-0-0)**

**Course Description:** Explore how Artificial Intelligence (AI) can impact design thinking principles and processes by accelerating ideation, optimizing user research, enhancing visual design, and driving ethical design decisions.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** Sections may be offered: Online. Credit not allowed for both IDEA 310U and IDEA 380A2.

**Term Offered:** Spring.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 320B Design Thinking Toolbox: Advanced 3D Modeling Credits: 2 (0-4-0)**

**Course Description:** Employing design thinking theories and methods to advanced 3D modeling projects that promote “iterative tinkering” experiences through exploration of design processes.

**Prerequisite:** IDEA 310B.

**Registration Information:** This is a partial semester course. Credit not allowed for both IDEA 310C and IDEA 320B.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**IDEA 320E Design Thinking Toolbox: CNC Furniture Design Credits: 3 (2-2-0)**

**Course Description:** Integration of Computer Numeric Controlled (CNC) technology into functional, user-centered, wood-based furniture projects. Basics of CAD/CAM software workflow, CNC tooling, work holding, nesting, jig production, and design challenges that need to be considered when utilizing wood-based materials.

**Prerequisite:** IDEA 310E, may be taken concurrently and IDEA 310B.

**Registration Information:** Must register for lecture and laboratory.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**IDEA 320F Design Thinking Toolbox: Advanced Textile Design Credits: 2 (0-4-0)**

**Course Description:** Employing design thinking theories and methods to advanced projects using textile-based media that promote “iterative tinkering” through exploration of various design processes related to textiles.

**Prerequisite:** IDEA 310F, may be taken concurrently.

**Registration Information:** This is a partial semester course.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**IDEA 320I Design Thinking Toolbox: Advanced Metal Fabrication Credits: 2 (0-4-0)**

**Course Description:** Employing design thinking theories and methods to projects using metal fabrication-based media that promote “iterative tinkering” through the exploration of various design processes related to advanced metal fabrication.

**Prerequisite:** IDEA 210, may be taken concurrently.

**Registration Information:** This is a partial semester course.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**IDEA 384 Supervised College Teaching Credits: Var[1-3] (0-0-0)**

**Course Description:** Skills for facilitating effective learning in design thinking courses.

**Prerequisite:** None.

**Registration Information:** Written consent of instructor. Must have taken IDEA 210 and at least 3 credits from IDEA 310 subtopics and/or IDEA 320 subtopics, with a minimum grade of B. A maximum of 10 combined credits for all 384 and 484 courses are counted toward graduation requirements.

**Grade Mode:** Instructor Option.

**Special Course Fee:** No.

**IDEA 424 Design Thinking in Social Entrepreneurship Credits: 3 (3-0-0) Also Offered As: MGT 424.**

**Course Description:** Focus on value creation, and delivery of a solution to a team community project. Application of human-centered design, and design thinking processes provide solutions to real world problems facing some of society's most vulnerable populations.

**Prerequisite:** IDEA 210, may be taken concurrently and MGT 340, may be taken concurrently and MGT 360, may be taken concurrently.

**Restriction:** Must be a: Undergraduate.

**Registration Information:** Credit not allowed for both IDEA 424 and MGT 424.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 450 Design Thinking Collaborative Credits: 3 (0-6-0)**

**Course Description:** Culminating interdisciplinary experience that offers an opportunity to partner with industry or community partners to propose solutions to vexing real-world problems. Content and activities include a semester-long project to create a problem brief, develop and test prototypes, and deliver professional presentations to diverse audiences.

**Prerequisite:** None.

**Registration Information:** Sophomore standing. Must have taken at least 3 credits from IDEA 310 subtopics and/or IDEA 320 subtopics.

**Terms Offered:** Fall, Spring, Summer.

**Grade Mode:** Traditional.

**Special Course Fee:** Yes.

**IDEA 455 Designing for Defense Credits: 3 (0-6-0)**

**Also Offered As:** MGT 455.

**Course Description:** A culminating interdisciplinary experience that partners with the United States Department of Defense to propose solutions to vexing problems. Content and activities include a semester-long national security problem. Create a problem brief, develop and test prototypes, and deliver professional presentations to diverse audiences.

**Prerequisite:** None.

**Registration Information:** Junior standing. Must have taken at least 3 credits from IDEA 310 subtopics and/or IDEA 320 subtopics or MGT 340. Credit not allowed for both IDEA 455 and MGT 455.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 482C Study Abroad--Todos Santos: Ventures in Social Entrepreneurship Credit: 1 (0-0-1)**

**Also Offered As:** MGT 482C.

**Course Description:** Interdisciplinary, service-learning course that incorporates human-centered design with the business design process in order to provide solutions to real world problems facing some of society's most vulnerable populations. It offers an experiential trip to meet the community partners working in Todos Santos, Mexico.

**Prerequisite:** None.

**Restriction:** Must be a: Undergraduate.

**Registration Information:** Credit not allowed for both IDEA 482C and MGT 482C.

**Term Offered:** Fall.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 487 Internship Credits: Var[1-6] (0-0-0)**

**Course Description:** Application of design thinking knowledge and integrating it into real-world experiences. Weekly meetings with internship site supervisor foster the development of professional skills and feedback to enhance performance, conduct, ethics, and communication skills for the workplace.

**Prerequisite:** None.

**Registration Information:** Junior standing. Written consent of instructor. Must have taken IDEA 210 and at least 3 credits from IDEA 310 subtopics and/or IDEA 320 subtopics, with a minimum grade of B.

**Grade Mode:** Instructor Option.

**Special Course Fee:** No.

**IDEA 496 Group Study Credits: Var[1-6] (0-0-0)**

**Course Description:** Instructor-supervised investigation of areas of special interest in interdisciplinary and collaborative topics related to design thinking.

**Prerequisite:** IDEA 210.

**Registration Information:** Written consent of instructor.

**Grade Mode:** Instructor Option.

**Special Course Fee:** No.

**IDEA 510 Processes of Human-Centered Design Thinking Credits: 3 (3-0-0)**

**Course Description:** Introduction to theoretical concepts, philosophies, and psychosocial processes associated with design thinking in design and non-design contexts. Drawing from perspectives in design cognition, cognitive psychology and the learning sciences, human-centered interaction, and creativity. Examine how design thinking facilitates understanding of our environment; identify and manage ill-defined societal problems, and communicate with diverse stakeholders and team members.

**Prerequisite:** None.

**Registration Information:** Sections may be offered: Online.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 520 Methods for Human-Centered Design Thinking Credits: 3 (3-0-0)**

**Course Description:** Introduces designing and conducting human-centered research and co-design methods common to innovation frameworks such as design thinking. Practical strategies are introduced for exploratory (problem-finding), generative, and evaluative (user testing) processes utilizing research methods that are original to design, adapted from other disciplines, and traditionally used across disciplines.

**Prerequisite:** None.

**Registration Information:** Sections may be offered: Online.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 525A Mixed Reality for Design Thinking: Trends Credit: 1 (1-0-0)**

**Course Description:** Overview of developments in virtual, augmented, and mixed reality technologies and how they are shaping design and non-design fields and industries.

**Prerequisite:** IDEA 510, may be taken concurrently.

**Registration Information:** This is a partial semester course. Offered as an online course only.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 525B Mixed Reality for Design Thinking: Storytelling Credit: 1 (1-0-0)**

**Course Description:** Exploration and analysis of storytelling in immersive virtual, augmented, and mixed reality technology applications and how techniques aid in understanding diverse human perspectives, including socio-cultural, racial, socio-economic, neurological, and physical differences, among others.

**Prerequisite:** IDEA 510, may be taken concurrently.

**Registration Information:** This is a partial semester course. Offered as an online course only.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 525C Mixed Reality for Design Thinking: Inclusive Design Credit: 1 (1-0-0)**

**Course Description:** Mixed reality technologies and applications have unique potential for immersive learning and therapeutic experiences. Hardware and software applications do not often consider diverse users (e.g., those who have physical, neurological, sensory, mental/behavioral, or other differences). Explore mixed reality hardware and software applications with respect to inclusive design principles and theories.

**Prerequisite:** IDEA 510, may be taken concurrently.

**Registration Information:** This is a partial semester course. Offered as an online course only.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 525D Mixed Reality for Design Thinking: Data Visualization Credit: 1 (1-0-0)**

**Course Description:** Exploration and analysis of immersive virtual, augmented, and mixed reality technology applications in understanding complex information and systems, including biological, environmental, and technological, among others.

**Prerequisite:** IDEA 510, may be taken concurrently.

**Registration Information:** Offered as an online course only. This is a partial semester course.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 525E Mixed Reality for Design Thinking: Application Prototyping Credit: 1 (0-2-0)**

**Course Description:** Introduction to topics and methods in designing virtual, augmented, and mixed reality applications. Learn how to create virtual (i.e., artificial) worlds using a game engine to provide hands-on experience and promote "iterative tinkering" through exploration of various design processes.

**Prerequisite:** IDEA 510, may be taken concurrently and IDEA 520, may be taken concurrently.

**Registration Information:** This is a partial semester course. Offered as an online course only.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 525F Mixed Reality for Design Thinking: Prototyping Games Credit: 1 (0-2-0)**

**Course Description:** Concepts of hand-fabricated and digital/computer game development and their application to fields such as education, health, and business. Collaborate in teams to design and prototype games for social change and civic engagement. Through readings, discussion, and presentations, explore principles of game design and the social history of games.

**Prerequisite:** IDEA 510, may be taken concurrently and IDEA 520, may be taken concurrently.

**Registration Information:** This is a partial semester course. Offered as an online course only.

**Grade Mode:** Traditional.

**Special Course Fee:** No.

**IDEA 555 Managing Design for Defense Credits: 3 (3-0-0)**

**Also Offered As:** MGT 555.

**Course Description:** Interdisciplinary teams work on national security challenges in close contact with national security agencies (sponsors). Utilizing entrepreneurial thinking, lead and manage teams of undergraduates as they work to employ the Lean Launchpad methodology and develop concepts to solve real-world challenges for sponsors in special operations forces, the intelligence community, and government agencies.

**Prerequisite:** BUS 600 to 699 - at least 3 credits or IDEA 510 or MGT 600 to 699 - at least 3 credits.

**Restriction:** Must be a Graduate.

**Registration Information:** Bachelor's degree required. Sections may be offered: Online. Credit allowed for only one of the following: IDEA 455, IDEA 555, IDEA 580A1, MGT 455, MGT 555, or MGT 580A1.

**Grade Mode:** Traditional.

**Special Course Fee:** No.