

INDUSTRIAL DESIGN (INDD)

INDD 3XX: ID Concentration Elective

Credits: 3

College: School of Design & Engineering

Schedule Type: Lecture, Studio

INDD 101: Design 1 for Industrial Design

This studio is an introduction to design for undergraduate majors in industrial design. The course will provide an intensive introduction to design as an iterative problem-solving process. It will also introduce strategies for making and analyzing form, and present basic techniques of two-dimensional visualization and documentation of three-dimensional objects and principles of design critique, testing and research.

Credits: 4

College: School of Design & Engineering

Schedule Type: Studio

INDD 102: Design 2: Industrial Design

This studio introduces methods, materials and vocabulary of the industrial design profession, as well as design as a rational, iterative process of problem solving based on working creatively within constraints. Working with materials, digital and hand tools, shop processes and presentation techniques used by professionals are emphasized. It is intensive in industrial design drawing, including sketches, development drawings, orthographic, axonometric and perspective renderings, as well as beginning drafting as used in industrial design, with dimensioned assembly and parts drawings.

Credits: 4

College: School of Design & Engineering

Prerequisites: INDD 101 or DSGF 103 or VDES 101 [Min Grade: C]

Schedule Type: Lecture, Studio

INDD 106: Materials & Processes Fab

This course introduces shop techniques as they pertain to industrial design model-making and prototype construction. All industrial design students must take this course for shop equipment safety training and pass a safety test. Throughout the semester, attention is given to safety precautions for the shop, along with demonstrations of shop equipment and fabrication processes. A major portion of the course will consist of developing an understanding of the materials and machinery commonly used by industrial designers for producing both working and appearance models.

Credits: 3

College: School of Design & Engineering

Schedule Type: Lecture, Lecture/Studio Combination, Studio

INDD 107: Vis for Industrial Design I

This is an advanced drawing course developed for designers of all disciplines who want to improve the designer's ability to apply knowledge imparted in other courses to the development of designs. Wherever possible the subject matter of the students' design studio courses will be used as the subject matter for drawing exercises. This course was DRAW 301 until Fall 2022.

Credits: 3

College: School of Design & Engineering

Prerequisites: INDD 102 and (DRAW 201 or VDRW 101 or DRAW 101) [Min Grade: D]

Schedule Type: By Appointment - 1 student, Lecture, Lecture/Studio Combination, On-Line, Studio

INDD 108: Vis for Industrial Design II

An introduction to the traditional techniques and materials that industrial designers use to develop and represent three-dimensional concepts and ideas. Students become proficient in the use of pencils, markers, pastels and airbrush on a variety of media. Emphasis is placed on understanding the significance of color and graphic applications for industrial design.

Credits: 3

College: School of Design & Engineering

Prerequisites: DRAW 301 or INDD 107 or INDD 303 [Min Grade: D]

Schedule Type: Lecture, Lecture/Studio Combination, Studio

INDD 201: Design 3: Industrial Design

This course focuses on creative problem-solving techniques using drawing, sketch modeling and basic shop skills. Students are exposed to a wide choice of materials, which industrial designers use to move their projects forward. Students will use several media for the purpose of documenting projects in progress, for duplication and for presentation purposes. Emphasis is placed on the improvement of craft in the execution of projects.

Credits: 4

College: School of Design & Engineering

Prerequisites: INDD 102 [Min Grade: C]

Schedule Type: By Appointment - 1 student, Studio

INDD 202: Design 4: Industrial Design

During the fourth in a series of eight studios, designs are conceived which explore the dynamics between objects and the user's senses and emotions. Students are challenged to improve their ability to define problems, generate concepts, evaluate these and offer refinements of solutions. Students will use basic imaging techniques in the presentation of design solutions.

Credits: 4

College: School of Design & Engineering

Prerequisites: INDD 201 [Min Grade: C]

Schedule Type: Studio

INDD 203: Lighting Design for Luminaires

This course focuses on luminaire design, specifically for the lighting trade market, which requires knowledge of codes and regulations, lighting metrics, and fundamentals of Lighting Design. A review of the Lighting Design market, including residential, corporate, industrial, retail, as well as interior vs. exterior lighting. Students will increase their knowledge of how light is used in the built environment, and the different types of lamp sources, luminaires and their functions. Emphasis will be placed on recent development in solid state lighting and controls.

Credits: 3

College: School of Design & Engineering

Schedule Type: Lecture

INDD 204: Lighting Design As Pub Exp

This course focuses on lighting in Public Space, in the form of large scale installations of light, digital projection, media facades, and other means of place-making which transforms our cities into digital urban design. We will review how historically light has shaped the landscape of our public environments, with a focus on new technologies that allow for the rapid upgrade we are seeing in urban areas. Students will learn software that allows them the ability to program light shows, and use digital mapping. Students will participate in full scale temporary lighting installations.

Credits: 3

College: School of Design & Engineering

Schedule Type: Lecture

INDD 205: Visualization 2 for Industrial

An introduction to the traditional techniques and materials that industrial designers use to develop and represent threedimensional concepts and ideas. Students become proficient in the use of pencils, markers, pastels and airbrush on a variety of media. Emphasis is placed on understanding the significance of color and graphic applications for industrial design.

Credits: 3**College:** School of Design & Engineering**Prerequisites:** DRAW 301 or INDD 303 [Min Grade: D]**Schedule Type:** Lecture, Lecture/Studio Combination, Studio**INDD 206: CAD I for Industrial Design**

The course introduces students to computer-aided design with a focus on the industrial design processes. In an intuitive fashion, students create and refine designs using a solids-modeling software package. In order to recognize the critical role CAD plays in the development of designs, students will use designs created in design studio courses as the subject matter of the CAD activities. Design-control drawings, three-dimensional rendered drawings and perspective drawings will be the course's output. This course was CAD 206N until Fall 2022.

Credits: 3**College:** School of Design & Engineering**Schedule Type:** Lecture, Lecture/Lab, On-Line**INDD 207: Mats & Proc: Manufacturing**

This course is concerned with the exploration of materials used in the mass production of products, the processes used to shape these materials and the applicability of these materials to product-design solutions. Students should be prepared to visit a number of manufacturing facilities. A survey of rapid prototyping technologies completes the course.

Credits: 3**College:** School of Design & Engineering**Schedule Type:** Lecture, Lecture/Studio Combination, On-Line, Studio**INDD 210: Ergonomic Studies**

This course analyzes human factors as related to broad aspects of design development. It explores the issues of operator/ user human factors and their impact on design. The outcome of this course will be to ascertain the relationship of basic human dimensions on product design. Subjects include systems reliability, sensory and motor processes, basic research techniques and anthropometric studies.

Credits: 3**College:** School of Design & Engineering**Prerequisites:** INDD 106 [Min Grade: D]**Schedule Type:** Lab, Lecture, Lecture/Lab**INDD 301: Design 5: Industrial Design**

The fifth in a series of eight studios, this course focuses on ideas of designs derived from an understanding of consumer behavior. Emphasis is placed on user needs, ease of use and product culture, without ignoring the practicalities imposed by manufacturer's markets, manufacturing process constraints and investment concerns. Students will demonstrate control of the process of design to develop meaningful concepts that employ appropriate technology for their eventual realization.

Credits: 4**College:** School of Design & Engineering**Prerequisites:** INDD 202 [Min Grade: C]**Schedule Type:** Studio**INDD 302: Design 6: Industrial Design****Credits:** 6**College:** School of Design & Engineering**Prerequisites:** INDD 301 [Min Grade: D]**Schedule Type:** Studio**INDD 302N: Design 6: Industrial Design**

In this sixth in a series of eight studio courses, students design and develop consumer products in a virtual product development consultancy. Students learn about the complexities of the design development process, during which supply-chain and assembly requirements, marketing issues, materials and sustainability all affect the initial intent of their designs. Prerequisite: INDD-301.

Credits: 5**College:** School of Design & Engineering**Schedule Type:** Lecture, Studio**INDD 304: Design History/Theory**

This writing intensive seminar will serve as a forum for students to explore the context and scope of the practice of industrial design through readings, research, critical discussions, written presentations and papers. This course is intensive and incorporates a workshop component in which students will use various theoretical frameworks to examine their own attitudes and design work through papers and spoken/ graphic presentations.

Credits: 3**College:** School of Design & Engineering**Prerequisites:** INDD 324 [Min Grade: D]**Schedule Type:** Lab, Lecture, Lecture/Lab**INDD 305: CAD II Dig Design Techniques**

This course will build upon principles introduced in introductory CAD courses. It is primarily a laboratory course in which students will learn to take their early design concepts through to the final presentation using advanced digital design techniques. Students will use multiple digital design software packages across computer platforms with an emphasis on CAID packages such as NURBS modelers and animation software, as well as vector-based, desktop-publishing programs and bitmap-based programs. This course was CAD 306 until Fall 2022.

Credits: 3**College:** School of Design & Engineering**Prerequisites:** CAD 206 or CAD 206N or INDD 206 [Min Grade: C-]**Schedule Type:** Lab, Lecture, Lecture/Lab, On-Line**INDD 306A: Intercultural Innov: Stdy Abr**

During a short experience in a foreign country, students will observe and document cultural and demographic differences between countries through formal lectures, and field observation and team exercises. The work in this class is informed by the use of user-based observational research techniques. Documentation from this phase is brought back to the US for use in the INDD 306B Intercultural Innovation: Interdisciplinary Project Component class. Students should plan on taking BOTH classes.

Credits: 1**College:** School of Design & Engineering**Schedule Type:** Lecture, Study Abroad

INDD 306B: Intercultural Innovn: Project

This is the second in a two-course sequence. This class builds on work done in the INDD 306A Intercultural Innovation: Study Abroad Component course. Students should plan on taking BOTH classes. In INDD 306B, students bring research by interdisciplinary teams outside the Us into well-documented opportunities for new products, business playforms or systems. In a series of team meetings and design critiques, they then turn them into cohesive proposals including both design and business elements.

Credits: 2

College: School of Design & Engineering

Schedule Type: Lecture

INDD 307: Adv Mats&Proc for Manufact

This course builds on concepts and information which is presented in Materials and Processes II- Manufacturing with a much deeper investigation of development workflow, regulatory considerations, designing for particular performance parameters, and designing for assembly and validation. Students will be introduced to considerations in design such as structural robustness and environmental sealing against moisture and dust, along with development and modeling strategies which facilitate iterative solutions which can be easily modified as testing and validation takes place. The focus of the course will be on development of an actual product design which will be taken to the point where a fully functioning prototype can be fabricated and tested.

Credits: 3

College: School of Design & Engineering

Schedule Type: Lecture, Studio

INDD 308: Biomimicry in Industrial Dsgn

This January term travel course to Costa Rica is offered as an upper-level Industrial Design course that may be of interest to other majors. During this Study Abroad Short Course, students are introduced to principles of Biomimicry; the practice of looking at the world in ways that inspire innovation based on processes that take place in nature; specifically those found in the tropical biodiversity of the diverse ecosystems of the Neotropics, including coral reefs, mangroves, tropical dry forest, rainforest, and cloud forest. Field research will act as the inspiration for innovation design solutions to meet the needs of neighboring communities. Prerequisite: Completion of the Study Abroad application and policy guideline process; GPA ? 2.5;. Completion of INDD 201 and DECSYS or permission of instructor.

Credits: 3

College: School of Design & Engineering

Schedule Type: Study Abroad

INDD 324: History of Design & Comm

This lecture course begins with industrialization and leads to the development of modern design and philosophy. Aspects of industrial design and graphic communication will be critically reviewed. Current design events will be studied interactively and discussed as a continuation of past design inquiries.

Credits: 3

College: School of Design & Engineering

Schedule Type: Lecture

INDD 371: Soft Goods Development

This course will introduce students to the Soft--goods and Accessories industry through the following professions: footwear design, bag design and outdoor gear. Through this course students will develop a keen understanding of the following: history, design skill---sets, materials, introductory construction techniques, research methodologies, product development, manufacturing practices, and exposure to the international community involved within this fast paced and exciting industry.

Credits: 3

College: School of Design & Engineering

Schedule Type: Lecture

INDD 372: Soft Goods Fabrication

This course will introduce students to the Soft-goods and Accessories industry through the following professions: footwear design, bag design and outdoor gear. Through interdisciplinary and industry collaborations students will develop an advanced understanding of the development and prototyping processes, construction methods, materials, computer software, manufacturing practices and professional collaborations that take place in the development of soft good products.

Credits: 3

College: School of Design & Engineering

Prerequisites: INDD 371 [Min Grade: D]

Schedule Type: Lecture

INDD 381: Ind Study in Industrial Design

For further details, see general description of Independent Study in ? Academic Policies? section.

Credits: 3

College: School of Design & Engineering

Prerequisites: INDD 202 [Min Grade: D]

Schedule Type: By Appointment - 1 student, By Appointment - 2 students, Independent Study

INDD 401: Design 7: Industrial Design

Credits: 6

College: School of Design & Engineering

Prerequisites: INDD 302 [Min Grade: D]

Schedule Type: Studio

INDD 401N: Design 7: Industrial Design

The seventh in a sequence of eight studios, this course focuses on the development, expression, and function of design in the context of human culture. It focuses on industry-leading, critical, and entrepreneurial design practices. This studio incorporates development of proposals for the Capstone Project. Prerequisite: INDD-302.

Credits: 5

College: School of Design & Engineering

Schedule Type: Studio

INDD 402: Design 8: ID Capstone

The last in a sequence of eight studio courses, this course is dedicated to the student's capstone project. It is structured to include all aspects of client/designer dynamics, literature review and user research, project management and dissemination, and professional issues. Students present the outcome of their projects at the Kanbar Showcase. Prerequisite: INDD-401.

Credits: 6

College: School of Design & Engineering

Prerequisites: INDD 401 [Min Grade: D]

Schedule Type: By Appointment, Studio

INDD 402N: Design 8: ID Capstone

The last in a sequence of eight studio courses, this course is dedicated to the student's capstone project. It is structured to include all aspects of client/designer dynamics, literature review and user research, project management and dissemination, and professional issues. Students present the outcome of their projects at the Kanbar Showcase. Prerequisite: INDD-401.

Credits: 5

College: School of Design & Engineering

Prerequisites: INDD 401 or INDD 401N [Min Grade: D]

Schedule Type: By Appointment - 1 student, By Appointment, Lecture, Studio

INDD 494: Professional Practice II

Credits: 3

College: School of Design & Engineering

Prerequisites: INDD 401 and INDD 493 [Min Grade: C]

Schedule Type: Lecture, Studio