

# Industrial Design (ID)

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## **ID 102 Basic Industrial Design Studio** (6 credit hours)

This course is a continuation of the work introduced in D104 with a focus on the industrial design discipline. This studio course examines the techniques and attitudes for dealing with exploration, identification, prototyping, evaluation and communication of problems and solutions arising from the design of physical artifacts in the natural and product environment. The design studio process includes the acquisition of languages and skills appropriate to creativity, design thinking, industrial design vocabulary and disciplined work habits.

Prerequisite: D104 and ID 110 Corequisites: ID 210 and ID216

*Typically offered in Spring only*

## **ID 110 Introduction to Digital Techniques** (3 credit hours)

Introduction to the computer as a design tool for generating and manipulation of two-dimensional raster and vector imagery; techniques in two-dimensional concept rendering; 2D applications for design and production of presentation documentation; and an introduction to basic 3D digital techniques. Industrial design majors, department approved minor, and department approved elective for all other college of design majors.

Corequisite: D 104

*Typically offered in Fall only*

## **ID 201 Industrial Design Studio I** (6 credit hours)

This course is an introduction to the theories, methods, and language of industrial design; elementary problems in form and function; transitional implications of hand-crafted and mass-produced objects in various materials. Industrial Design majors, and department approved elective ("swing") studio for all other College of Design majors.

Prerequisite: D 104 and ID 102 and ID 210 and ID 216; Corequisite: ID 310 and ID 316

*Typically offered in Fall only*

## **ID 202 Industrial Design Studio II** (6 credit hours)

Introduction to the fundamentals of product development and design with emphasis on analytical and intuitive approaches to problem solving, technical skills, manufacturing and structural considerations in design of simple products/systems.

Prerequisite: ID 201 and ID 310 and ID 316; Corequisite: ID 255 and ID 240

*Typically offered in Spring only*

## **ID 210 Intermediate Digital Techniques** (3 credit hours)

Progression of digital experiences that expand upon and combine the intellectual and conceptual skills required for digital 3D design visualization. Emphasis on solving design problems through development and manipulation of 3D form within the virtual environment.

Prerequisite: ID 110 and D 104; Corequisite: ID 102 and ID 216

*Typically offered in Spring only*

## **ID 216 Visualization I** (3 credit hours)

This course is an introduction to the ideation process of conceiving, developing and recording ideas two-dimensionally.

Prerequisite: D 104 and ID 110; Corequisite: ID 102 and ID 210

*Typically offered in Spring only*

## **ID 240 Human-Centered Design** (3 credit hours)

Introduction to the spectrum of human physical and cognitive capabilities as they relate to user interaction with designed products and environments. Industrial Design Majors and Department approved Elective for all other College of Design Majors with Junior or Graduate standing in Major.

Junior standing or above

*Typically offered in Spring only*

## **ID 244 History of Industrial Design** (3 credit hours)

This survey class focuses on the history of modern design from the world of Art Nouveau in 1900 to Contemporary Design. The emphasis falls squarely on the development of mass production and its alignment with the Modern movement, with elements drawn from the history of architecture and the fine arts. The Bauhaus (1919-1933) is examined in detail as is the growth of the industrial design profession in the US between 1927 and 1944, when the Society of Industrial Designers was formed. Postwar styling and consumerism in the US are examined in conjunction with the development of human factors, its early investigations and influence on design since 1955. Material culture issues are examined through visits to the Gregg Museum of Art & Design and its growing collection of industrial design. Postmodernism, Universal Design, and User Experience Design are examined in the contexts of their emergence and relevance to design today.

*GEP Humanities, GEP Interdisciplinary Perspectives*

*Typically offered in Fall only*

## **ID 255 Contemporary Manufacturing Processes I** (3 credit hours)

Introduction to mass production processes and their influences on design. Materials and manufacturing processes utilized in quantity production. Emphasis on materials comparison and process selection in relation to product function, form, safety, human factors and manufacturability. Industrial Design majors and department approved Elective for all other College of Design majors.

Prerequisite: ID 201 and ID 315; Corequisite: ID 202

*Typically offered in Spring only*

## **ID 256 Contemporary Manufacturing Processes II** (3 credit hours)

Second course in mass production processes and their influences on design. Emphasis on relationships between materials and manufacturing process selection, products design, and business. Related topics include rapid prototyping, 3D printing, electronics, color theory, drawings, working with vendors and suppliers, and production documentation. Industrial Design Majors and Department approved Elective for all other College of Design Majors.

Prerequisite: ID 255

*Typically offered in Fall only*

## **ID 262 Professional Practice in Industrial Design** (3 credit hours)

Issues and situations encountered in a design practice. Topics include patents, trademarks, contracts, basic marketing skills within corporations and in design consultancies.

*Typically offered in Spring only*

## **ID 292 Special Topics in Industrial Design** (1-3 credit hours)

Topics of current interest in Industrial Design. Normally used to develop new courses.

*Typically offered in Fall, Spring, and Summer*

**ID 301 Industrial Design Studio III** (6 credit hours)

This course provides individual and team-oriented design experiences that expand upon and combine intellectual and manual skills required for the practice of industrial design. Intermediate level integration of computer technology, including 3D digital modeling, rapid prototyping, interactive virtual product visualization. Emphasis on identifying and solving design problems through manipulation of design theory, ecological/environmental concerns, advanced materials and manufacturing techniques.

Prerequisite: ID 202 and ID 255 and ID 240; Corequisite: ID 340

*Typically offered in Fall only*

**ID 302 Industrial Design Studio IV** (6 credit hours)

This course provides individual and team-oriented design experiences that expand upon and combine intellectual and manual skills required for the practice of industrial design. Continuity and increased complexity of project categories from the previous semester, developed through advanced use of digital technology. Emphasis is placed on identifying and solving design problems through manipulation of design theory, application of human factors, product safety awareness, universal design principles and digital presentation of concepts.

Prerequisite: ID 301; Corequisite: ID 440

*Typically offered in Spring only*

**ID 310 Advanced Digital Techniques** (3 credit hours)

Methods and techniques for developing 3D digital models and animations that are compelling, unique, and relevant in the creative process of Industrial Design. Students begin to strategically integrate 3D digital technology as part of the larger curriculum relative to studios and support classes and are encouraged to look beyond current conventions to find new means of creating digital artifacts.

Prerequisite: ID 210

*Typically offered in Fall only*

**ID 316 Visualization II** (3 credit hours)

This course expands the ideation process of conceiving, developing and recording ideas two-dimensionally, placing greater emphasis on the creative development and recording of the design process.

Prerequisite: ID 216; Corequisite: ID 310

*Typically offered in Fall only*

**ID 340 Research Methods in Industrial Design** (3 credit hours)

This class provides an overview of the role of human centered design research throughout the stages of the design process. Students will use primary and secondary sources to place people at the center of the design inquiry process and gain insights about people's needs and desires within the context of industrial design.

Prerequisite: ID 240 and ID 202; Corequisite: ID 301

*Typically offered in Fall only*

**ID 401 Advanced Industrial Design Studio I** (6 credit hours)

This course is an advanced studio experience that expands upon the intellectual, digital, and practical skills required of an industrial design practitioner. Emphasis on identifying and solving design problems through manipulation of design theory, application of human factors, product safety awareness, appropriate combination of materials and manufacturing techniques, and presentation of concepts.

Prerequisite: ID 302 and ID 440

*Typically offered in Fall only*

**ID 402 Advanced Industrial Design Studio II** (6 credit hours)

This course is the second advanced studio that expands upon and combine the intellectual, digital, and practical skills required of an industrial design practitioner. This is a capstone experience where the outcomes, in the form of product proposals, reflect synthesis of design research, problem framing, and solution of complex design problems. Students achieve these outcomes through as mastery and manipulation of design theory, the application of human factors, an awareness of product safety, and appropriate combination of materials and manufacturing techniques. An emphasis is placed on the presentation and communication of processes and concepts.

Prerequisite: ID 401

*Typically offered in Spring only*

**ID 440 Experience Design for ID** (3 credit hours)

This course explores the theory and practice of the user-experience (UX) development process in the context of Industrial Design (ID). Students will clearly identify principles and professional processes for research, development, documentation and implementation of various stages of work, including requirements analysis, user needs analysis, prototyping, mockups, and production as these relate to industrial design best practices.

Prerequisite: ID 301 and ID 340; Corequisite: ID 302

*Typically offered in Spring only*

**ID 490 Industrial Design International Studio** (6 credit hours)

Define industrial design problems and develop design solutions in an international setting. Studio projects related to design, culture, and traditional and contemporary limited and mass produced products. Focus on artifact making through directed studies. Industrial Design Majors, and Department approved Elective ("swing") Studio for all other College of Design Majors with Junior or Graduate standing in Major.

Prerequisite: Junior standing in Major, Approval of Study Abroad Office

*Typically offered in Summer only*

**ID 492 Special Topics in Industrial Design** (1-3 credit hours)

Topics of current interest in Industrial Design. Normally used to develop new courses. Industrial Design Majors, and Department approved Elective for all other College of Design Majors with Junior, Senior or Graduate standing in Major.

Junior standing or above

*Typically offered in Fall, Spring, and Summer*

**ID 494 Internship in Industrial Design** (1-6 credit hours)

Supervised field experience in product design offices, galleries, museums and other related organizations. Maximum of 6 credit hours. Individualized/Independent Study and Research courses require a Course Agreement for Students Enrolled in Non-Standard Courses be completed by the student and faculty member prior to registration by the department.

Prerequisite: Junior standing, 3.0 GPA or better. Instructor Consent.

*Typically offered in Fall, Spring, and Summer*

**ID 495 Independent Study in Industrial Design** (1-3 credit hours)

Special projects in industrial design developed under the direction of a faculty member on a tutorial basis. Maximum 6 credit hours - May be repeated. Individualized/Independent Study and Research courses require a Course Agreement for Students Enrolled in Non-Standard Courses be completed by the student and faculty member prior to registration by the department.

Prerequisite: Junior standing in Industrial Design and 3.0 GPA or better. Instructor Consent.

*Typically offered in Fall and Summer*

**ID 500 Advanced Industrial Design (Series)** (6 credit hours)

Advanced studies in industrial design. Special emphasis given to problem identification, program formulation and application of advanced design methods. All problems of an individual nature leading to a synthesis of previous design experience.

Prerequisite: Portfolio review

*Typically offered in Fall and Spring*

**ID 511 Industrial Design Materials and Processes I** (3 credit hours)

Analysis of paper, wood, metal and manufacturing processes utilized in production of mass-produced products. Advanced studies in mass production processes and their influence on design and development of products. Emphasis on material search and process selection in relation to product safety, cost, function, human factors, form, finishes and joining methods.

Prerequisite: Graduate standing

*Typically offered in Spring only*

**ID 512 Industrial Design Materials and Processes II** (3 credit hours)

Analysis of plastics and rubber and related manufacturing processes utilized in production of mass-produced products. Advanced studies in mass production processes and their influence on design and development of products. Emphasis on material search and process selection in relation to cost, product safety, function, human factors, form, finishes and joining methods.

Prerequisite: Graduate standing

*Typically offered in Fall only*

**ID 521 Graduate ID Studio I** (6 credit hours)

Track III MID introduction to the theories, methods, and language of industrial design; elementary problems in form and function; and transitional implications of hand-crafted and mass-produced objects, in various materials and media. This course is open to Track III MID graduate students. This course is a prerequisite for ID 522 Graduate Studio II.

Corequisite: ID 531 and ID 541

*Typically offered in Fall only*

**ID 522 Graduate ID Studio II** (6 credit hours)

Track III MID continued introduction to the fundamentals of product development and design with emphasis on analytical and intuitive approaches to problem solving, technical skills, manufacturing, and structural considerations in design of simple products/systems. This course is open to Track III Master of Industrial Design graduate students.

Prerequisite: ID 521; Corequisite: ID 532 and ID 542

*Typically offered in Spring only*

**ID 531 Product Visualization I** (3 credit hours)

Track III MID introduction to the ideation process of conceiving, developing and recording ideas two-dimensionally. This course is open to Track III Master of Industrial Design graduate students. This course is a prerequisite for ID532 Product Visualization II.

*Typically offered in Fall only*

**ID 532 Product Visualization II** (3 credit hours)

This is an advanced course which expands the ideation process of conceiving, developing and recording ideas two-dimensionally, placing greater emphasis on the creative development and recording of the design process. This course is open to Track III Master of Industrial Design graduate students. Successful completion of ID 531 Product Visualization I is a prerequisite for this course.

P: ID 531

*Typically offered in Spring only*

**ID 541 Product Digital Techniques I** (3 credit hours)

Track III MID introduction to the computer as a design tool for generating and manipulation of two-dimensional raster and vector imagery; techniques in two-dimensional concept rendering; 2D applications for design and production of presentation documentation; and an introduction to basic 3D digital techniques. This course is open to Track III Master of Industrial Design graduate students and is a prerequisite for ID 542 Product Digital Techniques II.

*Typically offered in Fall only*

**ID 542 Product Digital Techniques II** (3 credit hours)

Methods and techniques for developing 3D digital models and presentations that are compelling, unique, and relevant in the creative process of Industrial Design. Students begin to strategically integrate 3D digital technology as part of the larger curriculum relative to studios and support classes and are encouraged to look beyond current conventions to find new means of creating digital artifacts. This course is open to Track III Master of Industrial Design graduate students.

P: ID 541

*Typically offered in Spring only*

**ID 551 Product Fabrication and Prototyping** (3 credit hours)

ID 551 equips students with the knowledge, skill development and experience necessary to turn a two-dimensional drawing into a three-dimensional prototype through hands-on techniques. Students will develop fluency in fabricating physical form models and functional prototypes at a range of speeds and with degrees of realism that complement the process of product development.

R: Track III Master of Industrial Design graduate students

*Typically offered in Fall only*

**ID 552 Human Factors in Design** (3 credit hours)

This course is an introduction to the spectrum of human physical and cognitive capabilities as they relate to user interaction with designed products and environments. Emphasis is placed on designers making conscious design decisions regarding useful, usable, and desirable product, systems, and service attributes.

P: Graduate Standing

*Typically offered in Spring only*

**ID 555 Design Research Methods** (3 credit hours)

This course examines research methods used in industrial design for the development of products, services, systems, and experiences. The course addresses research in multiple phases of the design process including problem definition, generative, and evaluative phases. Emphasis is placed on matching the attributes of methods with the research needs of designers to ultimately define and validate design requirements.

R: Graduate standing; Non-majors by permission only.  
*Typically offered in Fall only*

**ID 581 Industrial Design Project Preparation** (3 credit hours)

A seminar course designed to assist students in preparing groundwork for the final project to be conducted in design studio.

Prerequisite: Graduate standing  
*Typically offered in Fall only*

**ID 582 Special Topics In Industrial Design** (1-6 credit hours)

F,S. Topics of current interest to program/option offered by faculty in the School. Subjects offered under this number normally used to test and develop new courses.

Prerequisite: Graduate standing  
*Typically offered in Fall and Spring*

**ID 588 Final Project Studio In Industrial Design** (6 credit hours)

Final project for graduate students supervised by members of their graduate advisory committees.

Prerequisite: ID 581  
*Typically offered in Spring only*

**ID 630 Independent Study In Industrial Design** (1-3 credit hours)

Special problems in various aspects of industrial design developed under the direction of faculty member on a tutorial basis. Students should complete Graduate Independent Study Proposal form prior to registration.

Prerequisite: Graduate Standing or Permission of the Instructor  
*Typically offered in Fall, Spring, and Summer*

**ID 676 Special Project** (1-3 credit hours)

Seminars on subjects of current interest in industrial design which are presented by persons not part of regular faculty.

Prerequisite: Graduate standing  
*Typically offered in Fall and Spring*

**ID 685 Master's Supervised Teaching** (1-3 credit hours)

Teaching experience under the mentorship of faculty who assist the student in planning for the teaching assignment, observe and provide feedback to the student during the teaching assignment, and evaluate the student upon completion of the assignment.

Prerequisite: Master's student  
*Typically offered in Fall and Spring*

**ID 688 Non-Thesis Masters Continuous Registration - Half Time Registration** (1 credit hours)

For students in non-thesis master's programs who have completed all credit hour requirements for their degree but need to maintain half-time continuous registration to complete incomplete grades, projects, final master's exam, etc.

Prerequisite: Master's student  
*Typically offered in Fall and Spring*

**ID 689 Non-Thesis Master Continuous Registration - Full Time Registration** (3 credit hours)

For students in non-thesis master's programs who have completed all credit hour requirements for their degree but need to maintain full-time continuous registration to complete incomplete grades, projects, final master's exam, etc. Students may register for this course a maximum of one semester.

Prerequisite: Master's student  
*Typically offered in Spring only*

**ID 690 Master's Examination** (1-9 credit hours)

For students in non thesis master's programs who have completed all other requirements of the degree except preparing for and taking the final master's exam.

Prerequisite: Master's student  
*Typically offered in Fall, Spring, and Summer*