Art and Design

The School of Art + Design offers a trio of studio-centric four-year bachelor's degree design programs—interior design, digital design and industrial design—and a BFA in fine arts, which provides unique opportunities for aspiring artists to explore the nexus between art and technology, and become part of a the cultural experience that underscores the use of digital media and information technology. With a vibrant assemblage of design disciplines and opportunities for expression, research and independent study, the School of Art + Design provides an exciting environment in which to invent and create.

Interior Design

Interior design students have the opportunity to learn from an innovative, creative faculty that participates in all phases of the design and construction process: architects, engineers and interior, product and industrial designers. The robust, studio-centric curriculum fully accredited by the Council for Interior Design Accreditation (CIDA)—is chockfull of design courses such as building and interior systems, history of furniture and building information modeling and prepares students to enter the profession of interior design, first as interns, and ultimately take the National CIDA Qualification examination. More than 90 percent of all graduates are either working in a field related to their study or are in a graduate program within six months of graduation. Students broaden their exposure to a variety of traditional or digital media-based courses or specialize in one or more areas related to a topic of interest.

Digital Design

Drawing on NJIT's well-established legacy as a pioneer and innovator in the application of digital and information technology, the Digital Design Program, after a foundation year of exposure to a variety of media, offers students two tracks of study: entertainment and interactive media/production. In addition to a two-year studio sequence, the curriculum provides opportunities for students to take a variety of related classes such as environment design in motion pictures, SFX/VFX in movies, digital audio, history of games, video and animation, 2D and 3D character design and modeling, game level design and more. There is additional flexibility built into the curriculum, allowing students to use free academic and design electives to either broaden their overall education or elect to focus on one or more areas to prepare them for a specialized field or graduate study.

Industrial Design

As part of a comprehensive university with a variety of design disciplines, students enrolled in the Industrial Design Program find themselves in a unique and creative environment, where a multi-faceted mission includes the creation of new knowledge while educating future designers in design and preparing them to contribute to 21st century society. In this context, students take advantage of the technological environment of the university to gain a broad understanding of design, materials, methods of production, user needs, and market trends. After completing six semesters of design studio, students take a variety of management, fabrication and design courses, including modeling and prototyping, principles of management, human factors/ergonomics, ethnographic and mechanics and electronics. The program exposes undergraduate students to the various potential fields within the profession and provides them with opportunities to study robotics and advanced materials.

NJIT Faculty

A

Alcala, Jose M., University Lecturer

B

Bales, Ervin, Research Professor

Bess, Mark E., University Lecturer

Brothers, David A., Senior University Lecturer

Burgermaster, Matthew A., Assistant Professor

C

Cays, John M., Associate Dean for Academics, College of Architecture and Design

Celik, Zeynep, Distinguished Professor

D

Dart, James, University Lecturer

Decker, Martina, Assistant Professor

De Sousa Santos, Antonio P., Professor Emeritus

E

Elwell, David H., Associate Professor Emeritus

Esperdy, Gabrielle, Associate Professor

F

Franck, Karen A., Professor

G

Garber, Richard J., Associate Professor

Garcia Figueroa, Julio C., University Lecturer

Gauchat, Urs P., Professor

Goldman, Glenn, Professor

Greenfield, Sanford R., Professor Emeritus

H

Harp, Cleveland J., University Lecturer

Hurtado De Mendoza Wahrolen, Maria A., Associate Professor

K

Krumwiede, Keith A., Associate Professor

L

LeCavalier, Jesse, Assistant Professor

M

Moore, Sandy, Associate Professor

Mostoller, G. Michael, Distinguished Professor

N

Narahara, Taro, Assistant Professor

Navin, Thomas R., University Lecturer

O

Ogorzalek, Thomas, University Lecturer

P

Papademetriou, Peter C., Professor Emeritus

R

Russo, John Rhett, Associate Professor

S

Schuman, Anthony W., Associate Professor

Siegel, Joy W., University Lecturer

Sollohub, Darius T., Associate Professor

T

Taher, Rima, Senior University Lecturer

Theodore, Georgeen, Associate Professor

W

Wall, Donald R., Associate Professor Emeritus

Weisman, Leslie K., Professor Emeritus

Wendell, Augustus E., University Lecturer

West, Troy, Associate Professor Emeritus

Wood, Timothy Daniel, University Lecturer

Z

Zarzycki, Andrzej, Associate Professor

Zdepski, Michael, S., Associate Professor

Programs

- Digital Design - B.A. (http://catalog.njit.edu/undergraduate/architecture-design/art-design/digital-design-ba/)
- Industrial Design - B.S. (http://catalog.njit.edu/undergraduate/architecture-design/art-design/industrial-design-bs/)
- Interior Design - B.A. (http://catalog.njit.edu/undergraduate/architecture-design/art-design/interior-design-ba/)

School of Art + Design Courses

AD 1**. Design Elective. 3 credits, 3 contact hours (3;0;0).

AD 111. Communication in Art and Design - Traditional Media. 3 credits, 4 contact hours (2;2;0).
Restrictions: For Digital Design, Industrial Design, and Interior Design majors only; other majors require department approval to register. This course will explore a range of subjects from object still life to the human figure to landscape and will deal with specific issues of line, value, composition, structure, proportion and perspective. The aim of this course is to achieve a critical approach to hand-eye coordination and ideational sketching, through both direct observation and conceptual diagramming.

AD 112. Communication in Art and Design - Digital Media. 3 credits, 4 contact hours (2;2;0).
Restrictions: For Digital Design, Industrial Design, and Interior Design majors only; other majors require department approval to register. This course will help students develop a critical attitude and analytical language to explore 3D and 2D issues involved in the study of design ideas but work will be focused primarily on digital techniques and modes of expression. It will cover drawing basics and digital modeling and extracted drawing techniques and critical analysis of these techniques and other methods of graphic (and architectural) representation.

AD 150. Color and Composition. 3 credits, 4 contact hours (2;2;0).
Restrictions: For Digital Design, Industrial Design, and Interior Design majors only; other majors require department approval to register. Introduction to principles of 2D composition with emphasis on color use and color theory. Students are introduced to traditional media (watercolor and collage) and digital raster graphics (painting, image processing, and compositioning). Applications that include interior design, product/industrial design, advertising, web design, and fine arts are discussed. Concepts include grids and hierarchy, color models and mixing, color interaction, human response to color, printing, etc. Creative projects.

AD 161. History of Art And Design I. 3 credits, 3 contact hours (3;0;0).
This foundation history course surveys the principle aesthetic/functional themes and theories of the twentieth century. Students will explore how various individuals have used art and design to develop products that enriched society culturally and/or that resolved particular societal needs. The course will begin with how optics revolutionized painting, sculpture, architecture, film, etc, and explore how the modern movement broke with or reinterpreted the past through a series of flashbacks.

AD 162. History of Art And Design II. 3 credits, 3 contact hours (3;0;0).
Prerequisite: AD 161. This course explores the major art and design movements and influences of the 20th century post 1930 that set the stage for today's 21st century art and design works that increasingly deal with issues of globalization and technology and ecology. Students will investigate the cultural meaning and historical significance of the art/design product throughout the 20th and 21st century.

AD 2**. Design Elective. 3 credits, 3 contact hours (3;0;0).

AD 201. Human Factors/Ergonomics. 3 credits, 3 contact hours (3;0;0).
Prerequisites: Computing Literacy GER course, Scientific Literacy GER course. Through lectures and "hands-on" experiments, this course will challenge the student to explore objects and environments as sensory and psychological experiences that effect human comfort, efficiency, function and emotion. Emphasis will be put on empathizing with the user with particular attention to those individuals with special physical, cognitive or occupational needs.

AD 261. History of Architecture. 3 credits, 3 contact hours (3;0;0).
Prerequisites: ARCH 381 or AD 162. Restrictions: For Digital Design and Interior Design majors only; other majors require department approval to register. This course examines the global evolution of the built environment, focusing on major periods and movements in the history of architecture and urbanism. While the social, cultural, political, and economic dimensions of the built environment are introduced, emphasis is on understanding built form at key moments of transformation from pre-history to the present. Formal archetypes are studied relative to their persistence and influence across millennia. Students analyze historical examples through the lens of contemporary design applications.

AD 3**. Design Elective. 3 credits, 3 contact hours (3;0;0).**

AD 325. Entrepreneurship for Designers. 3 credits, 3 contact hours (3;0;0).

AD 340. Photography and Imaging. 3 credits, 4 contact hours (2;2;0).
Prerequisites: AD 150 or ARCH 396. Restrictions: For Digital Design, Industrial Design, and Interior Design majors only; other majors require department approval to register. Photography is introduced as an artistic medium in a digital context. General photographic principles and techniques will be discussed including digital flash photography, image processing, in/on-camera filters and post-processing filters, camera controls, and compositional elements. Photographic student projects will be required. Students must provide their own interchangeable lens camera for use throughout the semester.

AD 4**. Design Elective. 3 credits, 3 contact hours (3;0;0).**

AD 463. Collaborative Design Studio. 5 credits, 9 contact hours (1;0;8).
Prerequisites: (DD 364 or ID 364 or INT 364 or ARCH 364) and PHYS 102. Restrictions: For Digital Design, Industrial Design, and Interior Design majors only; other majors require department approval to register. Interdisciplinary and multi-disciplinary design studio where students work both individually and collaboratively on team project(s) that require the integration of different design disciplines.

AD 490. Special Topics. 3 credits, 3 contact hours (3;0;0).
Prerequisites: DD 264 or ID 264 or INT 264 or ARCH 363. Restrictions: For Digital Design, Industrial Design, and Interior Design majors only; other majors require department approval to register. As determined by individual section and topic. Group investigation of problems or topics of special interest in art and design including, but not limited to, fine arts, industrial design, interior design, and digital design.

AD 491. Independent Study. 1 credit, 1 contact hour (0;0;1).
Restriction: Permission of instuctor and departmental/school approval. Individual investigation of problems or topics of special interest in art and design including, but not limited to, fine art, industrial design, interior design, and digital design. Subjects may include the overlap between these areas and related areas including art/architectural history and architecture. Provides opportunities to work on a project with individual guidance from an instructor in the School of Art + Design.

AD 492. Independent Study. 2 credits, 2 contact hours (0;0;2).
Restriction: Permission of instuctor and departmental/school approval. Individual investigation of problems or topics of special interest in art and design including, but not limited to, fine art, industrial design, interior design, and digital design. Subjects may include the overlap between these areas and related areas including art/architectural history and architecture. Provides opportunities to work on a project with individual guidance from an instructor in the School of Art + Design.

AD 493. Independent Study. 3 credits, 3 contact hours (0;0;3).
Restriction: Permission of instuctor and departmental/school approval. Individual investigation of problems or topics of special interest in art and design including, but not limited to, fine art, industrial design, interior design, and digital design. Subjects may include the overlap between these areas and related areas including art/architectural history and architecture. Provides opportunities to work on a project with individual guidance from an instructor in the School of Art + Design.

DD 263. Digital Design Studio I. 4 credits, 9 contact hours (0;0;9).
Prerequisites: AD 111, AD 112. Pre or Corequisite: AD 150. Restrictions: For Digital Design majors only or with department approval. Foundations of three dimensional design and image making. Project based applications focusing on the design and digital representation of narrative sequences and architectural or environmental settings for games, theater, advertisements, books, or similar contexts. Course includes modeling with different geometries (e.g. NURBS, polygonal) and advanced techniques in rendering with lighting and materials as well as issues of production design.

DD 264. Digital Design Studio II. 4 credits, 9 contact hours (0;0;9).
Prerequisites: AD 111, AD 112, AD 150, and DD 263. Restrictions: For Digital Design majors only, or with department approval. Foundations of motion based design and narrative exploring concepts of linear, motion-based two-dimensional media including motion graphics, live action filming, particle systems, digital video editing and digital video compression. Project based applications focusing on the design, production and post production of motion sequences for cinema, games, theater, advertisements, or similar contexts.

DD 275. Foundations of Game Design. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 111, AD 112, and AD 162. Restrictions: For Digital Design majors only, or with department approval. A guided exploration through the world of games. Students will experiment, play, and analyze various aspects of games - from early traditional games to current generation electronically-mediated games; from individual games to collaborative online games. Game types will be analyzed with particular attention paid to the virtual environments in which these games take place. The expressive and persuasive aspects of games will also be explored.

DD 284. Video and Animation. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 112 and AD 150 or equivalent with instructor's and program permission. Restrictions: For Digital Design majors only, or with department approval. Laboratory course exploring concepts of linear, motion-based two-dimensional media and includes motion graphics, live action filming, particle systems, digital video editing and digital video compression. Projects include the design and production of multiple projects addressing both technical and creative decision making.

DD 301. Acting Fundamentals for Animators. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 111, AD 112, AD 150 and DD 263. Introduction to the historical contexts of acting. Survey of acting techniques and principles and their relationship to successful visual storytelling. Topics covered include movement, empathy and dialogue. Application of acting to two-and three-dimensional animation. Students will study examples from animation as well as film and theater. Required projects include both in-class acting exercises as well as storyboard creation and directed computer graphics character animation.

DD 303. Foundations of Sound and Music. 3 credits, 3 contact hours (3;0;0).
Restrictions: For Digital Design majors only, or with department approval. A multimedia course to give an understanding of music theory and musicology. Survey of the history of music and musical movements, and the use of music in motion pictures, digital media, and interactive entertainment. An introduction to instrumentation, music notation, music theory world musicology, and ear training as well as the relationship between music and culture. Visual and audio components are included.

DD 320. Robotics for Architects and Designers. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 112, AD 150; or ARCH 295; or instructor approved equivalents. This course is for students who would like to explore and produce interactive and kinetic products or building prototypes using microcontrollers (Arduino), sensors, and actuators. The course will focus on producing creative and aesthetically articulated applications of robotic technologies. Topics include applications of adaptable, responsive, and distributed systems to various fields of design. The course will take a hands-on approach to learn about sensors (such as light, sound, motion, and gesture-tracking sensors, for example, Microsoft Kinect sensor), actuators (such as servo motors), graphic/game design/simulation software (Processing, Unreal Engine, and Unity3D), and prototyping using available digital fabrication tools such as laser cutters, 3-D printers, and CNC machines at the CoAD and others. Topics from IoT (Internet of Things) will be also explored for those who are interested in creating smart products. Recommended for 5th-, 4th-, and 3rd-year students with basic knowledge on programming, 3-D modeling, and digital fabrication skills. Open to students from any college. Non-CoAD students with appropriate backgrounds are welcome to join the course.

DD 321. Interactive and Reactive Environments. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 112, AD 150 and DD 284, or ARCH 295, or instructor permission. This course will investigate contemporary attitudes toward digital public spaces, from mainstream media facades, interactive art installations, and mobile applications to guerrilla-like techniques such as tactical media, activist gaming, and electronic civil disobedience. Based on their research of relevant precedents, students will design a 2D and/or 3D interactive environment.

DD 334. Simulated Environments. 3 credits, 3 contact hours (3;0;0).
Prerequisites: DD 263, DD 264 or ARCH 295. Pre or Corequisites: DD 275. Restrictions: Digital Design majors only, all others with permission of the department. This course will explore the application of desktop, non-immersive virtual reality to the representation of architecture. Course exercises and projects are designed to uncover both advantages and limitations of this emerging technology, on both practical and theoretical levels. The major focus of the course will be personal evaluation of these tools in the design of both object-specific and the spatial in architectural problem solving. The collaborative nature of the toolkit will inform design decisions vis-a-vis observation of participant behavior and open discussion with interactive critics.

DD 363. Digital Design Studio III. 5 credits, 9 contact hours (1;0;8).
Prerequisites: DD 263, DD 264, AD 161, AD 162, AD 150. Pre or Corequisites: DD 275, ARCH 382. Three-dimensional design in a digital milieu. Project-based applications focusing on the design and digital representation of architectural or environmental settings for games, theater, advertisements, books, or similar contexts. Course includes modeling with different geometries (e.g. NURBS, polygonal) and advanced techniques in rendering with lighting and materials as well as issues of production design.

DD 364. Digital Design Studio IV. 5 credits, 9 contact hours (1;0;8).
Prerequisites: ARCH 382, DD 275, DD 363, IT 201. Design studio focusing on two-and three-dimensional visual communication of data, including interactive and scripted/animated communication as well as still-image utilization. Applications may include website creation, information kiosks, exhibit design, educational videos, scientific visualization, and other graphics-intensive projects.

DD 403. Digital Sound and Music. 3 credits, 3 contact hours (3;0;0).
Restrictions: For Digital Design majors only, or with department approval. A studio class that provides a baseline understanding of sound design within an animated video and video game environment. Course includes an introduction to sampling, field recording, sound effects, production techniques, and general sound design for the purpose of integrating and managing the integration of audio in motion pictures, television, and video games. Analytical and creative projects are required.

DD 415. Web/Exhibit Development. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 150, DD 284, IT 201. Instructor may waive or accept alternate prerequisite(s) based on individual student preparation. Overview of multimedia exhibit design dealing with issues of graphic identity human-computer interactions, and information visualization as tools for comprehension, enhanced communication, and effective decision-making. Exhibit types include educational symposia, museum/gallery shows, and online environments. Analyses and creative project(s) are required.

DD 442. Visual and Special Effects in Movies. 3 credits, 3 contact hours (3;0;0).
Restrictions: For Digital Design majors only, or with department approval. The creating of narrative-dependent moving images pushes the boundaries of entertainment technology. This class investigates the progress of visual and special effects as viewing moved from the Kinetoscope to 4K digital projection. The use of mirrors, cameras, and other analog devices along with information technology enabled effects including computer generated imagery are studies. Analytical and creative projects are required.

DD 443. 2-Dimensional Character Design. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 111, DD 275 and DD 264. This course focuses on the design of characters for 2-Dimensional media such as graphic novels, 2D video games, model sheets for 3D creation, concept art and the like. Students will create both humanoid and creature-based characters by using a variety of skill-sets, including basic anatomy, illustrating age, acting (through characters), prop and costume design, etc. Students will also learn pre-production tools such as reference gathering, concept sketches and mood boards.

DD 444. 3-Dimensional Character Devel. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 111, DD 275, DD 264 and DD 301. In-depth exploration of 3D character design, modeling and animation for video games and cinematographic production. Conceptual and technical/production topics are considered. Precedent studies are required from sources including illustration, gaming and video/animation disciplines as well as theatrical and cinematographic choreography including fashion designers and make-up artists. 3D modeling, UV unwrapping, texturing and rigging as well as pipeline production processes are also included.

DD 449. Imaginary Worlds: Architecture in Motion Pictures. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 112, AD 161, AD 162 or ARCH 211, ARCH 395. Restrictions: DD cohort designation for DD majors only. Like childhood photographs in family albums, movies are part of our collective memories and become a unique way of "remembering" an era or place even one that has never existed or could exist. The study of imaginary worlds in motion pictures provides students with opportunities to gain an awareness of architecture and study it from different perspectives. Movies studied will be limited to those that postulate new, or unique, environments rather than those films that faithfully document reality. Discussions will focus on architectural issues raised by the movies studied as well as those found in critical essays.

DD 464. Digital Design Studio III. 5 credits, 9 contact hours (1;0;8).
Prerequisite: DD 364. Continuation of Digital Design Studio II with projects of greater complexity requiring the selection and use of multiple media (including time-based media) in the preparation and completion of creative work. Independent research and production by each student is required for all projects. Production of both passive and interactive projects will be part of the studio program.

ID 203. Past, Present and Future of Design. 3 credits, 3 contact hours (3;0;0).
Restriction: Sophomore level or higher. Intensive survey course marking pivotal design paradigm shifts from ancient cultures through the industrial revolution, the present day and projecting into the future, this course focuses on the human activity called design. Case studies of selected cultures and designers will expose the student to the forces, history, methods, styles and meanings that shape the human ecology.

ID 216. Modeling and Prototyping. 3 credits, 3 contact hours (3;0;0).
Corequisites: ID 263. Restrictions: Sophomore level or higher; For Industrial Design majors only, or with department approval. Introduction to the drafting skills, techniques and methods needed to communicate a design for fabrication as well as the materials, tools and techniques to make full size working prototypes. The drafting component of the course will cover orthographic, isometric, line weight, dimensioning and specifications. Building from the drafting component of the course, the prototypes component will - through work in the model shop - introduce the student to the most common fabrication techniques, tools and methods used to build appearance and working prototypes in various materials.

ID 217. Modeling and Manufacturing. 3 credits, 3 contact hours (3;0;0).
Prerequisite: ID 216. Corequisite: ID 264. Restriction: For Industrial Design majors only, or with department approval. This course will build on the computer modeling techniques of the ID 216 course and combine it with the programs, tools and facilities used in Computer-Aided Manufacturing (CAM). The student will take computer-generated designs and feed them directly into the manufacturing system. The course will also explore Computer Aided Manufacturing as a means of facilitating mass customization: the process of creating small batches of products that are custom designed to suit each particular user.

ID 263. Industrial Design Studio I. 4 credits, 9 contact hours (0;0;9).
Prerequisites: AD 111 and AD 112. Corequisite: AD 150. Restriction: For Industrial Design majors only, or with department approval. Students are introduced to designing objects, environments and systems through a series of exercises in conceptual, abstract, and strategic thinking as it applies to the small and large-scale artifact. The relationship between function structure materiality, production aesthetics and human needs are introduced and tested.

ID 264. Industrial Design Studio II. 4 credits, 9 contact hours (0;0;9).
Prerequisites: AD 150 and ID 263. Restrictions: For Industrial Design majors only, or with department approval. This course is a continuation of ID 263 with the focus shifting toward selected problems derived from the areas of work, health, education, recreation and communication. Introduction to the case study method of analyzing existing products.

ID 301. Industrial Design Specialization. 3 credits, 3 contact hours (3;0;0).
Corequisite: ID 363 (or higher) or INT 363 (or higher). Restriction: Permission of Art + Design Advisor. This project-based course will expose the student to one of many specialties within the Industrial Design profession that may include industry-specific design explorations and case studies in areas that include the design of furniture, consumer products, toys, footwear and apparel, jewelry, lighting, exhibits, way-finding graphics, transportation, etc.

ID 310. Ethnographic and Marketing Research. 3 credits, 3 contact hours (3;0;0).
Restriction: Junior level or higher. Research methodologies will be explored and conducted as a means to lend an objective understanding of user needs, desires and motivations. This will occur through well documented interviews, surveys, observations and interventions. The information gathered will be used to shape new products, add value to existing products or give insite to yet unexplored products or marketing opportunities.

ID 312. Mechanics and Electronics. 3 credits, 3 contact hours (3;0;0).
Corequisite: ID 263. Restrictions: Sophomore level or higher; For Industrial Design majors only, or with department approval. This is an advanced research course that addresses products which employ electronics predominantly as the major factor of design, then products that employ mechanical systems as the major determining factor, finally, the interpolanation of the mechanical with the electronic with a focus on the human interface with these products.

ID 340. Materials and Processes. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 201 or ARCH 295. Restrictions: Junior level or higher. The student will be introduced to the basic materials and processes used in manufacturing of both short run and mass-produced objects. The course will comprise of lectures, field trips and design exercises employing both traditional and state-of-the-art manufacturing processes.

ID 341. Sustainable Materials and Processes. 3 credits, 3 contact hours (3;0;0).
Prerequisites: ID 340 or ARCH 295. Restrictions: Junior level or higher; For Industrial Design majors only, or with department approval. The course will comprise of lectures and field trips that take a critical look at the traditional materials and processes used in manufacturing and evaluate alternatives based on research and experimentation. Each student will perform a Life Cycle Analysis (LCA) on an existing product by following the products life from the mining of raw materials to disposal taking particular attention to energy usage, use of natural resources, toxicity and decomposition.

ID 363. Industrial Design Studio III. 5 credits, 9 contact hours (1;0;8).
Prerequisite: ID 216, ID 217 and ID 264. This project specific studio will address real-world needs, parameters, and research as it applies to market trends and industry focused development. Companies and entrepreneurs will be invited to submit industry or need specific project briefs to the studio which will become the project for the semester. The students will experience first-hand the challenges of designing, building and testing within a real-life, interdisciplinary framework. The company will participate as sponsor, mentor and partner to the students.

ID 364. Industrial Design Studio IV. 5 credits, 9 contact hours (1;0;8).
Corequisites: ID 216, ID 363, AD 201. A knowledge and evidence-based studio that addresses real-world needs, parameters, and research. Work and product design(s) may be derived from requirements that include governmental and non-governmental not-for-profit organizations as well as from research about needs that can affect the social, physical, and economic health of individuals.

ID 370. New Product Testing. 3 credits, 3 contact hours (3;0;0).
Prerequisite: AD 201 or ARCH 295 or permission of instructor. A hybrid course combining hands-on physical testing of products with lectures, readings, and case study presentations (both group and individual- oral and written). Multiple evaluative criteria (e.g safety, value, sustainability) will be discussed, established, and tested on a variety product types. Students may be required to provide/purchase a limited number of items for destructive testing. In-class student participation required.

ID 410. Professional Practice and Ethics. 3 credits, 3 contact hours (3;0;0).
Restriction: Senior level. This course covers the concepts of legal rights, copyrights, responsibilities and obligations of the designer, re: liabilities, contract review, patents, royalties, etc. The course also covers areas of responsibility in owner-offices, within corporate offices, working with design consultants and procedures for establishing a professional design practice. The course will also focus on the ethics of practice, research and marketing within a social, political and cultural context.

ID 463. Industrial Design Studio V. 5 credits, 9 contact hours (1;0;8).
Prerequisite: ID 364. This studio will draw from the vast academic talent at NJIT by partnering Industrial Design students with students in the other colleges and departments on campus such as engineering, architecture, management and computing. The students will develop methodologies for achieving effective collaboration and integration of industrial design with other disciplines, especially in the early phases of product development, through an industry specific design project.

ID 464. Industrial Design Studio V. 5 credits, 9 contact hours (1;0;8).
Prerequisites: ID 364 and PHYS 102. A comprehensive studio with projects (including multi-disciplinary projects) of advanced design and complexity. Students will work to initiate research and development of projects within the studio to demonstrate a full range of professional competencies, including but not limited to, the ability to independently critique work in progress. Completed work and presentation materials are expected to be exhibitable quality.

INT 221. Building and Interior Systems I. 3 credits, 3 contact hours (3;0;0).
Restrictions: For Interior Design majors only, or with department approval. An introduction to, and overview of, large-scale systems used in and affecting the design of building interiors. The operation and impacts of heating, ventilating, and air conditioning equipment on building space and layout are emphasized. Additional topics include the design of plumbing and waste systems as they affect building planning and the design of related spaces (including kitchens and bathrooms) and the use and design requirements for vertical transportation in building interiors.

INT 222. Building and Interior Systems II. 3 credits, 3 contact hours (3;0;0).
Prerequisite: PHYS 102. Restriction: For Interior Design majors only, or with department approval. An introduction to, and overview of, small-scale systems used in and affecting the design of building interiors. The needs and scope of design potentials in electrical systems (including requirements for media installations) and lighting design as they are used in, affect the design of, interiors are emphasized. Also included is an introduction to building acoustics and how basic principles affect design layout and material and furniture selection for a variety of building and construction types.

INT 223. Structural Principles. 3 credits, 3 contact hours (3;0;0).
Restrictions: For Interior Design majors only, or with department approval. Introduces structural statics through timber and steel design. Influences of materials and structural system choice analyzed relative to their impact on building design. Responsibilities of the architect during the structural design phase are introduced.

INT 263. Interior Design Studio I. 4 credits, 9 contact hours (0;0;9).
Prerequisites: AD 111, AD 112. Corequisite: INT 221. Pre or Corequisite: AD 150. Restriction: For Interior Design majors only, or with department approval. A hands-on studio based introduction to the basic principles and elements of design for interior design students. Emphasis on design methods using multiple media, manipulating form and space. Course includes lectures, readings, analytical exercises, and (primarily three-dimensional) design projects.

INT 264. Interior Design Studio II. 4 credits, 9 contact hours (0;0;9).
Prerequisites: AD 150, INT 263. Corequisite: INT 222. Restriction: For Interior Design majors only, or with department approval. A continuation of Interior Design Studio I. A hands-on studio course that expands introductory design problems into commercial interiors and public spaces. Interior design as a knowledge-based discipline is introduced. Emphasis is placed on the development of an iterative and reflective design process as well as the production and presentation of interior design proposals. Preliminary integration of multiple technical variables is included.

INT 321. Methods and Materials. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 111, AD 112, AD 150 or ARCH 334, AD 161, AD 162 and ARCH 251. Restriction: For Interior Design majors only, or with department approval. The study of materials, products, and assemblies used in interior design. The course covers code requirements and life safety, specification, installation, performance of materials (including fabrics and textiles), and sustainability of material selection and utilization. Also covered are the impacts of materials utilization on health and interior environmental quality.

INT 322. Contract Documents. 3 credits, 3 contact hours (3;0;0).
Prerequisites: INT 321, INT 363. Pre or Corequisites: ARCH 282. Restrictions: For Interior Design majors only, or with department approval. The course addresses issues of standards and methods of ethical and professional practice. It covers the production of contracts between the professional design service provider and clients as well as various project deliverables used in initial design phases through project close out. Document types covered include letters of agreement, contract document drawing sets and addenda sketches, specifications, schedules and budgets.

INT 350. History of Furniture. 3 credits, 3 contact hours (3;0;0).
Prerequisites: AD 161 and AD 162 or equivalent; or ARCH 295. Survey course studying the history and characteristics of furniture design from antiquity to the present day. Study of social and design forces influencing furniture. Students will analyze furniture in terms of style, aesthetic intent, construction and materials, ergonomics, universal/barrier-free accessibility, sustainability, and technology. Major stylistic movements will be discussed.

INT 351. Furniture Design. 3 credits, 3 contact hours (3;0;0).
Prerequisites: INT 264 or ID 264 or DD 264 or ARCH 296. This course is an introduction to the concepts, materials and construction technologies involved in the design and fabrication of furniture. It explores the relationship between ergonomics, comfort and function in the design of furniture for both site-specific environments and mass-produced applications. Course includes lectures, field trips and a variety of drawn, modeled, and built design projects.

INT 363. Interior Design Studio III. 5 credits, 9 contact hours (1;0;8).
Prerequisites: INT 222, INT 264. Pre or Corequisites: INT 221, INT 321, INT 350. Design studio focusing on residential design. The course includes a study of the relationship of human behavior to design emphasizing dwelling, security, comfort, and home. The correlation between furniture use and selection and residential space is explored. Variables studied include aesthetics and design organization, as well as the link between residential design and interior systems like lighting and plumbing.

INT 364. Interior Design Studio IV. 5 credits, 9 contact hours (1;0;8).
Prerequisites: INT 221, INT 222, INT 321, INT 363. Pre or Corequisites: ARCH 282. A continuation of the studio sequence with design and space planning projects of increasing complexity selected within the context of commercial and institutional building types - from office environments and healthcare facilities to religious venues and community facilities. Students are expected to further develop skills to simultaneously resolve conceptual, technical, aesthetic, and functional aspects of designs.

INT 464. Interior Design Studio V. 5 credits, 9 contact hours (1;0;8).
Prerequisites: ARCH 282, ARCH 337, INT 321, INT 322, INT 364. Corequisite: AD 201. A comprehensive studio with projects of advanced design and programming complexity concentrating on larger multi-level institutional and/or mixed-use building types. Students will work to initiate research and development through all design phases to synthesize the functional, sociological, aesthetic, regulatory, and project-specific technical requirements of their projects as they relate to interior design.