

INSTITUTE OF DESIGN (IDN)

IDN 501

Communication Systems

Explores the techniques of planning and designing communications systems in print, web, and three-dimensional exhibition form from concept generation to visualization. Relevant perceptual, cognitive, and systems principles are investigated and prototyped.

Credit: Variable

IDN 502

Making the User-Centered Case

Covers the rhetoric of design case making using verbal, quantitative, visual, and spatial modes of persuasion. Includes a survey of document and presentation types useful in the product development process.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 503

Embodied Design

At the end of this course, students should be able to explore, create, and communicate design directions for simple products and environments taking into account design principles, human factors, technology, and business issues.

Credit: Variable

IDN 504

Introduction to Observing Users

This class will introduce students to theory and methods of behavioral observation, description, and analysis.

Lecture: 0 **Lab:** 3 **Credits:** 3

IDN 505

Digital Media

Surveys the basic media types used in interactive software. Includes a culminating project that demonstrates basic principles of screen design and computer-human interaction using a variety of media. Projects require use of common software applications for creating and editing six data types – text, bitmap, geometry, sound, animation, and video.

Credit: Variable

IDN 506

Research Planning and Execution

This course examines research methods used throughout the design and development process from process, financial, and results standpoints with a focus on planning research activities.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 508

Principles and Methods of User Research

This course is a survey of the research methods commonly used in design research and gives an overview of distinctions between primary and secondary research, quantitative and qualitative research, and online and in-person research in order to prepare students for research-intensive projects.

Lecture: 0 **Lab:** 3 **Credits:** 3

IDN 510

Research Photography

This course aims to give design researchers the knowledge and tools to consistently make the right decisions when capturing and selecting photographs to use in storytelling.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 512

Interview Methods

The focus of this course is to gain familiarity with an underlying set of the principles and practices of ethnographic interviewing.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 514

Experience Modeling

This course is intended to familiarize students with the methods and practice of experience modeling. It entails a deep understanding of people in naturalistic, everyday settings and interpretive methods of analysis to create representations of the organization of everyday life.

Lecture: 3 **Lab:** 0 **Credits:** 1.5,3

IDN 516

Cultural Probes

This course examines methods that aim to understand the cultural meaning that artifacts have to people.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 517

Stimulus in Design Research

This course will introduce students to the whens and hows of creating and using stimulus effectively in their practice of design research.

Lecture: 1.5 **Lab:** 0 **Credits:** 1.5

IDN 518

Survey Methods

This class aims to familiarize designers with the tools and techniques that are commonly used by quantitative researchers such as surveys and statistical analysis. Students will learn how to design, understand, and evaluate surveys and other quantitative research tools and techniques as well as how to use online survey tools in their own work.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 519

Evidence-based Design

Introduction to the use of analytics measure the success of design solutions.

Credit: Variable

IDN 520

Co-Design + Social Interventions

This course will introduce students to co-design methods including when to use co-design methods, what are the advantages and disadvantages of co-design methods, and how to create engaging co-design workshops. Students may take this class multiple times, non-concurrently, for a maximum of 12 credits towards their degree.

Lecture: 3 **Lab:** 0 **Credits:** 3

IDN 522

Research Synthesis

This course will allow students to gain rigorous training in how to develop coding schemes, code qualitative data, and gain a deeper analysis of users based on field research.

Prerequisite(s): IDN 504 with min. grade of C

Lecture: 1.5 **Lab:** 0 **Credits:** 1.5

IDN 526

Online Research Methods

This class covers methods and tools used in online research with a focus on the design of research objectives, implementation of their study protocol, and moderation of study participants.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 530

Innovation Frontiers

Introduces students to the broad context of strategic planning. It includes a discussion of the general forces acting upon an organization (competition, technological developments, channels of information, and product distribution) and ways to understand the people who use design.

Credit: Variable

IDN 531

Adaptive Leadership

Explore different established and emerging change management models and their application to design.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 532

Business Frameworks and Strategy

A descriptive course in business strategy for designers covering new venture strategy, competitive strategy, marketing strategy and tactics, decision sciences, entrepreneurship, private equity, business plan writing, innovation, introductory finance, and self-discovery. This course will build a series of non-mathematical models of success and failure in both entrepreneurial and corporate settings.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 533

Innovation Ecosystems

This course is for students who are interested in leading and facilitating multi-disciplinary collaborative projects using design as know-how to innovate. Students will learn design tactics and strategies for knowledge brokering through tutorials, examples, practical activities and simulations.

Lecture: 1.5 **Lab:** 0 **Credits:** 1.5

IDN 534

Business Models and Value Webs

This course will consider the relationship between theories and practice in the two very different realms of economics and design.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 535

Organizational Models of Innovation

This course will examine traditional and emerging models for how large organizations and other corporate entities engage to develop innovative offerings. Readings will cover recent developments in cooperative and open-sourced forms of innovation development.

Lecture: 1.5 **Lab:** 0 **Credits:** 1.5

IDN 536

Introduction to Portfolio Planning

This course is an introduction to the techniques and processes involved in portfolio planning. We will explore the role of portfolio planning in typical organizations and how it relates to other processes like strategy and specific product development.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 537

New Venture Design

New Venture Design will teach aspiring entrepreneurs how to build design-led start-ups and new ventures, making this course ideal for students with new business ideas that they have been itching to design and launch. This exploration will happen across the four critical elements of a new venture: brand / value proposition; user experience; business model; and organization. Students will walk away with an understanding of how to architect new ventures using a combination of user empathy, market data, and intuition.

Lecture: 3 **Lab:** 0 **Credits:** 1.5,3

IDN 538

Strategic Design Workshop

This course covers the application of design planning methods and theory to real-world challenges. With a team-based, hands-on approach, students will tackle all stages of problem solving from initial framing to final solution proposals. Students may take this class multiple times, non-concurrently, for a maximum of 12 credits towards their degree.

Lecture: 0 **Lab:** 3 **Credits:** 3

IDN 539

Social and Economic Context of Design

This course examines the broader issues and forces that affect the conditions of how design can be effective within typical organizations. Through exercises and application of frameworks to examine these forces, students learn to recognize and adapt design plans to changing contexts.

Lecture: 3 **Lab:** 0 **Credits:** 1.5,3

IDN 540

Innovation Implementation

Introduces frameworks and methods for effectively implementing change in organizations. Using cases, students will identify principles, actions, and measures that mitigate risk, improve implementation success, and inform stronger designs.

Lecture: 1.5 **Lab:** 0 **Credits:** 1.5

IDN 541

Civic Design

Covers the emerging practice of applying design to areas of civic-oriented challenges.

Lecture: 1.5 **Lab:** 0 **Credits:** 1.5

IDN 542**Behavioral Design**

This course will introduce how concepts from the field of behavioral economics can be thought of as another kind of "human factor" and ways in which they can help inform the process of design thinking.

Credit: Variable

IDN 543**Communication Strategies**

This class introduces students to key concepts and methods to communicate design work. This includes a conceptual shift from communication as transmission of content to collaborative construction to better engage and align stakeholders in design work.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 544**Diagram Development**

Explores the language of diagrams as a communication means to represent different types of abstract, relational information. Students will be introduced to design principles of developing effective diagrams and multiple types of diagrams.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 546**Metaphor and Analogy in Design**

This class explores metaphor for its utility as a powerful thinking and communication tool drawing from research in academic fields such as cognitive linguistics and visual communications. Students will consider metaphors and analogies (as well as similes, allegories, metonymies, and other visual/verbal devices) for their power open up new thinking, frame change and suggest action – all critical communication milestones in design planning.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 548**Advanced Diagramming**

This class focuses on the study and development of visualizations to expand information presentation by using dynamic, interactive properties. Explorations to include data narratives, data visualization, time-based visualizations, analyzing motion, narration, transitions, and other visual properties that can enhance comprehension.

Prerequisite(s): IDN 544* with min. grade of C, An asterisk (*) designates a course which may be taken concurrently.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 550**Communication Design Workshop**

A project-oriented workshop focusing on applying design principles to link theoretical methods to practice in the area of human-centered communication design. Students may take this class multiple times, non-concurrently, for a maximum of 12 credits towards their degree.

Lecture: 0 **Lab:** 3 **Credits:** 3

IDN 552**Fundamentals of Visual Communication**

Discusses pictures, abstract symbols, text, numbers, diagrams, three-dimensional form, and other sign systems in the context of communicating a designed offering. Additional teachings include the basics of visual communication principles to aid in developing effective communications.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 554**Theories of Communication**

This class introduces students to theories of communication from other academic fields for application in design. It explores broadly the conception of communication to include relevant perspectives from education, social psychology, phenomenology and knowledge management.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 556**Strategic Communication**

This class teaches students how to use communication as a design method to accelerate synthesis and give tangible form to valuable information throughout the development process. Students are introduced to relevant theories of language, visual perception, visual representation, and communication.

Lecture: 1.5 **Lab:** 0 **Credits:** 1.5

IDN 558**Innovation Narratives**

In both professional and academic careers, there is an increased need for storytelling skills and self awareness. Creating passion-filled, compelling, and effective stories is a critical part of leadership.

Lecture: 1.5 **Lab:** 0 **Credits:** 1.5

IDN 562**Modeling Complexity**

How does one visually capture and represent complex systems, topics, and activities that are too large to conceptualize using memory and cognition alone? Modeling complexity is a visual approach to large-scale problem definition that seeks to represent the full picture of a system by applying theories of visual perception and known techniques for representing relationships in data.

Prerequisite(s): IDN 544* with min. grade of C, An asterisk (*) designates a course which may be taken concurrently.

Lecture: 3 **Lab:** 0 **Credits:** 1.5

IDN 564**Bias + Sensemaking**

The class introduces the basic principles and methods for structuring complex information for effective understanding, identifying problems, and guiding solution development.

Lecture: 1.5 **Lab:** 0 **Credits:** 1.5

IDN 566**Systems Approach to Design**

The primary goal of the course is to understand systems thinking and approaches in design. The course reviews historical development of systems approaches and introduces systems concepts and approach to design. Particular emphasis goes to system modeling methods that facilitate designers to observe, describe, analyze, predict/envision, design, prototype, and evaluate behavior and performance of complex systems from different viewpoints.

Lecture: 3 Lab: 0 Credits: 1.5

IDN 568**Service Systems Workshop**

This workshop introduces concepts of services, design principles, and methods that are needed for the design of service systems. Topics include the nature of services, customer acquisition and retention, value propositions in service business, service prototyping and pilot testing, stakeholder management, infrastructure, and operational and implementation issues. Students may take this class multiple times, non-concurrently, for a maximum of 12 credits towards their degree.

Lecture: 0 Lab: 3 Credits: 3

IDN 570**Structured Planning Workshop**

Introduces structured planning methodology and applies it to complex design problems at the system level. Team techniques are emphasized, and formatted information handling and computer-supported structuring processes are used through the design process from project definition to information development, structuring, concept development, and communication. Students may take this class multiple times, non-concurrently, for a maximum of 12 credits towards their degree.

Lecture: 0 Lab: 3 Credits: 3

IDN 571**Introduction to Systems Theory**

The course investigates principles and methods for representing and understanding structure and behavior of different types of systems. Various forms of theoretical and philosophical frameworks and methodologies are introduced to model and understand fundamental characteristics of domains of concern from different perspectives. Class topics include general systems theory, system modeling, causality, and formalisms. The class will also explore example applications of system concepts and modeling methods in design research.

Lecture: 1.5 Lab: 0 Credits: 1.5

IDN 572**Platform-Based Design Strategy**

Platform is an innovation strategy that provides a common set of standards to enable a variety of offerings to be built on top of it, creating higher value for all stakeholders involved. This course explores how platforms provide a base to accommodate many options that can support diverse contexts and user needs.

Lecture: 3 Lab: 0 Credits: 1.5

IDN 573**Sustainable Solutions Workshop**

In this course students will learn how to apply design methods and strategic thinking through open innovation practices for leveraging the interconnectivity of markets, technology, finance, and social networks in order to envision sustainable solutions with impact in the local lives and well-being of communities.

Credit: Variable

IDN 574**Design Process and Knowledge**

Introduces basics of design methodologies concerning design process models and knowledge representation and management. It discusses multiple viewpoints and aspects of design in order to address complexity of information required to implement human-centered approaches and interdisciplinary collaboration as well as developing and managing effective design processes, methods, and organizations for enabling innovative design.

Lecture: 3 Lab: 0 Credits: 1.5

IDN 575**Re-Thinking Systems**

In this course, students will learn key principles and concepts on complex adaptive systems in relation to human-centered design for understanding how product and service innovation can shape sustainable value webs and marketplaces.

Lecture: 3 Lab: 0 Credits: 3

IDN 576**Systems Modeling and Prototyping**

This workshop class introduces system modeling methods for representing different types and aspects of systems including continuous models, discrete models, probabilistic models, and structural models. System modeling and simulation software packages are used to understand and predict the system behavior. Various forms of physical prototyping are also applied as complementary methods to understand, analyze, explore, and evaluate systems through the development process.

Lecture: 0 Lab: 3 Credits: 3

IDN 578**Human System Integration**

This course teaches students the principles of socio-technical system design. Today's complex systems need to be designed as a whole system rather than piece-meal components. Hence, this course introduces students to the perspectives and principles that can be used when designing complex systems with people and technical subsystems.

Lecture: 3 Lab: 0 Credits: 3

IDN 685**Ph. D. Principles and Methods of Design Research**

Introduces the basic principles and methods for assembling, developing, and analyzing information in the tasks of design research. Techniques for collecting data, testing hypotheses, and presenting conclusions are learned in the context of conducting a pilot research project.

Lecture: 0 Lab: 3 Credits: 1.5

IDN 687**Ph. D. Philosophical Context of Design Research**

Explores the philosophical framework for conducting research and building knowledge in the field of design. Topics include concepts from epistemology, phenomenology, and structuralism. Comparisons are made between design research and research in other fields.

Lecture: 0 Lab: 3 Credits: 1.5

IDN 689**Ph.D. Research Seminar**

Investigation and discussion by faculty and students of topics of interest from different perspectives such as building a design research discourse (reading research papers critically, selecting among publication venues); investigating alternative philosophical bases for design research (comparing empirical, pragmatic, and phenomenological approaches); or exploring methodological and theoretical conflicts in design research.

Lecture: 3 Lab: 0 Credits: 3

IDN 691**Ph. D. Research and Thesis**

Research and thesis writing for Ph. D. degree.

Credit: Variable

IDN 999**General Elective Placeholder**

Credit: Variable