

# Course Descriptions

## □ Bachelor Program

### ID211 Graphic Design

As an introduction to visual communication design, students understand principles of two-dimensional design based on which they convey projects for creation. The theoretical lecture includes the composition of planes, color theories and applications, and basic knowledge of editorial design. Skills for graphic software are highly demanding.

### ID212 Basic Design

This is the first studio-based design project course for students who major in industrial design. The course covers three-dimensional design elements and principles, material exploration and basic prototyping skills, relationship between aesthetic quality and functionality of products, and design thinking. Students are expected to learn fundamental design process for product development from the course.

### ID213 Product Design

This course will provide an overview of design skills in their application to the resolution of product design problems. Utilizing skills and processes learned in Design Theory and Methods and Presentation Techniques, this course will introduce more specific methods to solve the problems and issues typically encountered by the industrial designer. (Pre-requisite Courses: ID211, ID212)

### ID215 Introduction to Industrial Design

This course is an introduction to the industrial design theories and history. Basic scientific epistemology in connection with the design history and cultural design sociology is studied and surveyed. Among the epistemology covered are the definition of industrial design, design object and its gestaltung and functions. Emphasis is placed on applied methods of the social aesthetics, ethics and science in the design development process for social environment design.

### ID216 Design Engineering

This course introduces sophomore design students to fundamentals of engineering. Students will have an opportunity to learn essential skills of technical drawing, basic concepts of statics, mechanics of material, and kinematics, with menageries of design materials and manufacturing processes. The combination of two exams and final project will effectively help students be familiarized with related theories and integrate them together to apply design practices.

### ID217 Presentation Techniques

This course deals with basic drawing skills for design ideation, communication, and presentation. The topics covered include: basic line exercise, perceptual drawing, perspective drawing, marker coloring, figure drawing for storyboarding, presentable sketch, and digital drawing.

### ID218 Photo Techniques

The purpose of the lecture studies photography technique by how to use miniature camera, various photography. and it widens ability for practical use of the artificial illumination.

### ID219 Computer-Aided Design

Computer Aided Design (CAD) is the use of computers to create, modify, analyze and optimize designs. That makes CAD an essential tool for the Industrial Designer. Whereas in the 1990s CADs main use was in drafting 2D technical drawings for design specification, since 2000s CAD is the tool of choice for rendering product concepts. Recently, with the availability of 3D printers, 3D modeling skills have become indispensable for making physical prototypes. In this course we will discuss the theory of CAD and through a number of short assignments hands-on-experience is gained in modeling, rendering and fabricating using 3D printers.

(Substitute Course: ID309)

### ID220 Interaction Prototyping

This course introduce design major students to prototyping techniques that is essential to implement interactive product and system ideas. Students improve skills to realize electric and electronic hardware and software applications. It also covers prototyping techniques for ubicomp, IoT and physical computing that integrates digital and analogue worlds. Topics related to interactive product prototyping include sensors, actuators, computer vision, software modules. Design major students learn Arduino and Processing that is useful for interaction concept prototyping. (Substitute Course: ID308)

### ID221 Information Design

Course aims at fostering the ability to visualize information that creates aesthetic and cognitive value. Theory includes types of visual information and the human perception. The practice covers from schematic expression ion

to editorial design of digital media contents. (Substitute Course: ID310, ID214)

#### ID301 Interactive Product Design

This course introduces students to design process for developing interactive products, and students are expected to learn the product development process by experiencing a studio-based design project. In the design process, the course deals with design methods on how to humanize technology and enables students to design interactive products which provide good usability and rich user experience. The course consists of two parts. Students are required to formulate their design concepts through quick-and-dirty prototyping in the first phase and then they develop them into final designs by building and evaluating high-fidelity working prototypes in the second phase. (Pre-requisite Course: ID213)

#### ID302 Space Design

The purpose of this course is to understand relationships of products and humans in given space and solve problems for grasping basic concepts of space. Especially, through design studies of exterior and interior space and artifacts, researchers will develop scale-sense, space-sense, and capabilities of forming space.

#### ID303 Design Methods

In this course, students will participate in learning and discussing about practical design methods that can be utilized in various design situations throughout the design process, including user research, analysis, concept development, and design evaluation. When they learn and discuss about the methods, students are expected to reflect on the values and meanings of those design methods in design practice and the field of design as a discipline, especially to achieve good designs. In addition, students will be required to think and discuss about what methods help designers produce good designs and how to avoid bad designs through the application of appropriate design methods and principles.

#### ID304 User Experience Design

The objective of this course is to learn and experience the whole design process for User Experience (UX) Design through working on a realistic design project. This design project will have a strong emphasis on creating tangible and innovative human-centered values through the experience of using and interacting with various IT products. Throughout this course, students will be expected to design a UX-emphasized product concept with the demonstration of what values it creates to the real world for real people. (Pre-requisite Course: ID301)

#### ID306 Multimedia Design I

This course is designed to understand the complicated features of multimedia technology and industries, and to study multimedia design theory and its applications. Emphasis is given to experimenting image, sound, and video editing techniques for creating multimedia title designs.

#### ID307 Interface Design

This course is a studio & lecture course to develop user-interface design for digital information appliances and software through the application of basic interface design theories. The course covers various methods for user-interface design such as cognitive guidelines, task analysis, and usability testing. Students have opportunities to experience actual usability testing in a specialized room equipped with state-of-the-art facilities for identifying interface problems.

#### ID311 Software Prototyping

This software prototyping course aims to provide students with the theoretical and practical programming background to develop complex software for desktop computers and mobile devices. Students who take this course should be already familiar with the basics of programming and are expected to spend considerable time during the semester programming short assignments and a final project. The course objectives are 1) to teach computational thinking through programming using object oriented programming and selected design patterns, 2) to familiarize students with the developing environment for desktop and mobile applications, 3) to introduce students to specific application capabilities of mobile platforms, so to empower students who want to design and develop mobile apps.

#### ID312 Design Human Factors

This course introduces general knowledge of human factors in man-machine system, including such topics as anthropometry, biomechanics, human performance, human information processing, and human sensory systems. Students will acquire methodological skills to apply the human factors to new product development by analysing real design cases.

#### ID314 Moving Image Design

This course will The Moving Image Design is a way of the multimedia communication to convey the own idea and works. Through this course students will learn the entire process skills planning, shooting and graphic work for making the Moving Image Design. And also we will learn to expand and improve the comprehensive thinking for multimedia communication through making and analyzing video work.

#### ID315 Design Aesthetics

This course aims for students to learn the way of appreciating and evaluating design works in various perspectives. Students collect, survey and review diverse 'good designs' and understand design criteria behind good design works. Throughout students will have opportunity to have their own point of views on good design so that they are able to discuss, evaluate, and eventually create good design works.

#### ID316 Interactive Software Design

This course deals with design theories and practices to help students develop highly interactive software systems, in a quick, easy, and robust manner. Step-by-step design and coding exercises will allow students to learn 1) visual communication techniques to effectively represent and modify interaction and system ideas and 2) error-free coding styles to faithfully implement the ideas. Students will also have opportunities to propose, design, and implement their own interactive software systems in an iterative and progressive manner, acquiring the core ability of design thinking.

#### ID402 Design Entrepreneurship

Targeting at 4th year industrial design students with a graduation design project at hand to use as an essential class material, the course presents a new opportunity for design students to explore the possibility of setting up design-led startup companies as a potent and viable alternative to the conventional career path of joining large corporations. The course is designed to provide the students with the basics of design entrepreneurship so they are fully aware of the opportunities and how to realize them in the turbulent, but exciting future. The course consists of three main components: Lectures on the basics of startup; Special talks on startup experiences from startup CEOs; Assignments, presentations and workshops on business case building.

#### ID403 System Design

This course is a studio-based course that offer students experience of creatively designing product or system for new business opportunities. Students learn skills to accomplish design project from a business perspective. They propose new business model and design products or systems that are central to the model. The students will improve abilities to create a design-led new business. The course is proceeded in three phases. In the first problem identification and analysis phase, students identify new design problems from a business perspective and analyze related issues from macro and micro levels. In the concept development phase, they use user centered design and creative thinking methods. They selectively employ the methods to explore new concepts. In the final synthesis and evaluation phase, the students propose new business model. They also build and test concrete prototypes of product-service system ideas which are central to the model. (Pre-requisite Course: ID304)

#### ID408 Design Critique

By giving critiques on existing products in terms of useability, esthetics, material, texture, storage, life style, meaning of consumption and possession, technology, production, sales and marketing, the students will foster the ability to identify what is good design and its conditions, and to ultimately contribute to enhancing their own design abilities.

#### ID409 Graduation Design Studio I

Graduation Design Studio I is the companion course for student's undergraduate graduation project. In this course, students will learn how to manage a design project from start to end, from initial idea generation to a final working prototype. We will focus on process, presentation and patent whereas student's graduation advisor professor guides them on the contents of their concepts and prototypes. We will follow the engineering model of a design process by Pahl & Beitz consisting of three phases of four weeks: "idea finding", "conceptual design" and "embodiment design". In each of these phases, students will perform an iterative process of basic design cycles with analysis, synthesis, evaluation and decision making. In the final weeks, we discuss design communication. (Pre-requisite Course: ID304)

#### ID410 Special Topics in Design I

This course consists of a series of invited speakers who introduce new trends in design and research.

#### ID411 Design Workshop

This course is designed to introduce the state-of-the-art of design theories and practices, and to integrate them in an intensive format of design learning. The experts in design academia of industries are invited to cover the subject matters, and lead the workshop.

#### ID412 Interactive Space

The development of digital technologies makes our living space to be digitalized, intelligent and interactive. In this course, products and systems in spaces are considered as design targets. Students analyze the cases of interactive spaces to provide new valuable user experience. Theoretical framework is studied to design new interactive space. Students also conduct new interactive space design projects and the evaluation.

#### ID413 Design Communication

The course aims to allow students to learn how to make systematic communication of designer's concept, intention, and result by teaching various visual communication theories and skills. The course comprises of theoretical lecture of fundamental theory of communication in semiotics aspects, various guidelines and principles of visual communication, and practical application of theories for designer's CV, portfolio, design proposal with diverse media.

#### ID414 Graduation Design Studio II

Graduation Design Studio II is the companion course for your undergraduate graduation project. We will focus on process, presentation and patent, whereas student's graduation advisor professors will discuss the product and prototyping with the student. In this second part we will first focus on detailed design. In a new iteration students will produce a high quality prototype of the design, suitable for online presentation (video) and for design exhibitions (model). After midterm, we will discuss how to disseminate students' design concepts. With their prototypes students will apply for patents, academic demonstrations and design contests. (Pre-requisite Course: ID304)

#### ID415 Theory and Practice of Service Design

Targeting at 3rd and 4th year industrial design students with at least a first level of design and research skills, this course is designed to provide the students with an introduction to service design in the context of social innovation. As the importance and sophistication of services grows, and new forms of service based on and/or coupled with technology have been introduced, the principles and methods of design have been used to create services in order to increase their value. In the near future, the significance of service design could be on a par with, or even surpass that of product design. Also, the role of design is expanding to the areas where the final outcome of design may not be tangible especially in the public sector where the impact of design could be much greater, wider, deeper and longer than commercial products and services. Therefore, it is vital that students of design learn the principles of service design and gain experience of dealing with the important issues of social innovation so that they are capable of defining and resolving service design problems and social innovation in part or as a whole in their professional life in the future.

#### ID416 Portfolio and Exhibition Design

This course will provide skills to develop their own design language with Design Language Source Map and to express their work effectively through their portfolio and exhibition. Each one can develop their own design style through various design assignment range from 2D to 3D applying techniques from historical design trend and style.

#### ID420 Special Topics in Design II

This course consists of a series of invited speakers who introduce new trends in design and research.

#### ID430 Special Topics in Design V

This course aims to teach new design practice and methods that are essential to support newly emerging design issues and trends so that students can be equipped with practical state-of-the-art design skills and knowledge that cannot be learned from other traditional design courses.

#### ID490 Undergraduate Thesis Project

This course is the final major project. Students undertake a design project for a year from user study, concept development, form development, technology review, prototyping development and presentation. Final results are presented in the graduation exhibition.

#### ID495 Individual Study

Students register for this course at the undergraduate level when they will engage in an independent research project.

#### ID496 Design Seminar

This course consists of a series of invited speakers who introduce new trends in design and research.

## □ Master and Doctoral Program

#### ID501 Design Issues

This study is designed to construct a holistic view of design theories and issues discussed in design academia. Students are asked to build a perspective of understanding current stream of design issues.

#### ID502 Research Methodology

This is an advanced lecture course to study various research methods which form the fundamentals of design research. Students are expected to learn systematic understanding of research methods and research process,

which will lead them to conduct students' master or doctoral research.

#### ID503 Design Project I

In this course, students study the theories and undertake practical projects of new product design development that is accelerated by the new scientific and technological revolution and the emergence of new lifestyles. They explore concept development of new products, investigation of critical factors of new products, the progress of systematic design process, decision making, user centered design creation methods through chosen projects.

#### ID504 Design Project II

This listing is a sequel to studio course, Design Project I, and helps develop design with the emphasis on corporate strategy. Students learn methods related with design strategy and project management through practical projects.

#### ID505 Usability Analysis

This is a lecture / studio course to study general theories on usability regarding learnability, efficiency, memorability, satisfaction for information appliances or media. Students are to learn diverse methods related with usability such as heuristic evaluation, task analysis, usability testing so that they can have the capability to lead user-centered design.

#### ID506 Media Interaction Design

This course is designed to study the interactivity of multi-modalities (visual, sound, olfactory, and tactile), and to experience creative interaction design. Emphasis is given to experience tangible interface design with the state-of-the-art of interactive technology.

#### ID508 User-Centered Design Methodology

The course aims at teaching user-centered design methods for identifying users' tacit needs so that innovative design can be created. User-centered methods from stage of planning to idea-generation and evaluation will be covered including user-observation, scenario-based design, self-camera, user-diary, usability testing, user-participatory design etc. Students are expected to build up the capability to plan creative design concepts and conduct user-studies.

#### ID509 Design Project for Industry

Students study research project planning, conducting methods, processes, and problem solving methods for practical design projects conducted jointly with industry. Design knowledge frameworks and practical experiences of students are refined by working with specialist in industry as the industry collaboration method. The objectives are also accomplished by co-workshops and seminars with industry. Project topics are decided with industry in the beginning of the course.

#### ID510 Corporate Strategy and Design Process

This course aims to approach the design process from a broader business perspective. Beyond the traditional role of industrial design and designers, this project attempts to include developing business strategy as a design problem. By investigating and analyzing the market, company structure and business model, students engage in managerial decision-making process to develop business strategies.

#### ID511 Managing Design for Business, Technology, and social Innovation

The course presents the basic concepts of design management, both in corporate and public/social contexts, including roles of design. Further, students are encouraged to read, present and discuss research articles related to the topics addressed in lectures, in terms of what they could learn from them in the context of their own research interests.

#### ID601 Design Project III

This course is concerned with the design of multimedia oriented product design. The contents involve the understanding unique features of multimedia oriented products, directing, design and marketing of new design. Through the collaboration with experts from related fields and progressive resolution of the design problems, students carry out new design projects in a team basis from a multidisciplinary approach.

#### ID602 Design Project IV

This course is designed to develop multimedia design product through analyzing product analysis, planning and design, and market research. The experts in multimedia industries are included as team-teaching members. Students conduct a new design project based on multidisciplinary team.

#### ID603 Theory of Media Design

This course is designed to investigate diverse issues related to digital media design from social and cultural perspectives. Emphasis is placed on the design process and the development of creative content.

#### ID605 Design Marketing

This is a lecture course to study consumer and market related with new product design. Students are to learn diverse marketing survey methods with statistical analysis such as product positioning, market segmentation, life style analysis, and concept evaluation.

#### ID606 Theory of Emotional Design

Nowadays, value criteria and evaluation criteria of customers' behavior is more focused on emotion than reason. This course deals with analysis of emotional factors of human and transformation of them into design languages to develop researchers' capabilities of conducting emotional design process. Students will study emotional engineering, cognitive science, psychology, and other relevant fields with a new solving methodology of design problems.

#### ID607 Design Management

This course is an introduction to theories and practical knowledge on design management. This course aims to understand the fundamentals of design management: Shifting milieu of design business; nature of design management and design manager; design management process; and others. This course also focuses on resources for composing design organizations; problem solving methods and decision making issues required for effective management of design process; the practical knowledge of running and managing the corporate design group and / or design consulting firm.

#### ID609 Digital Design Fabrication

In the post-industrial digital era, manufacturing becomes decentralized and the masses themselves partake in this process in various ways and thereby provide new opportunities and responsibilities for professional designers. In this course we study the impact of this phenomenon on society and discuss maker culture, fablabs, copyright and responsibilities and how we can disseminate our professional knowledge to make authoring tools for the masses and what we can learn from the masses.

#### ID701 Design Research Issues

This course aims to introduce and analyze recent trends of theories and topics in design research. Students learn how to approach research topics systematically and how to find and conduct a new research project that contributes to the body of knowledge in design research. This course provides a theoretical background and a framework of methodologies for Ph.D. research in design.

#### ID702 Design Studio II

This course is a doctoral design project course: each student researcher studies profound research in interest fields of their own. To understand the basic concept of design practice and study planning and practice of design, industrial-educational projects or interdisciplinary cooperation projects will be conducted for nurturing design capabilities.

#### ID705 Theory of Public Design

Recently, modern cities are composed of complex human communities. This course deals with observations of conflicts occurring in an urban environment and studies of contradictory concepts of the legibility and the ambiguity of urban environment to find out issues of public design.

#### ID706 Theory of Interface Design

This is an advanced lecture course to study general theories for interface design including human cognitive model, interface design guideline, research methods. Students are to learn interface as a system consisted of human, product, and interface. This interface is viewed in diverse perspectives including intelligent, emotional, social and cultural interface. Final deliverable for student is publication of a paper in a related journal or conference.

#### ID708 Design Strategy

The this course aim to teach relevant factors, conditions and their interactions that play crucial roles for successful practices on design management in various organizations such as government, public organizations, corporations, and others.

#### ID711 Advanced Topics on Human-Centered Design

The course aims to teach students the nature and philosophy of human-centered design, methods, and process and to allow them to discuss and conduct research for advanced issues of human-centered design in depth. The course comprise of major issues of human-centered design, methodologies, process and writing short paper on selected topics in human-centered design.

#### ID712 Advanced Topics on New Technology Convergence Design

This course deals with advanced topics on new technologies to be applied in design projects and the design process. Students review recent developments and examples of technology application in design. The technology fields include electronic engineering, mechanical engineering, new materials, software engineering, production engineering and so on. Students identify research issues and analyse cases for new technology

fusion in design. Issues and cases are also reviewed for the application of new technologies in developing new design methods and tools to aid designers.

#### ID713 Advanced Topics on Business Innovation Design

Teaching the knowledge basis and know-hows of the strategic design for accomplishing the successful business innovation. Focus on the how to make valuable innovation through design thinking as well as how to design a business model based on the innovation.

#### ID830 Special Topics in Design VI

This course will offer students to learn more advanced design research methods and skills for newly emerging subjects in the field of design. It aims to teach new knowledge that cannot be covered by existing courses.

#### ID960 MS Thesis

This course involves master's level research project based on a thesis research proposal confirmed by the supervisor. The research contents should contribute to the design practice or the body of knowledge in the field of design. It also should be original and address the practical design or research issues in the design discipline.

#### ID966 MS Seminar

This course consists of invited seminars to introduce and discuss new design issues such as the role of design, new design methods, strategic value of design.

#### ID980 Ph.D. Thesis

This course is a Ph.D. level research project based on a thesis research proposal confirmed by the student's supervisor. The research contents should make significant contribution to the body of knowledge in the field of design. It also should be original and address an important design or research problems in the design or related disciplines.

#### ID986 Ph.D. Seminar

This course consists of invited seminars to introduce and discuss new design issues such as the role of design, new design methods, strategic value of design.