

## 4 Years Structure

### **Design Innovation Program**

School of Architecture and Design, KMUTT

### **Name of Program**

Bachelor of Fine and Applied Arts Program in Design Innovation (International Program)

### **Degree**

Full name: Bachelor of Fine and Applied Arts (Design Innovation)

Abbreviate name: B.F.A. (Design Innovation)

### **Objectives**

- The purpose of program is to educate professional industrial designers:
- who understand the human centered design philosophy and have ability to implement it in design.
- have broad perspective to design of products and services.
- with sense of responsibility and awareness towards environment and society.
- able to work with international organizations.
- To build on students natural abilities and interests in the field of design
- To provide possibility to continue their studies in further academic levels.
- for the needs of creative economy in Thailand and elsewhere.
- To generally contributing to the development of human kind and improvement of quality of life.

### **Program Duration**

Required credits for full-time program have to be completed within a period of 4 academic years or 8 semesters, but not to exceed 8 academic years or 16 semesters.

Design Innovation Program

# Curriculum

**Total Program Credits 143 credits**

**General Education Courses 31 credits**

- Health Courses 1 credit
- Integrative Courses 15 credits
- Language Courses 9 credits
- Elective Courses not less than 6 credits

**Major Courses 106 credits**

- Art and Design Courses 12 credits
- Social Science Courses 12 credits
- Business and Entrepreneurship Courses 12 credits
- Technology and Innovation Courses 12 credits
- Experiential Learning Courses 52 credits
- ID Electives not less than 6 credits

**Free Elective Courses not less than 6 credits**

## Design Innovation Program Academic Plan A: 4 years

### Year 1

First Semester		
Code	Course	Credit*
DIP 101	Design Innovation Studio I	6(0-12-12)
DIP 111	Art and Design Fundamentals	3(3-0-6)
LNG 221	Academic English in International Contexts	3(3-0-6)
GEN 121	Learning and Problem Solving Skills	3(3-0-6)
GEN 231	Miracle of Thinking	3(3-0-6)
GEN 101	Physical Education	1(0-2-2)
Total		<b>19(12-14-38)</b>

Second Semester		
DIP 102	Design Innovation Studio II	6(0-12-12)
DIP 104	Seminar and Workshop I	1(0-2-2)
DIP 112	Design History and Culture	3(3-0-6)
DIP 141	Materials Technology	3(3-0-6)
LNG 222	Academic Listening and Speaking in International Contexts	3(3-0-6)
GEN 111	Man and Ethics of living	3(3-0-6)
GEN 241	Beauty of Life	3(3-0-6)
Total		<b>22(15-14-44)</b>

### Year 2

First Semester		
DIP 201	Design Innovation Studio III	6(0-12-12)
DIP 211	Information Design	3(3-0-6)
DIP 224	Research for Design	3(3-0-6)
DIP 241	Coding for Design	3(3-0-6)
DIP 242	Digital Data Analytics for Design	3(3-0-6)
Total		<b>18(12-12-36)</b>

Second Semester		
DIP 202	Design Innovation Studio IV	6(0-12-12)
DIP 204	Seminar and Workshop II	1(0-2-2)
DIP 221	Physical Human Factors	3(3-0-6)
DIP 222	Psychological and Cognitive Human Factors	3(3-0-6)
DIP 223	Social and Cultural Human Factors	3(3-0-6)
GEN xxx	General Education Prescribed Elective I	3(x-x-x)
Total		<b>19(x-x-x)</b>

### Year 3

First Semester		
DIP 301	Design Innovation Studio V	6(0-12-12)
DIP 311	Sustainable Design	3(3-0-6)
DIP 331	Business Model and Value Proposition	3(3-0-6)
DIP 341	Digital Interaction Design	3(3-0-6)
DIP xxx	Design Innovation Elective I	3(x-x-x)
Total		<b>18(x-x-x)</b>

Second Semester		
DIP 302	Design Innovation Studio VI	6(0-12-12)
DIP 304	Seminar and Workshop III	1(0-2-2)
DIP 332	Branding and Business Strategy	3(3-0-6)
DIP 333	Creative Content Marketing	3(3-0-6)
DIP xxx	Design Innovation Elective II	3(x-x-x)
GEN 351	Modern Management and Leadership	3(3-0-6)
Total		<b>19(x-x-x)</b>

### Year 4

First Semester		
DIP 401	Design Innovation Studio VII	6(0-12-12)
DIP 431	Moral, Legal and Professional Practice	3(3-0-6)
GEN xxx	General Education Prescribed Elective II	3(x-x-x)
XXX xxx	Free Elective I	3(x-x-x)
Total		<b>15(x-x-x)</b>

Second Semester		
DIP 402	Design Innovation Studio VIII	6(0-12-12)
DIP 403	Portfolio Workshop	1(0-2-2)
LNG 321	Academic Reading and Writing in International Contexts	3(3-0-6)
XXX xxx	Free Elective II	3(x-x-x)
Total		<b>13(5-18-28)</b>

\*Credit = Credit Hour (Lecture-Practice-Self Study)

# Design Innovation Program

## Academic Plan B: 3 years

### Year 1

First Semester		
Code	Course	Credit*
DIP 101	Design Innovation Studio I	6(0-12-12)
DIP 111	Art and Design Fundamentals	3(3-0-6)
LNG 221	Academic English in International Contexts	3(3-0-6)
GEN 121	Learning and Problem Solving Skills	3(3-0-6)
GEN 231	Miracle of Thinking	3(3-0-6)
GEN 101	Physical Education	1(0-2-2)
Total		<b>19(12-14-38)</b>

Second Semester		
DIP 102	Design Innovation Studio II	6(0-12-12)
DIP 112	Design History and Culture	3(3-0-6)
DIP 141	Materials Technology	3(3-0-6)
LNG 222	Academic Listening and Speaking in International Contexts	3(3-0-6)
GEN 111	Man and Ethics of living	3(3-0-6)
GEN 241	Beauty of Life	3(3-0-6)
Total		<b>21(15-12-42)</b>

Special Semester		
DIP 103	Design Innovation Studio Summer I4(0-8-8)	
DIP 104	Seminar and Workshop I	1(0-2-2)
GEN xxx	General Education Prescribed Elective I	3(x-x-x)
DIP xxx	Design Innovation Elective I	3(x-x-x)
Total		<b>11(x-x-x)</b>

### Year 2

First Semester		
DIP 201	Design Innovation Studio III	6(0-12-12)
DIP 211	Information Design	3(3-0-6)
DIP 224	Research for Design	3(3-0-6)
DIP 241	Coding for Design	3(3-0-6)
DIP 242	Digital Data Analytics for Design	3(3-0-6)
DIP 341	Digital Interaction Design	3(3-0-6)
Total		<b>21(15-12-42)</b>

Second Semester		
DIP 202	Design Innovation Studio IV	6(0-12-12)
DIP 221	Physical Human Factors	3(3-0-6)
DIP 222	Psychological and Cognitive Human Factors	3(3-0-6)
DIP 223	Social and Cultural Human Factors	3(3-0-6)
GEN xxx	General Education Prescribed Elective II	3(x-x-x)
Total		<b>18(x-x-x)</b>

Special Semester		
DIP 203	Design Innovation Studio Summer II4(0-8-8)	
DIP 204	Seminar and Workshop II	1(0-2-2)
DIP xxx	Design Innovation Elective II	3(x-x-x)
GEN 351	Modern Management and Leadership	3(3-0-6)
Total		<b>11(x-x-x)</b>

### Year 3

First Semester		
DIP 301	Design Innovation Studio V	6(0-12-12)
DIP 311	Sustainable Design	3(3-0-6)
DIP 331	Business Model and Value Proposition	3(3-0-6)
DIP 332	Branding and Business Strategy	3(3-0-6)
XXX xxx	Free Elective I	3(x-x-x)
Total		<b>18(x-x-x)</b>

Second Semester		
DIP 302	Design Innovation Studio VI	6(0-12-12)
DIP 333	Creative Content Marketing	3(3-0-6)
DIP 431	Moral, Legal and Professional Practice	3(3-0-6)
XXX xxx	Free Elective II	3(x-x-x)
Total		<b>15(x-x-x)</b>

Special Semester		
DIP 303	Design Innovation Studio Summer III 4(0-8-8)	
DIP 304	Seminar and Workshop III	1(0-2-2)
DIP 403	Portfolio Workshop	1(0-2-2)
LNG 321	Academic Reading and Writing in International Contexts	3(3-0-6)
Total		<b>9(3-12-18)</b>

\*Credit = Credit Hour (Lecture-Practice-Self Study)

## Course Description

**General Education Courses 31 Credits**

**Required Courses 25 Credits**

**Health Courses 1 Credit**

**GEN 101 Physical Education 1 (0-2-2)**

Prerequisite: none

This course aims to study and practice sports for health, principles of exercise, care and prevention of athletic injuries, and nutrition and sports science, including basic skills in sports with rules and strategy from popular sports. Students can choose one of several sports provided, according to their own interest. This course will create good health, personality and sportsmanship in learners, as well as develop awareness of etiquette of playing, sport rules, fair play and being good spectators.

**Integrative Courses****15 Credits****GEN 111 Man and Ethics of Living 3(3-0-6)**

Prerequisite: none

This course studies the concept of living and working based on principles of religion, philosophy, and psychology by fostering students' morality and ethics through the use of knowledge and integrative learning approaches. Students will be able to gain desirable characteristics such as faithfulness, social responsibility, respect of others, tolerance, acceptance of differences, self-discipline, respect for democracy, public awareness, and harmonious co-existence.

**GEN 121 Learning and Problem Solving Skills 3(3-0-6)**

Prerequisite : None

This course aims to equip students with the skills necessary for life-long learning. Students will learn how to generate positive thinking, manage knowledge and be familiar with learning processes through projects based on their interest. These include setting up learning targets; defining the problems; searching for information; distinguishing between data and fact; generating ideas, thinking creatively and laterally; modeling; evaluating; and presenting the project.

**GEN 231 Miracle of Thinking 3(3-0-6)**

Prerequisite: none

This course aims to define the description, principle, value, concept and nature of thinking to enable developing students to acquire the skills of systematic thinking, systems thinking, critical thinking and analytical thinking. The Six Thinking Hats concept is included. Moreover, idea connection/story line and writing are explored. Examples or case studies are used for problem solving through systematic thinking using the knowledge of science and technology, social science, management, and environment, etc.

**GEN 241 Beauty of Life 3(3-0-6)**

Prerequisite: None

This course aims to promote the understanding of the relationship between humans and aesthetics amidst the diversity of global culture. It is concerned with the perception, appreciation and expression of humans on aesthetics and value. Students are able to experience learning that stimulates an understanding of the beauty of life, artwork, music and literature, as well as the cultural and natural environments.

**GEN 351 Modern Management and Leadership 3(3-0-6)**

Prerequisite: none

This course examines the modern management concept including basic functions of management—planning, organizing, controlling, decision-making, communication, motivation, leadership, human resource management, management of information systems, social responsibility—and its application to particular circumstances.

**Language Courses****9 Credits****LNG 221 Academic English in International Contexts 3(3-0-6)**

Prerequisite: none

The course aims at developing the confidence and academic English skills necessary for learners in an international program. The learning and teaching involves the integration of the four language skills, thinking skills and autonomous learning. In terms of reading, the course focuses on reading for main ideas, summarizing skills, critical reading and interpretation skills through the use of real-world content. In terms of writing, the emphasis is on process writing and academic writing to enable learners to effectively use the information gained from reading to support their statements. In terms of speaking, the focus is on sharing opinion and exchanging information on issues related to the learners' content areas or their field of interest. In terms of listening, the focus is on listening to English talks and taking notes from authentic input.

**LNG 222 Academic Listening and Speaking in International Contexts 3(3-0-6)**

Prerequisite: none

This course aims at developing confidence and academic listening and speaking skills necessary for learners in an international program. The teaching and learning styles involve an integration of English into learners' content areas to enable them to think critically and communicate effectively. Learners will be able to listen to extended speech and lectures in their fields, share ideas and express opinions, conduct an interview for professional, collect data and present a survey project.

**LNG 321 Academic Reading and Writing in International Contexts 3(3-0-6)**

Prerequisite: LNG 222

The course aims at developing confidence and academic reading and writing skills necessary for learners in an international program. The teaching and learning styles involve an integration of English into learners' content areas to enable them to read academic articles in their chosen fields. Learners will be able to extract main points from the text, purposefully select required information to support their writing, write different forms of reports in their fields, use information obtained from reading and their own experience in writing an essay, and effectively use references and citations throughout the writing process.

## Elective 6 Credits

Select from GEN xxx courses or LNG xxx courses

## Major Courses 106 Credits

### Art and Design Courses 12 Credits

#### DIP 111 Art and Design Fundamentals 3(3-0-6)

Prerequisite: none

Principles and theories of art, composition in 2-dimensional and 3-dimensional, design fundamentals, and aesthetic concepts.

#### DIP 112 Design History and Culture 3(3-0-6)

Prerequisite: none

Design history and culture. Diversities of geographical setting, natural resources, culture, religion, economic status of each country influenced onto designs. Paradigm shifts in design movements. Effects of design on society and culture. Effects of society and culture on design.

#### DIP 211 Information Design 3(3-0-6)

Prerequisite: none

The Art and Science of creating information and design presentations. How to create effective visual expression in every design states: Ideas generation, Ideas into informative graphics translation, Sketch and Diagram, Design Presentation Slides Creation.

#### DIP 311 Sustainable Design 3(3-0-6)

Prerequisite: none

Principles of Sustainability: "Planet", "People" and "Profit". Importance of sustainable development. Roles and responsibility as individuals and designers towards sustainable development. Different sustainable design approaches. Application of sustainable design knowledge into practice. Stages of product life cycle. Effects of product life. Product analysis. System thinking.

### Social Science Courses 12 Credits

#### DIP 221 Physical Human Factors 3(3-0-6)

Prerequisite: none

Introduction of the broad context of ergonomics as it applies to the design and development of products. Basic understanding of the dimensions and movement of the human body as an essential preliminary to the design of all artifacts for human use. Static and dynamic Anthropometry. Applications of anthropometric to product design. Human characteristics and behavior applied to design of products, system, their operating, and the environment. Effects of stress, fatigue, comfort, and other dynamic factors associated with human effort in the use of products.

#### DIP 222 Psychological and Cognitive Human Factors 3(3-0-6)

Prerequisite: none

Psychological and cognitive human factors in design. Perception, sensory and interaction. Learning process. Cognition. Memory. Motivation. Emotion. Attitude. Personality. Application of appropriate research, design and user testing for interface and interaction design.

#### DIP 223 Social and Cultural Human Factors 3(3-0-6)

Prerequisite: none

Social and cultural human factors in design. Social and cultural theoretical approaches and frameworks for design. Socio-cultural meaning through human possession and their interaction with products. Relationship between socio cultural context and users behaviours when select and use products. Design research framing based on socio-cultural concerns.

#### DIP 224 Research for Design 3(3-0-4)

Prerequisite: none

Research for design and human factor subjects. Quantitative and qualitative research methodology, methods and techniques. Research process: research planning. Data collection, analysis, research communication and research report.

### Business and Entrepreneurship Courses 12 Credits

#### DIP 331 Business Model and Value Proposition 3(3-0-6)

Prerequisite: none

Creating value for customer by value proposition and business model canvas techniques for design and innovation opportunities.

#### DIP 332 Branding and Business Strategy 3(3-0-6)

Prerequisite: none

Brand anatomy. Brand DNA. Market penetration, Strategy for innovative product and service.

#### DIP 333 Creative Content Marketing 3(3-0-6)

Strategy, tools, and techniques to create marketing content in multiple formats.

#### DIP 431 Moral, Legal and Professional Practice 3(3-0-6)

Prerequisite: none

Role and responsibility of designer or innovator. Laws, rules and regulations for design and innovation. Professional practice and culture in international context.

## **Technology and Innovation Courses**

### **12 Credits**

- DIP 141 Materials Technology 3(3-0-6)**  
Prerequisite: none  
General knowledge, applications and manufacturing technologies of materials used in design such as woods, metals, plastics and composites.
- DIP 241 Coding for Design 3(3-0-6)**  
Prerequisite: none  
Physical platform vs. digital platform in design process. Basic concept of coding. Demystifying the logic used in computer programming.
- DIP 242 Digital Data Analytics for Design 3(3-0-6)**  
Prerequisite: none  
Introduction to social media data analytics, data analytics vs. human-centered design principle, application of data analytics, interpreting statistics data, data analytics framework & tools, data visualization. Insights for innovation & implementable strategy.
- DIP 341 Digital Interaction Design 3(3-0-6)**  
Prerequisite: none  
Design for human interaction with complex systems. Software and electronic hardware as tools for human-product/ service relationship analysis and cognitive models. Application to human-product/ service interaction design.
- Experiential Learning Courses 52 Credits**
- DIP 101 Design Innovation Studio I 6(0-12-12)**  
Prerequisite: none  
Ideation, creative and systematic thinking, design thinking practice. The purpose-based idea visualization and communication. Art and design appreciation.
- DIP 102 Design Innovation Studio II 6(0-12-12)**  
Prerequisite: none  
Individual-based task completion. Interdisciplinary team working, The concept of communication (content and Form). The introduction to design innovation practice, Design Application (object, service, and system and solution).
- DIP 103 Design Innovation Studio Summer I (For Academic Plan B only) 4(0-8-8)**  
Prerequisite: none  
International workshop (inbound or outbound) with students, professors, experts from international collaborative organization and academic institutes.
- DIP 104 Seminar and Workshop I 1(0-2-2)**  
Prerequisite: none  
International workshop (inbound or outbound) with students, professors, experts from international collaborative organization and academic institutes.

- DIP 201 Design Innovation Studio III 6(0-12-12)**  
Prerequisite: None  
Activity based job completion, managing team to complete assigned task, hypothesis driven design process, applying social media and digital data to design research, technology utilizing for work, multi-background Collaboration team, presentation skill development.
- DIP 202 Design Innovation Studio VI 6(0-12-12)**  
Prerequisite: None  
Activity based job completion, managing team to complete assigned task, hypothesis driven design process, applying human-centered design concept to the innovation project, Multi-background Collaboration team, presentation skill development.
- DIP 203 Design Innovation Studio Summer II (For Academic Plan B only) 4(0-8-8)**  
Prerequisite: none  
Activity based job completion, managing team to complete assigned task, hypothesis driven design process, multi-background Collaboration team, presentation skill development.
- DIP 204 Seminar and Workshop II 1(0-2-2)**  
Prerequisite: none  
International workshop (inbound or outbound) with students, professors, experts from international collaborative organization and academic institutes.
- DIP 301 Design Innovation Studio I 6(0-12-12)**  
Prerequisite: none  
Team in innovation project, conducting series of activities in the project, applying innovation concept to the business idea, global movement awareness, creatively and efficiently presenting innovation idea, technology engagement, sustainable innovation. **(Addition for Academic Plan B)**  
Preparation for Design Innovation Comprehensive Project. Design research to identify project topic and scope. Project planning. Initiation of design statement.
- DIP 302 Design Innovation Studio VI 6(0-12-12)**  
Prerequisite: none  
Managing innovation project, conducting activity to creation innovation idea, applying design research to innovation project, business realization, social movement awareness. **(Addition for Academic Plan B)**  
Design innovation comprehensive project. Demonstration of mastering the design knowledge, processes and skills. Ability to work independently. Project documentation. Self-evaluation.
- DIP 303 Design Innovation Studio Summer III (For Academic Plan B only) 4(0-8-8)**  
Prerequisite: none  
Managing innovation project, conducting activity to creation innovation idea, applying design research to innovation project, business realization, social movement awareness.

**DIP 304 Seminar and Workshop III** 1(0-2-2)  
Prerequisite: none  
International workshop (inbound or outbound) with students, professors, experts from international collaborative organization and academic institutes.

**DIP 401 Design Innovation Studio VII (For Academic Plan A only)** 6(0-12-12)  
Prerequisite: none  
Preparation for Design Innovation Comprehensive Project. Design research to identify project topic and scope. Project planning. Initiation of design statement.

**DIP 402 Design Innovation Studio VIII (For Academic Plan A only)** 6(0-12-12)  
Prerequisite: none  
Design innovation comprehensive project. Demonstration of mastering the design knowledge, processes and skills. Ability to work independently. Project documentation. Self-evaluation.

**DIP 403 Portfolio Workshop** 1(0-2-2)  
Prerequisite: none  
Principles and techniques of portfolio design and creation to present works and professional competencies.

### **Design Innovation Elective Courses 6 credits**

**DIP 151 Introduction to Art** 3(3-0-6)  
Prerequisite: none  
A broad introduction to the nature, vocabulary, media and history of art. The chronological history of western art lecture from the early time to present. Exploration of knowledge via various projects and approaches from two dimensional, three dimensional and other artistic explorations and approach within students own frame and reference. Art's relationship to the audience, to the artist's intention, to beauty, and to the society it was created.

**DIP 152 Industrial Design Illustration** 3(3-0-6)  
Prerequisite: None  
Various techniques and media of industrial design sketching and drawing.

**DIP 153 Illustration** 3(3-0-6)  
Prerequisite: none  
Illustration methods and techniques. Usages of illustration as art form and practical applications in design.

**DIP 154 Illustration** 3(3-0-6)  
Prerequisite: none  
Methods and materials for sculpturing making. Traditional sculpturing. Contemporary sculpturing. Experimental sculpturing. Hands-on activities. Applying design skills to sculpturing.

**DIP 155 Application of Form Design Variables** 3(3-0-6)  
Prerequisite: none  
Principles of design. Design variables. Form design for product usability. Form design for product affordance. Form design for group identity and meaning. Form design and product branding.

**DIP 156 Model Making** 3(3-0-6)  
Prerequisite: none  
Prototyping product concepts for design development and communication. Materials and techniques of model making. Types of model: mock-ups, models and prototypes. Workshop safety.

**DIP 157 Application of Color** 3(3-0-6)  
Prerequisite: none  
Principles, theories and systems of color. Color and psychology. Color and human perception. Trend and color. Application in Design.

**DIP 158 Photography** 3(3-0-6)  
Prerequisite: none  
Principles of Photography. Processes of Photography. Tools and techniques exploration. Artistic and aesthetic self-expression through photography.

**DIP 159 Product Styling** 3(3-0-6)  
Prerequisite: none  
Factors of product styling direction. Relationship between product styling and marketing. User perception towards different product styles. Using Design elements to create emotional value through product styling.

**DIP 251 Product Characteristics** 3(3-0-6)  
Prerequisite: none  
Analysis of products serving same function in terms of product attributes, product properties, product appearance, product identity, product differentiation, manufacturing, marketing, consumers, design direction, tradition and culture influencing design. Application to design.

**DIP 252 Applied Product Graphics** 3(3-0-6)  
Prerequisite: none  
Graphic design on software and hardware products. Two and three dimensional graphics. Graphics on packages. Product brand, identity, image, styles, form and functionality in product graphic design.

**DIP 253 Product Form and Surface** 3(3-0-6)  
Prerequisite: none  
Form and surface design for industrial design. Principles of surface design work flow. Relevant tools, techniques and computer software. Application to design.

**DIP 254 Toy Design** 3(3-0-6)  
Prerequisite: none  
Toy design for different age groups of children. Types of toy. Children development. Research, design and manufacturing for toys. Rules and regulations regarding toy safety. Toy testing. Current market trend.

<b>DIP 255 Textile Product Design</b>	<b>3(3-0-6)</b>	<b>DIP 264 User Research</b>	<b>3(3-0-6)</b>
Prerequisite: none		Prerequisite: none	
Basic knowledge and application of textiles and fibers. Characteristics and properties. Surface treatment and decoration. Printed textiles design. Three dimensional construction product using textile materials and techniques. Basic textile assembly techniques. Design briefs in textiles design projects. Trend and target groups understanding for textile product design.		Perspective and skills development for conducting user research: user's lifestyle, attitude and behavior. Qualitative research approach: participatory research and ethnographic research. Techniques and tools for information gathering and interpretation.	
<b>DIP 256 Furniture Design</b>	<b>3(3-0-6)</b>	<b>DIP 265 User Testing</b>	<b>3(3-0-6)</b>
Prerequisite: none		Prerequisite: none	
Furniture design in scope of industrial design. Furniture design and manufacturing process. Function and Aesthetics.		User testing for hardware and software design evaluation. Techniques and tools such as structured interview and task performance with a live system or a prototype. Application to design selection and development.	
<b>DIP 257 Craft Product Design</b>	<b>3(3-0-6)</b>	<b>DIP 266 Behavioral Analysis and Design</b>	<b>3(3-0-6)</b>
Prerequisite: none		Prerequisite: none	
Principles of handicraft and industrial craft design. Aesthetics, values, design and making processes of handicrafts. Exploration of materials and techniques.		Human perceptual, cognitive and behavioral reactions. Human interactions with machines, product and environments. Application to design.	
<b>DIP 258 Packaging Design</b>	<b>3(3-0-6)</b>	<b>DIP 267 Consumer Trend and Lifestyle</b>	<b>3(3-0-6)</b>
Prerequisite: none		Prerequisite: none	
Theory and practice of packaging design. Graphics on packaging. The relationship between product, package, display and user. Technology and production for packaging design.		Consumer trend forecasting and lifestyle study. Global and local focus. Identifying design and innovation opportunities.	
<b>DIP 259 Exhibition Design</b>	<b>3(3-0-6)</b>	<b>DIP 268 Advanced Human Factors</b>	<b>3(3-0-6)</b>
Prerequisite: none		Prerequisite: none	
Types and purposes of exhibition and display. Principles of exhibition and display design. Exhibition and display design in a scope of industrial design. Human-centered exhibition and display design.		Advance knowledge in 3 Human Factors for complex system or context: (1) physical human factors/ergonomics with an interdisciplinary concern in interaction of performance and behavior with design factors in public and environment (2) psychological and cognitive human factors in design and (3) Socio-cultural Macro Environment study. Application of those knowledge and principles integrally for design research plan and acquisition for users' needs and stakeholders' requirement. User/stakeholder Testing based on the integration of 3 areas of Human Factors principles.	
<b>DIP 260 Service Design</b>	<b>3(3-0-6)</b>	<b>DIP 269 Advanced Design Research</b>	<b>3(3-0-6)</b>
Prerequisite: none		Prerequisite: none	
Designing total experience of customers/people in commercial or non-commercial projects that required strategies to attract, engage, and enhance the interaction satisfaction between service providers and customers. Application of systematic approach to creative thinking methods and tools for identifying the relationship among activities, infrastructure, and product or communication channels for designing pleasant service experience.		Design research methodology ranging from framing questions to information acquiring. Information, analysis, synthesis and evaluation. Identification of design opportunity for future scenario and contextual changes.	
<b>DIP 261 Interface Design</b>	<b>3(3-0-6)</b>	<b>DIP 270 Product Life-Cycle Analysis</b>	<b>3(3-0-6)</b>
Prerequisite: none		Prerequisite: none	
Principles and methods for interactive product and interface design. Focusing on usability, effectiveness, engagement and user needs when interacting with artifacts and systems.		Product life-cycle analysis. Sustainability assessment. Life-cycle modelling. LCA Software tools. Application to design.	
<b>DIP 262 Design and Society</b>	<b>3(3-0-6)</b>	<b>DIP 271 Advanced Presentation</b>	<b>3(3-0-6)</b>
Prerequisite: none		Prerequisite: none	
The relationship between design and its impact upon the society. The design that is driven by social issues, social problem or community. The social design case study integrated with hand on class project and field researches.		Understanding and proficiency in the creation and delivery to a professional presentation utilizing English verbal, written and graphic media. How to present and conduct themselves as a professional through non-verbal presentation and personality.	
<b>DIP 263 Quantitative Research</b>	<b>3(3-0-6)</b>		
Prerequisite: none			
Quantitative research methods and analysis procedure. Statistical analysis tools for quantitative data related to design issues: product and brand positioning, user segmentation and trade-off analysis.			



**DIP 272 Communication for Manufacturing**  
**3(3-0-6)**

Prerequisite: none  
Industry-standard technical communication for manufacturing. Drawing with conventional media and computer-aided design software for communicating design and related technical details.

**DIP 273 Understanding Manufacture** **3(3-0-6)**

Prerequisite: none  
Understanding Designer's Profession duty that collaborative with manufacturer and engineer in the process of product design and development thorough understanding of people in social perception.

**DIP 274 Materials and Manufacturing Processing**  
**3(3-0-6)**

Prerequisite: none  
Material and Manufacturing Processing. Natural materials: wood, glass, ceramics, leather, fiber and textile. History of materials. Material properties. Traditional and experimental manufacturing processes and design applications.

**DIP 275 Computer-Aided Media** **3(3-0-6)**

Prerequisite: none  
Computer as a tool for idea generation, design development and design communication via various kinds of media: still image, motion picture, light and sound.

**DIP 276 Computer-Aided Industrial Design**  
**3(3-0-6)**

Prerequisite: none  
Computer software for product design and development. Basic and advance techniques for three dimensional modeling. Computer-software-generated image production technique.

**DIP 277 Computer-Aided Engineering I** **3(3-0-6)**

Prerequisite: none  
Finite element analysis method and computer simulation. Simulating product test using computer aided engineering software: basic mechanism simulation, material stress analysis and vibration analysis.

**DIP 278 Computer-Aided Engineering II** **3(3-0-6)**

Prerequisite: none  
Nonlinear analysis in finite element analysis and computer simulation. Simulating product test using computer aided engineering software: heat transfer, fluid dynamics analysis and product fatigue analysis.

**DIP 279 Programing for User Interface** **3(3-0-6)**

Prerequisite: none  
Product interface programing. Appropriate programming language. Computer application development and programming. Application to design.

**DIP 280 Programing for Embedded System**  
**3(3-0-6)**

Prerequisite: none  
Development and programming for embedded-system products with appropriate programming language. Application to design.

**DIP 281 Envision the Future Scenarios to Design**  
**3(3-0-6)**

Prerequisite: none  
Opportunities searching for innovation aligned strategically with the complex and dynamic forces that drive change in the future (i.e., social, economic, political, environmental, technological). Design methods and tools that help envisioning/shaping futures defined by uncertainty and user/people insight and Behaviors change.

**DIP 351 Special Topic Study I** **3(3-0-6)**

Prerequisite: none  
Special study about up-to-date design innovation topic.

**DIP 352 Special Topic Study II** **3(3-0-6)**

Prerequisite: none  
Able to interpret knowledge of the up-to-date design innovation topic.

**DIP 353 Independent Study I** **3(3-0-6)**

Prerequisite: none  
Study and exploration on a special study topic of the faculty's and the students' mutual interest.

**DIP 354 Independent Study II** **3(3-0-6)**

Prerequisite: none  
Study and exploration on a special study topic of the faculty's and the students' mutual interest.

**Free Electives Not less than 6 Credits**