

GRADUATE PROGRAM

DEPARTMENT OF PRODUCT AND INDUSTRIAL DESIGN

The Department of Product and Industrial Design has been offering Bachelors Degree in PID since 2006 and is now in 2015/2016 offering Post Graduate Degree Program in promoting the vision and mission of the University.

The primary aim of this program is to provide students with the practical knowledge and transferable skills required to be at the forefront of global product and services design research and development, in either an industrial or academic environment.

Specifically, the course aims to:

- Provide an integrated program of study across a broad range of knowledge and skills in product/Industrial design;
- Develop design and technology research skills related to the design process through practicing applied research;
- Develop advanced design skills, enabling graduates to practice as an independent design professional and to further develop design and professional skills in product/industrial design engineering;
- Nurture scientific rigor as well as creativity to enable graduates to follow a successful career in product/industrial design and assume leadership roles in national and international companies and institutions.

Products Design is for students who want to develop a strong point of view and professional readiness for new value creation. Through the making-based exploration of systems thinking, emerging science and materials, social cooperation and public life, students will develop the skills and fluency to become leaders who create positive consequence—equipped with the confidence, experience, and network to fill senior positions at top design firms and progressive organizations, to create ingenious enterprises of their own, and to become lifelong advocates for the power of design.

Department of Product and Industrial Design is one of the departments of School of Architecture & Design (SOAAD). Students from all over the county and outside the country have shown keen interest in obtaining admission in this program. The minimum and maximum duration of the program is 1.5 to 4 year respectively.

LAB FACILITIES:

The department has set up a number of labs for the ease of students so they could translate their theoretical knowledge to practical including Digital Graphics Lab, Ceramic lab, Computer lab, Wood lab, Metallurgy lab.

ADMISSION REQUIREMENT AND ELIGIBILITY:

To be eligible to study of a Master's Program (M-PID), the candidate must have an undergraduate degree in PID, Architectural Engineering, or Architecture or equivalent. The requirements generally contain previous studies in the specific subjects or field of study. Admission is followed by test & interview.

COURSE DURATION: 1.5 years

Following are details for core and optional subjects for the program.

Group A: Core Subjects (any four subjects)

Course Code	Subjects	Credit Hours
MIPD-501	Advanced Product Design Workshop	3
MIPD-502	Advanced materials	3
MIPD-503	Graphic Design for product & packaging	3
MIPD-504	Design for sustainability & Resilience	3
MIPD-505	Integrated product development	3
MIPD-506	Cognitive Ergonomics Design	3
MIPD-507	Design Psychology	3
MIPD-508	Product Branding and Management	3
MIPD-509	Research methodology	3

Group B: Elective Subjects (any four subjects)

Course Code	Subjects	Credit Hours
MIPD-510	Design History (Industrial / Regional)	3
MIPD-511	Interior Design Studio	3
MIPD-512	Product Life Cycle	3
MIPD-513	Electronic Mockups in consumer products	3
MIPD-514	Project planning and management	3
MIPD-515	Design management	3
MIPD-516	Applied Space Methodology	3
MIPD-517	Service Entrepreneurship	3
MIPD-518	Professional Practice	3
MIPD-519	Product modeling & visualization (new)	3

MIPD-520	Theory of Computational Design (new)	3
MIPD-521	Research Thesis (compulsory)*	6

NOTE: The subjects in a semester shall be offered according to the availability of the respective faculty in the campus / professionals from the field and the number of students opted for that subject.

***Thesis MIPD -521:** Research Thesis is compulsory.

The work performed in this class represents a culmination of the Masters program. It will therefore be oriented not only toward completing a major project, but also embodying the knowledge and strategies students have learned during the past year.

- Culmination of the Masters program
- Oriented towards completing a major project
- Embodying the knowledge and strategies students have learned during the past year
- Provides the context to become expert professional

Postgraduate Faculty

- Dr. Sabahat Alamgir, Professor and Chairperson, PID, School of Architecture & Planning (Design for Sustainability, Integrated Product Design, Ergonomics).
- Mutahir Hafeez, M.Sc. in Product and Engineering Design, University of Glasco.
- Ms. Naghmy Shireen , Ph.D. scholar in Interactive Arts (Interactive Arts & Technology, School of Interactive Arts & Technology, Simon Fraser University, Surrey Campus, Canada)
- Ms. Fariha Saeed, (M. Arch., Market research, Asst. Professor, School of Architecture and Planning)
- Mr. Hassan I. Hashmi, M.A. Interior Design, (Interior Design, Integrated Product Design, Lecturer, PID, School of Architecture and Planning)
- Mr. Salman Asghar, M.F.A. Graphics Design, (Cognitive Ergonomics in Design, Graphic Design for product & space, Lecturer, PID, School of Architecture and Planning)
- Shared faculty from Department of IBM, IME, MME & other relevant departments.

MIPD-501: ADVANCED PRODUCT DESIGN WORKSHOP/MAKING STUDIO:

Course Objectives:

The aim of this module is to offer workshops in two distinct areas: Conceptualization and Production. Advance level studio projects would aim to develop student's skills both in design and production processes hence this would cover equip the students with all the advanced skills required to develop a product for Pakistan's market.

Course Contents:

Workshops are offered in two distinct areas:

- Design
Concept formulation and idea generation
Conception execution, focus on sketching
Development of mockups and prototypes
Development of new and existing products
- Manufacturing
Manufacturing techniques/manufacturing methods
Materials exploration/ experimentation
Project development,
Sketching,
Fabrication
- Presentation techniques
- Cost and Manufacturing Analysis

Student work will be required to be exhibited at the completion of this course.

MIPD-502: ADVANCED MATERIALS:

Students in this class will learn the fundamentals of materials in terms of manufacturing constraints, resources, sustainability and ethics; understand the categorization and interrelation of materials through experience of the world largest innovative materials library; research emerging technologies for use in future products; conduct prototyping using the results of this research; and understand some of the critical limitations and implications of any material choice, particularly with respect to the natural world and its resources.

MIPD-503: GRAPHIC DESIGN FOR PRODUCT & PACKAGING:

From publications, packaging to products and spaces, design has come to play an increasingly prominent role in the branding exercise as the scope and extent of branding has grown. Packaging has become more sophisticated and plays a key part in the brand communication process. Whereas students have a basic understanding of packaging and its design, they are now given a more comprehensive insight into the packaging design process, from initial research to developing brand concept and brand message, through to execution of digital design idea and finally production of packaging itself. They are made to understand the social and the cultural variation that exist around the world. Students also examine the entire life span of a piece of packaging; from design and manufacture to disposal, from its display in various retail environments to its environmental impact.

MIPD-504: DESIGN FOR SUSTAINABILITY AND RESILIENCE:

Most product designers, even when their sympathies and curiosities lead them in their personal lives to explore sustainability, feel trapped at work in soloed roles supporting the production of wasteful, disposable and/or toxic things. This class will provide students with a chance to begin to build solutions, working with sustainability experts and collaborating with change makers (including scientists, engineers, farmers, and other types of specialists). By prototyping tangibles (creating design artifacts that will help farm workers who work for a local organic, family farmer, for example) or intangibles (such as social-interaction methods which empower workers and make use of those artifacts), we will strive to support sustainable development in many forms and contexts.

MIPD-505: INTEGRATED PRODUCT DEVELOPMENT

In this course, students will explore theories of product design as they apply to both physical and virtual systems. They will learn techniques for crafting product behaviors and develop strategies for using experience prototypes as part of the design process. Students will gain an understanding of physical interaction, networked objects, product personality, information displays, ergonomics, haptics and the role of products in contemporary design practice, while learning methods for testing and communicating new ideas in physical/digital design.

MIPD-506: COGNITIVE ERGONOMICS IN DESIGN

- Relevance of the paradigm of applied cognitive psychology
- Human-centered design,
- Key models of human performance
- Theories of cognition and their relevance in design,
- Systems model of performance
- Implications for complex socio-technological systems
- Specific ergonomic theories to specific design contexts
- human factors implications of a product/ system design
- Concepts of product and system design
- Cognitive ergonomics, importance in the design of complex, high-tech, or automated systems
- Ethnomethodology
- Human-computer interaction
- Mental space,
- Neuroergonomics
- Supervisory control
- Activity theory
- Cognitive psychology
- cognitive science,
- Cognitive work analysis
- Ecological design

MIPD-507: DESIGN PSYCHOLOGY:

In this course the students will be able to understand different psychologies attached with a designed product. The teacher will explain different theories based on psychology and will inter relate them with a product. At the end the students will be given a project to design a product which should relate with some design psychology, color theories and the process of idea generation. Also study the different product designer's psychologies towards the product and industrial design like Sir Jonathan Ive, Deter Rams, Karim Rashid, Alvar Alto and Frank Gehrey. Their creative, minimalistic and simple solutions towards the product design will have a great impression on the student's problem solving methodologies.

MIPD-508: PRODUCT BRANDING AND MANAGEMENT:

The course will encompass of the present business and marketing techniques. The students will be able to learn that how they can make their product look attractive in terms of sales. The students will use a number of media's to study marketing like market survey, filling questionnaires etc. Also different market strategies will be taught like, Role of Leader, Role of Challenger, Role of Follower, Role of Nicher, Market introduction strategies, Market growth strategies, Market maturity strategies, Market decline strategies, Borden's "marketing mix", Smith's "differentiation and segmentation strategies", Forrester's "product life cycle (PLC)", Andrews' "SWOT analysis", Porter's "generic strategies", Ansoff's "growth strategies".

The objectives of the course are to help students appreciate the various cultural and market forces on products, and to provide insight into how those products comes into being, live, and thrive. Students will go through a complete design process in this course: defining an opportunity within a specified consumer space, undertaking research, deriving insights, and defining design opportunities. These insights will then be converted into a meaningful design strategy, whereupon students will generate design concepts, develop and refine them, and arrive at a final design. Since much of contemporary product design and development includes the

participation of a number of specialists, part of the challenge will be to identify and collaborate with appropriate partners to complete their fully-realized designs.

MIPD-509: RESEARCH METHODOLOGY:

Course content

This course will provide an opportunity for participants to establish or advance their understanding of research through critical exploration of research language, ethics, and approaches. The course introduces the language of research, ethical principles and challenges, and the elements of the research process within quantitative, qualitative, and mixed methods approaches. Participants will use these theoretical underpinnings to begin to critically review literature relevant to their field or interests and determine how research findings are useful in informing their understanding of their environment (work, social, local, global) in the form of research paper.

Description

- Define research; explain and apply research terms; describe the research process and the principle activities, skills and ethics associated with the research process.
- Explain the relationship between theory and research.
- Describe and compare the major quantitative and qualitative research methods in mass communication research.
- Propose a research study and justify the theory as well as the methodological decisions, including sampling and measurement.
- Understand the importance of research ethics and integrate research ethics into the research process.
- Be able to assess and critique a published journal article that uses one of the primary research methods in the field.
- Be able to construct an effective questionnaire that employs several types of survey questions.
- Compose a research paper which shows the application of all research techniques leant in this semester.

RECOMMENDED BOOKS

- Schutt, R. K. (2012). Investigating the Social World: The Process and Practice of Research (7th edition). Los Angeles: Sage.
- Poindexter, P. M., & McCombs, M. E. (2000). Research in Mass Communication: A Practical Guide. Bedford/St. Martin's.

Group B: Elective Subjects (any four subjects)

MIPD-510: Design History (Industrial / Regional):

- History of design
- Pre-industrial beginnings in primitive and ancient design
- Medieval and Renaissance
- Industrial Revolutions
- Artistic, technological, political and social factors at work throughout the evolution of design
- Specific noteworthy individuals and their contributions are investigated in detail
- Packaging and graphics from 1850 to the present date
- Design, form, and intent

MIPD-511: INTERIOR DESIGN STUDIO:

The course will mainly cover the aspects of interior design that how spaces are planned and then efficiently designed. The course will also cover the aspect of using small spaces for multi functions. The students will be given different project catering to a problem statement and they will present the solution with full model. The creation of on scale study model with the help of different modeling materials and also the idea of small scale 3d conceptual design representation is included. Relationship diagrams, Macro/mezzo/micro site analysis, Space planning, Rendered concepts of the projects, Complete execution plan, Information regarding materials and prices, On scale study model

MIPD-512: Product Life Cycle :

This course will help students understand the inputs, outputs, flows, and consequences of the material world. The coursework will follow the product manufacturing cycle from ideation to final end of life. The first quarter of the semester will focus on the business drivers that create the conditions for the full continuum of new product innovation-from high-touch design-led ideation processes down to lower-cost high turnover copycat methods of manufacturing. During the second quarter students will trace objects down to their origins, starting with mining and extraction through component manufacturing, final assembly, and shipping. The third quarter of the course will focus on branding, marketing, and sales, understanding the cues that motivate purchase intention for consumer products. During the final quarter of the course, students will understand the use phase of a consumer product, the process for recycling the product or sub-components of the product, and final disposition. Students will be required to fully document the lifecycle of a product, and develop an alternate design scenario that radically improves the product, based on ecological, social, and financial impact measures.

MIPD-513: ELECTRONIC MOCKUPS ELECTRONIC MOCKUPS IN CONSUMER PRODUCTS

To illustrate how the design of consumer products is being rapidly changed by the introduction of inexpensive programmable microelectronics technology. In addition, to engender a basic understanding of microprocessor operation.

MIPD-514: PROJECT PLANNING AND MANAGEMENT:

This course will comprise of the whole design process from the very initial ideas to its marketing and advertisement. The students will be able to understand that how the product came into being. And once it is formed how it is proper planned to work and then to manage its several aspects like marketing, sales etc.

Course Content

MIPD-515: DESIGN MANAGEMENT:

- **Design & Business cultures:** Management, Business, Design, sole trader, Partnership, Limited Liability Company, Corporation, Cooperative.
- Background and Design for Competitiveness and Sustainability
- Finance, Technology and Law
- Society, Politics and Environment
- Market demands and User needs
- Design Audits, Briefs & Proposals
- **Products and Services:** Systems, Place and Delivery
- Key issues related to Design Complexities (e.g. Relating to the People, Process, Resources, Products etc)
- Key aspects of Design Co-ordination (e.g. Decision making, Design knowledge and Information)

- The Design Activity, Methods and Process Models including role of the Market ,Specification, Conceptual and Detailed Design
- Basic Team and Management Structures(Organization)
- Design Performance and Innovation

RECOMMENDED BOOKS

B Prasad; “Concurrent Engineering Fundamentals”, Vols. 1&2, Prentice Hall, 1997.

SM Duffy, M M Andreson & A H B Duffy; “Design Co-ordination & Design Complexities”, Esprit Basic Research working group 7401- CIMDEV/CIMMOD Workshop, Bremen, Germany, 3-4th February 2015.

MIPD-516: APPLIED SPACE METHODOLOGY:

This course is directed toward the understanding of the concept of negative volume (space) in relation to interior and exterior environmental situations. The student applies theory to a project (shop, restaurant, outdoor theater, exhibition space, or some other area of our environment) and brings it to finished model form.

MIPD-517: SERVICE ENTREPRENEURSHIP

To give students an understanding of the value of contemporary approaches to service innovation and how it applies to entrepreneurship, To guide students in developing new and more effective service designs by understanding market needs, technology opportunities and people’s expectations in a changing society, To train students in the work of modeling product-service systems in a logical, prescriptive, consistent and visual way, To enable students to apply effective models of behavior change and conversation as they are required for co-evolving with compatible goals and values, building human relationships, learning and building trust, To provide students with a rich perspective for critiquing service design activities and with ways to describe a new product-service business narrative by pitching in front of an audience.