Masters of Design

MDes Product Design

2 Years Degree Program

ABOUT THE PROGRAM:

A masters degree in Product design is a post graduate degree program that teaches students Product design; the art of changing the living workspace into a more effective setting, for everyday use. The aim is to make the resulting setting most attractive to everyone.

Program Educational Objectives (PEOs)

The Program B. Des will create a sense of fundamentals and principles of design in students. It also enlighten a global perspective in context to product designing based on real time field exposures and experiences.

PEO 1. Awareness of the role of multiple functions in creating a new product (e.g. marketing, finance, industrial design, engineering, production).

PEO 2. Confidence in your own abilities to create a new product.

PEO 3. Apply creative process techniques in synthesizing information, problem-solving and critical thinking.

PEO 4. Use basic fabrication methods to build prototype models for hard-goods and soft-goods and packaging.

PEO 5. Demonstrate, apply, explain, and recognize basic family of materials used in soft-goods and hard-goods, including sustainable materials and manufacturing processes.

Program Objectives (POs):

PO 1. Approach any design challenge or opportunity with drive and confidence

PO 2. onsistently create original, appropriate, aesthetically attractive, and desirable artifacts and user experiences

PO 3. Frame, research and analyze an innovation context to understand the related systems and dynamics

PO 4. Decide with high levels of intelligence consistently throughout the innovation process

PO 5. Effectively work in multidisciplinary teams.

PO 6. Assume top managerial and leadership roles in the manufacturing environment.

PO 7. Be aware of contemporary global, societal, ethical, and professional issues in the practice of engineering

PO 8. Knowledge of contemporary issues.

PO 9. Understanding of professional and ethical responsibility.

PO 10. Identify problems, anticipate challenges, design and conduct surveys and experiments and interpret data to explore possible solutions.

Masters of Design

Curriculum Component

Sem	Core Course (20)	DSE	GE (2)	PBL (2)	project	Total Credits
I	CC-I (4)	DSE-I (4)		6		30
	CC-II (4)					
	CC-III (4)					
	CC-P1(4)					
	CC-P2(4)					
II	CC-I (4)	DSE-II (3)	GE-I (3)	6		30
	CC-II (4)					
	CC-III (4)					
	CC-P3(3)					
	CC-P4(3)					
III	CC-I (4)	DSE-III (3)	GE-II (3)	6		30
	CC-II (4)					
	CC-III (4)					
	CC-P5 (3)					
	CC-P6(3)					
IV					30	30
Total	56	10	06	18	30	120

DSE: Discipline Specific Elective
GE: Generic Elective
PBL: Project Based Learni

Scheme for M. Des

	First Year – Semester First										
Course Code	**Course Title**	**Contact Hours per Week**			**Credits**	**ETE Duration (Hours)**	**Weightage**				
		L	**T**	**P**			MSE	ASG	TA	ATTD	ESE
PD20M101	Sketching and Rendering-I	-	-	4	4	3	30	05	05	10	50
PD20M102	Aesthetics-Shapes & Forms		-	4	4	3	30	05	05	10	50
PD20M103	Elements of Design	1	-	3	4	3	30	05	05	10	50
PD20M104	Introduction to product Ergonomics	1	-	3	4	3	30	05	05	10	50
	DSE-I	-	-	3	3	3	30	05	05	10	50
PD20M105	Product Design Studio-I	-	-	6	6			Continuous assessment			50
PB20M106	Project Based Learning - I	-	-	5	5	2	50 (assessments by panel of Experts)				50
		Total			**30**						

MSE- Mid Sem Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ESE- End Sem Exam

	First Year – Semester Second										
Course Code	**Course Title**	**Contact Hours per Week**			**Credits**	**ETE Duration (Hours)**	**Weightage**				
		L	**T**	**P**			MSE	ASG	TA	ATTD	ESE
PD20M201	Product Interface design	1	-	3	4	3	30	05	05	10	50
PD20M202	Nature of Materials and Processes	1	-	3	4	3	30	05	05	10	50
PD20M203	Aesthetics-Shapes & Forms-II	-	-	4	4	3	30	05	05	10	50
	DSE II	-	-	4	4	3	30	05	05	10	50
	GE – I	4	-		4	3	30	05	05	10	50
PB20M201	Design Project-II	-	-	10	3	2	Continuous assessment				50
	Internship			12	6	2	50 (assessments by panel of Experts)				50
		Total			**30**						

MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ESE- End Sem Exam

	Second Year – Semester Third										
Course Code	**Course Title**	**Contact Hours per Week**			**Credits**	**ETE Duration (Hours)**	**Weightage**				
		L	**T**	**P**			MSE	ASG	TA	ATTD	ESE
PD20M301	Product Detailing		-	5	5	3	30	05	05	10	50
PD20M302	Product Planning, Strategy and Marketing	-	-	5	5	3	30	05	05	10	50
PB20M301	Design Project- III		-	15	15	2					
		Total			**30**						

MSE- Mid Sem Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ESE- End Sem Exam

	Second Year – Semester fourth										
Course Code	**Course Title**	**Contact Hours per Week**			**Credits**	**ETE Duration (Hours)**	**Weightage**				
		L	**T**	**P**			MSE	ASG	TA	ATTD	ESE
PD20M401	Post Graduation Internship and Dissertation		-	60	30		50	100	50	50	200
		Total			30						

MSE- Mid Semester Exam, ASG- Assignment, TA- Teacher's Assessment, ATTD-Attendance, ESE- End Sem Exam

Discipline Specific Electives Tracks

SN	Code	Semester	Tracks
1.	PD20M105	I	Craft Creativity and Post Modernism
2.	PD20M106	I	Model Making
1.	PD20M204	II	Project Management
2.	PD20M205	II	Design for Society, Culture & Heritage
3.	PD20M206	II	Advanced Typography
1.	PD20M304	III	Information Graphics
2.	PD20M305	III	Digital Studios
3.	PD20M306	III	Soft Prototyping Techniques

SEMESTER 1

Code	SKETCHING AND RENDERING-I	Total Lecture:60
PD20M101		0-0-4-4
Learning Objectives:	To understand, explore and learn the art of pencil drawing. To learn the toning and shading of different grade of professional sketching pencils. Learn the method of using different grade of pencil to do sketching, shading and toning.	
Pre-requisites:	NIL	
UNIT	**CONTENT**	**HOURS**
I	Exercises on lines, curves to improve the hand mind coordination.	12
II	Perspective View: Principles and Visual Effect of three dimensional objects, Study of Picture plane, Station Point, Vanishing Point, Eye level etc.	14
III	Study of geometry of elements in products and its application in object drawing. Product presentation in various media like pencil, ink and color.	14
IV	Exercises for improving observation and visual memory	12
V	Presentation of product design concepts through simplified graphics presentation	8
Course Outcomes		
After successful completion of course students will able to:		
CO1	Develop an understanding of various marking devices and surfaces and learn to draw through observation and using motor skills	
CO2	Develop skills to understand the size, scale, and proportion, surface textures through drawing techniques of line, shapes and volume.	
CO3	Develop techniques of various methods of visual representation such as longhand drawing, isometric drawings, perspective drawing.	
CO4	Illustrate the ability of design idea through 2d and 3d visuals	
CO5	To observe the environment and draw exterior and interior spaces	
Text Books:	• Buxton, Bill; Sketching User Experiences: Getting the Design Right and the Right Design (Interactive Technologies), Morgan Kaufmann, 2007 • Caplin, Steve; Banks, Adam; The Complete Guide to Digital Illustration, Publisher: Watson-Guptill Publications, 2003	
Reference Books:	• Pogany, Willy; The Art of Drawing, Publisher; Madison Books, 1996 • McKim, Robert; Experiences in Visual Thinking, Publisher: Brooks / Cole Publishing Company, 1980	

Code	AESTHETICS-SHAPES & FORMS	Total Lecture:60
PD20M102		0-0-4-4
Learning Objectives:	A more detailed description of what will happen in the course, including topics to be covered. The format of the section is flexible.	
Pre-requisites:	NIL	
UNIT	**CONTENT**	**HOURS**
I	Introduction to 2 dimensional and 3 dimensional forms. Radii manipulation in 2D and 3D form	12

II	Exploration of surface textures in different materials	14
III	2 and 3D Form transition. Exploration of form to develop imagination and insight.	14
IV	Use of metaphors to generate new forms. Concept of family of forms	12
V	Form material and process relationship	8
Course Outcomes		
After successful completion of course students will able to:		
CO1	Develop an understanding of various marking devices and surfaces and learn to draw through observation and using motor skills	
CO2	Develop skills to understand the size, scale, and proportion, surface textures through drawing techniques of line, shapes and volume.	
CO3	Understand the role of industries.	
CO4	Illustrate the ability of design idea through 2d and 3d visuals	
CO5	Analyze a variety of industrial acts	
Text Books:	• Kimberly Elam, Geometry of Design: Studies in Proportion and Composition, Princeton Architectural Press, 2001 • Lawlor, Robert; Sacred Geometry: Philosophy and Practice (Art and Imagination), Publisher: Thames & Hudson, 1989	
Reference Books:	• Kepes, Gyorgy; Language of Vision, Dover Publications, 1995	

Code	**ELEMENTS OF DESIGN**	**Total Lecture:60**
PD20M102		**1-0-3-4**
Learning Objectives:	Design Learners need to learn to visualize and communicate their concepts/ideas through various representation techniques like freehand drawing and sketches through manual and digital methods.	
Pre-requisites:	NIL	
UNIT	**CONTENT**	**HOURS**
I	An introduction to basic elements: Line, texture, color, form, symmetry, balance, scale, mass, unity and variety	12
II	Concept of visual language and visual design. Introduction to Gestalt laws, composition and figure and ground relationships	12
III	Introduction to concept of negative space. Use of symmetry. Generation of patterns and textures using simple elements	12
IV	Color circle, color combinations and its dimensions: hue, value and chroma. Color meanings in traditions and psychological use of colors.	12
V	Design project basis of Elements & Principle.	12
Course Outcomes		
After successful completion of course students will able to:		
CO1	Develop an understanding of various marking devices and surfaces and learn to draw through observation and using motor skills	
CO2	Develop skills to understand the size, scale, and proportion, surface textures through drawing	

	techniques of line, shapes and volume.
CO3	Develop techniques of various methods of visual representation such as longhand drawing, isometric drawings, perspective drawing.
CO4	Illustrate the ability of design idea through 2d and 3d visuals
CO5	To observe the environment and draw exterior and interior spaces
Text Books:	1. Jack Hobbs, Richard Salome: The *Visual Experience.* 2. Jesse Russel and Ronald Cohn: *Observational Learning.* 3. David Hamlyn :*Perception, Learning and the Self* Arielle Eckstut and Joann Eckstut: *Secret Language of Color*
Reference Books:	• William Hardy & Steve Adams – New Burlington books, London, 1988. *The Encyclopedia of Decorative Styles* – • W. Wong; Principles Of Two Dimensional Design, John Wiley And Sons, 1972 • J. Bowers; Introduction To Two---Dimensional Design: Understanding Form And function, John Wiley & Sons, 1999 • L. Hotzschue; Understanding Colour, VNR, 1995 • Itten, Johannes; The Art of Color: The Subjective Experience and Objective Rationale of Color, Wiley Publications,1997

Code	**INTRODUCTION TO PRODUCT ERGONOMICS**	**Total Lecture:60**
PD20M104		**1-0-3-4**
Learning Objectives:	Design Learners need to learn to visualize and communicate their concepts/ideas through various representation techniques like freehand drawing and sketches through manual and digital methods.	
Pre-requisites:	NIL	
UNIT	**CONTENT**	**HOURS**
I	**Ergonomic principles-** its importance and application in designing- residential interior spaces with focus on special population	10
II	Analysis of MME system design, How to assess the interface design, Design methodology • Body dimensions and is application in design	14
III	Basic model on calculation of biomechanical stresses on our body • Design for the physically challenged • Mini Project work involving Ergonomic design research for product system	14
IV	Mini Project work involving Ergonomic design research for product system.	10
V	Project Study	12
Course Outcomes		
After successful completion of course students will able to:		
CO1	Develop an understanding to increase awareness of the need for and role of ergonomics in occupational health.	
CO2	Develop skills to understand the size, scale, and proportion, surface textures through drawing techniques of human factor.	

CO3	Develop techniques to obtain basic knowledge in the application of ergonomic principles to design o industrial workplaces and the prevention of occupational injuries
CO4	Illustrate the ability of design idea through 2d and 3d visuals
CO5	To understand the breadth and scope of occupational ergonomics.
Text Books:	1.W.B.Mckay –Building construction Vol1 –Longmans, UK 1981 2.W.B.Mckay –Building construction Vol 3 –Longmans, UK 1981
Reference Books:	Leslie Martin; MACMILLAN- *Architectural Graphics*

Code	**PRODUCT DESIGN STUDIO-I**	**Total Lecture:90**
PD20M105		**0-0-6-6**
Learning Objectives:	To understand, explore and learn the art of pencil drawing. To learn the toning and shading of different grade of professional sketching pencils. Learn the method of using different grade of pencil to do sketching, shading and toning.	
Pre-requisites:	NIL	
UNIT	**CONTENT**	**HOURS**
I	• Design Definitions and Design Spectrum • Product Attributes – Function and Emotion	12
II	Product configurations and Component relationships (component Matrix) • Introduction to Design Research	18
III	Product configurations and Component relationships (component Matrix) • Introduction to Design Research • Product Analysis – Diachronic, Synchronic	20
IV	Understanding and Analysis – Diachronic, Synchronic • Understanding and Analyzing contexts, parallel situations, future situations • Understanding modularity and modular systems – 3D lattice and structures	20
V	Design of Modular System – abstract design • Process of conception and its documentation • Seminar and exercises related to above topics	20
Course Outcomes		
After successful completion of course students will able to:		
CO1	Develop an understanding of various marking devices and surfaces and learn to draw through observation and using motor skills	
CO2	Develop skills to understand the size, scale, and proportion, surface textures through drawing techniques of line, shapes and volume.	
CO3	Develop techniques of various methods of visual representation such as longhand drawing, isometric drawings, perspective drawing.	
CO4	Illustrate the ability of design idea through 2d and 3d visuals	
CO5	To observe the environment and draw exterior and interior spaces	
Text Books:	• Loewy Raymond: Never Leave Well Enough Alone, Simond and Schuster, N.Y, 1951 • Kelly Tom: The Art of Innovation, doubleday, NY , 2001	
Reference Books:	• Methods for the Systematic Development of New Products, Publisher: Chapman & Hall, 1995 • Prahalad C.K : The Fortune at The Bottom of The Pyramid, Wharton School Publishing, 2005	

Code	MODEL MAKING	Total Lecture:60
PD20M106		0-0-4-4
Learning Objectives:	To introduce the students to basics of Model making with various materials.	
Pre-requisites:	NIL	
UNIT	CONTENT	HOURS
I	**INTRODUCTION TO MODEL MAKING** Introduction to concepts of model making and various materials used for model making	10
II	**BLOCK MODELLING** • Preparation of base for models using wood or boards • Introduction to block models of buildings (or 3D Compositions) involving the usage of various materials like Thermocol, Soap/Wax, Boards, Clay etc.	10
III	**DETAILED MODELLING** • Making detailed models which include the representation of various building elements like Walls, Columns, Steps, Windows/glazing, Sunshades, Handrails using materials like Mount board, Snow-white board, acrylic sheets. • Representing various surface finishes like brick/stone representation, stucco finish etc. • Various site elements – Contour representation, Roads/Pavements, Trees/Shrubs, Lawn, Water bodies, Street furniture, Fencing etc.	10
IV	**INTERIOR MODELS OF INTERIOR SPACES** Making models of the various interior spaces such as • Residences • Offices • Retail Spaces • Recreational Spaces Scaled models of furniture.	15
V	Introducing the techniques of planning, chiseling & jointing in timber to learn the use of hand tools. Exercise involving the design of simple furniture and making a model of the same.	15

Course Outcomes

After successful completion of course students will able to:

CO1	Develop an understanding of various marking devices and surfaces and learn to draw through observation and using motor skills
CO2	Develop skills to understand the size, scale, and proportion, surface textures through drawing techniques of line, shapes and volume.
CO3	Develop techniques of various methods of visual representation such as longhand drawing, isometric drawings, perspective drawing.
CO4	Illustrate the ability of design idea through 2d and 3d visuals
CO5	To observe the environment and draw spaces.
Text Books:	• Jannsen, Constructional Drawings & Architectural models, Karl Kramer Verlag Stuttgart, 1973. • 3. Harry W.Smith, The art of making furniture in miniature, E.P.Duttor Inc., New York, 1982.
Reference Books:	• BENN, The book of the House, Ernest Benn Limited, London

Code	Craft, Creativity and Post-modernism	Total Lecture:60
PD20M105		1-0-3-4
Learning Objectives:	Design Learners need to learn to visualize and communicate their concepts/ideas through various representation techniques like freehand drawing and sketches through manual and digital methods.	
Pre-requisites:	NIL	

UNIT	CONTENT	HOURS
I	Creative process in Craft. Craft as a means to explore material, process and Form. Study of Form in Bamboo and Other Craft. Cultural roots in Craft	12
II	Craft as an expression of Indian Tradition.	12
III	Significance of craft as a creative base for current Design practices. Post modern interpretation of craft.	12
IV	Creative exploration in Craft. Design to suit urban and export markets.	12
V	Design project basis of Craft.	12

Course Outcomes

After successful completion of course students will able to:

CO1	Develop an understanding of various marking devices and surfaces and learn to draw through observation and using motor skills
CO2	Develop skills to understand the size, scale, and proportion, surface textures through drawing techniques of line, shapes and volume.
CO3	Develop techniques of various methods of visual representation such as longhand drawing, isometric drawings, perspective drawing.
CO4	Illustrate the ability of design idea through 2d and 3d visuals
CO5	To observe the environment and draw exterior and interior spaces
Text Books:	• John Thackara (Ed), Design After Modernism (Beyond the Object), 1989\ • Jencks, Charles; Post-Modernism: A New Classicism in Art and Architecture, Academy Editions, London, 1987
Reference Books:	• Powell, Jim; Postmodernism for beginners,Orient Longman, India,1998 • McKim, Robert; Experiences in Visual Thinking, Publisher: Brooks/Cole Publishing Company, 1980