



Master of Design (MDes) Curriculum August - 2016

Master of Design (MDes)

Course Structure

M.Des. Curriculum (August: 2016): Proposed

		Course Name	Lecture	Tutorial	Practical	Contact Hours	Total Credits
Year1	Semester 1	1. DS 531 Elements and Principles of Design	2	0	2	4	4
		2. DS 532 Ergonomics for Industrial Design	2	0	2	4	4
		3. DS 533 Art & Aesthetics in Design	2	0	2	4	4
		4. DS 541 Product Design – I (compulsory)	2	0	2	4	4
		5. DS559 Visual Design I (compulsory)	2	0	2	4	4
		6. DS 576 Design Workshop - I	0	0	3	6	4
		7. HS 501 Professional Communication Skills	2	0	0	2	2
	Total		12	0	13	28	26
	Semester 2	1. DS 535 Design and Technology	2	0	2	4	4
		2. DS 542 Product Design - II or DS 561 Visual Design II or DS 571 Interactive Design	2	0	2	4	4
		3. DS 544 Materials and Process in Design	2	0	2	4	4
		4. DS 560 Design Thinking	2	0	2	4	4
		5. DS 577 Design Workshop - II	0	0	3	6	4
		6. DS 583 Strategic Design Management	2	0	2	4	4
7. DS 598 Seminar -1(based on Problem Definition, Need Identification and Literature Review of thesis)					0	2	
Total		10	0	13	26	26	
Year 2	Semester 3	1.DS 600 Design Project (Technically Complex Project of System)			16	16	8
		2. Any TWO of the following six electives:	2	0	2	4	4
		a. DS 534 Culture and Design	2	0	2	4	4
		b. DS 543 Product Detailing	2	0	2	4	4
		c. DS 557 Video and Animation Design	2	0	2	4	4
		d. DS 566 Applied Ergonomics or DS 558 Visual Ergonomics	2	0	2	4	4
		e. DS 582 Sustainable Design	2	0	2	4	4
		f. DS 584 Design Styling and Trend Forecas	2	0	2	4	4
		Sub Total	4	0	4	8	8
		3. EMF's(Any TWO of the following six EMF's)					
	a. EM 592h Medical Equipment Design				10-12 per EMF	1	
	b. EM 592k Product Design in Electronics				10-12 per EMF	1	
	c. EM 593h Typography				10-12 per EMF	1	
	d. EM 593i Photography				10-12 per EMF	1	
	e. EM 595c Information Design				10-12 per EMF	1	
	f. EM 598c Packaging and Branding				10-12 per EMF	1	
	Sub Total					2	
		4. DS 596 Summer Internship					2
	5. DS 699 MDes Thesis					4	
Total		4	0	20	24	24	
Semester 4	1.DS 599 Seminar II					2	
	2.DS 699 MDes Thesis	0	0	0	16	16	
	Total	2	0	0	18	18	

Program Credits - 94

Master of Design (M-Des)

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**Indian Institute of Information Technology,
Design and Manufacturing Jabalpur**

**Course Details
Semester -1**

Subject Code:	DS 531	Course Title:	Elements and Principles of Design
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	1
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
<p>Elements of Design - point, line, shape, space, form, value, color and texture. [07H Lecture,+3H Lab]</p> <p>Principles of Design - balance, scale, proportion, contrast, emphasis, pattern, movement, rhythm, harmony and unity on the basis of Elements of Design. [07H Lecture,+3H Lab]</p> <p>Elements and Principles examined theoretically along with studio exercises and evaluated through consumer products (2D & 3D). [07H Lecture,+3H Lab]</p> <p>Development of design aptitude thorough understanding of the elements and principles of design and their co-relationship. [07H Lecture,+3H Lab]</p>			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Bervin, M. E. (1984). Design Through Discovery: The Element and Principles. Holt, Rinehart and Winston, Washington. 2. Wong, W. (1972). Principles of two-dimensional design. John Wiley & Sons. 3. Hannah, G. G. (2002). Elements of design: Rowena Reed Kostellow and the structure of visual relationships. Princeton Architectural Press. 4. Gamma, E. (1995). Design patterns: elements of reusable object-oriented software. Pearson Education India. 			

Subject Code:	DS 532	Course Title:	Ergonomics for Industrial Design
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	1
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Genesis, application, content.	[07H Lecture,+3H Lab]		
Anthropometry and application in product and space.	[07H Lecture,+3H Lab]		
Biomechanics in design.	[07H Lecture,+3H Lab]		
Space ergonomics, macro-ergonomics.	[07H Lecture,+3H Lab]		
Text/Reference books:			
<ol style="list-style-type: none"> 1. Bridger, R. S. (1995). Introduction to ergonomics. 2. Chakrabarti, D. (1997). Indian anthropometric dimensions for ergonomic design practice. National institute of design. 3. Sanders, M. S., & McCormick, E. J. (1987). Human factors in engineering and design .McGraw-Hill book company. 4. Konz, S. A., & Johnson, S. (2000). Work design: industrial ergonomics (Vol. 1). Holcomb Hathaway Pubs. 			

Subject Code:	DS 533	Course Title:	Art & Aesthetic in Design
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	1
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Understanding of Origin of Art, Aesthetic and applied craft.	[07H Lecture,+3H Lab]		
Characteristics of art and design progress and exploring the historical development and aesthetic issues in the historical movement of artistic genius.	[07H Lecture,+3H Lab]		
The fundamentals issues of Visual and Analytical skills, scientific implementation in Design.	[07H Lecture,+3H Lab]		
Critical thinking about various art and craft forms and close observation of different Design movements.	[07H Lecture,+3H Lab]		
Text/Reference books:			
<ol style="list-style-type: none"> 1. Bergson, H. (1983). Creative evolution. University Press of America. 2. Sparke, P. (1987). An introduction to design and culture in the twentieth century. HarperCollins Publishers. 3. Vyas, H.K. (2004). "Design the international movement with Indian parallel. National Institute of Design, press. 4. Vihma, S. (1995). Products as representations: A semiotic and aesthetic study of design products (Vol. 14). Helsinki: University of Art and Design. 			

Subject Code:	DS 541	Course Title:	Product Design - I
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	1
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Issues related to generic product design and development process.		[07H Lecture,+3H Lab]	
Feel of design and development of a real product, by understanding the market, the client, the technology, and the perceived constraints on the problem.		[07H Lecture,+3H Lab]	
Concept generation, selection and testing, embodiment design, detailed design and prototyping.		[07H Lecture,+3H Lab]	
Developments of products evaluate and refine the prototypes, give seminars and implement the new concept for commercialization.		[07H Lecture,+3H Lab]	
Text/Reference books:			
<ol style="list-style-type: none"> 1. Cross, N. (2008). Engineering design methods: strategies for product design. John Wiley & Sons. 2. Roozenburg, N. F., & Eekels, J. (1995). Product design: fundamentals and methods (Vol. 2). Chichester: Wiley. 3. Cuffaro, D., & Zaksenberg, I. (2013). The Industrial Design Reference & Specification Book: Everything Industrial Designers Need to Know Every Day. Rockport Publishers. 4. Mohr, J. J., Sengupta, S., & Slater, S. F. (2009). Marketing of high-technology products and innovations. Pearson Prentice Hall. 			

Subject Code:	DS 559	Course Title:	Visual Design - I
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	1
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
<p>Introduction to Visual Perception, Visual Language, Exploration of elements and principles of visual design, Understanding visual structure and visual interest, Visual abstraction. [07H Lecture,+3H Lab]</p> <p>Information Graphics. Visual Hierarchy: Visual Focus, Visual Order, Gestalt Laws of Grouping, Information Chunking. Visual Identity: Identity Design / Branding / Rebranding, Visual Identity elements and guidelines. [07H Lecture,+3H Lab]</p> <p>Typography Design: History, classification, anatomy and usage of various letterforms. Theoretical and applicable principles of letterforms. Interactive Experience Design: Study of man-machine relationships. [07H Lecture,+3H Lab]</p> <p>Exploration of digital media for communication, New Media Design, Basics of Virtual / Augmented / Mixed Reality and their applications, virtual communities and web based media, Future of visual communication media. [07H Lecture,+3H Lab]</p>			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Malamed, C. (2011). Visual language for designers: principles for creating graphics that people understand. Rockport Pub. 2. Arnheim, R. (1969). Visual thinking. Univ of California Press. 3. Bertin, J. (1981). Graphics and graphic information processing. Walter de Gruyter. 4. Mullet, K., & Sano, D. (1994). Designing visual interfaces: Communication oriented techniques. 			

Subject Code:	DS 576	Course Title:	Design Workshop - I
Contact Hours:	L-0, T-0 P-3	Credit:	4
Programme :	M. Des	Semester :	1
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (50%), Quiz II (50%),		
<p>Emphasis on the skill of workshop methods. Students experience the basic drawings and hands on techniques to manipulate the basic materials according their understanding. Different aspects of drawing mainly attempt to train the eyes and hand coordination. [14H]</p> <p>Exposure to the students on some of the software on Product Design and Visual Design. The focus of the course is teaching the students about design intent and how software can be utilized for the maximum benefit of the designer. The student project involves making products out of concepts in virtual environment. [14H]</p>			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Williams, R., & Sheldon, C. (2009). Robin Williams Handmade Design Workshop: Create Handmade Elements for Digital Design. Peachpit Press. 2. Cuffaro, D., & Zaksenberg, I. (2013). The Industrial Design Reference & Specification Book: Everything Industrial Designers Need to Know Every Day. Rockport Publishers. 3. Sherwin, D. (2010). Creative workshop: 80 challenges to sharpen your design skills. How Books. 4. Fullerton, T., Swain, C., & Hoffman, S. (2004). Game design workshop: Designing, prototyping, & playtesting games. CRC Press. 			

Subject Code:	HS 501	Course Title:	Professional Communication
Contact Hours:	L-2, T-0 P-0		Skill
Programme :	M. Des	Credit:	2
Pre-requisites:	NIL	Semester :	1
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
<h2>COMMON COURSE TO BE OFFERED BY HSS.</h2>			

Course Details
Semester -2

Subject Code:	DS 535	Course Title:	Design and Technology
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	2
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Fundamental of design and theories of Science and Technology, Stages in design process [4 H Lectures]			
Aesthetics			[2 H Lectures]
Structures			[04H Lecture,+2H Lab]
Universal principles of design			[04H Lecture,+2H Lab]
Links and mechanisms, motors			[06H Lecture,+2H Lab]
Sensors, control electrics and electronics			[04H Lecture,+2H Lab]
Application of pneumatics and hydraulic			[04H Lecture,+2H Lab]
Mechatronics and automation– an overview			[04H Lecture,+2H Lab]
Text/Reference Books:			
1. Garratt J, Design and Technology, 2004, Cambridge University Press			
2. Lidwell W, Holden K and Butler J,2003, Universal Principles of Design, Rockport Publishers			
3. Sclater N, 2003, Mechanism and Mechanical devices source book, McGraw-Hills Education.			
4. Reiser, R. A., & Dempsey, J. V. (Eds.). (2012). Trends and issues in instructional design and technology. Boston, MA: Pearson.			

Subject Code:	DS 542	Course Title:	Product Design - II
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	2
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
	Product expressions and Form exploration in Product Design.		[07H Lecture,+3H Lab]
	Design solution to problems related to the individual and social application of the product.		[07H Lecture,+3H Lab]
	Product form, production variables and technological process along with step by step analysis of the product design and development process.		[07H Lecture,+3H Lab]
	Problem solving using a System-based approach – Using knowledge and creativity to develop Product service system (PSS) based solutions to problems that we're currently facing in our society.		[07H Lecture,+3H Lab]
Text/Reference books:	<ol style="list-style-type: none"> 1. Hann, M. (2013). Structure and Form in Design: Critical Ideas for Creative Practice. A&C Black. 2. Boden, M. A. (2012). Creativity and art: three roads to surprise. 3. Big Bentley, T. (2012). Learning beyond the classroom: Education for a changing world. Routledge. 4. Roozenburg, N. F., & Eekels, J. (1995). Product design: fundamentals and methods (Vol. 2). Chichester: Wiley. 		

OR

Subject Code:	DS 561	Course Title:	Visual Design - II
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	2
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Introduction to Visual Perception, Visual Language, Exploration of elements and principles of visual design, Understanding visual structure and visual interest, Visual abstraction. [07H Lecture,+3H Lab]			
Information Graphics. Visual Hierarchy: Visual Focus, Visual Order, Gestalt Laws of Grouping, Information Chunking. Visual Identity: Identity Design / Branding / Rebranding, Visual Identity elements and guidelines. [07H Lecture,+3H Lab]			
Typography Design: History, classification, anatomy and usage of various letterforms. Theoretical and applicable principles of letterforms. Interactive Experience Design: Study of man-machine relationships. [07H Lecture,+3H Lab]			
Exploration of digital media for communication, New Media Design, Basics of Virtual / Augmented / Mixed Reality and their applications, virtual communities and web based media, Future of visual communication media. [07H Lecture,+3H Lab]			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Malamed, C. (2011). Visual language for designers: principles for creating graphics that people understand. Rockport Pub. 2. Arnheim, R. (1969). Visual thinking. Univ of California Press. 3. Bertin, J. (1981). Graphics and graphic information processing. Walter de Gruyter. 4. Mulrow, E. J. (2002). The visual display of quantitative information. 			

OR

Subject Code:	DS 571	Course Title:	Interactive Design
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	2
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Introduction to interaction design,		[07H Lecture,+3H Lab]	
Principles, Usability, Methodology: persona, scenario, walkthrough.		[07H Lecture,+3H Lab]	
Neilson and Schneider man principles.		[07H Lecture,+3H Lab]	
Universal design, Interactive products, Role of color, form and graphics, Emotional issues.		[07H Lecture,+3H Lab]	
Text/Reference books:			
1. Tidwell, J. (2010). Designing interfaces. "O'Reilly Media, Inc."			
2. Stone, D., Jarrett, C., Woodroffe, M., &Minocha, S. (2005). User interface design and evaluation. Morgan Kaufmann.			
3. Tayici, E (2014), UX Design and Unability Member Book, EmrahYayichi.			
4. Graham, L. (1998). The principles of interactive design. International Thomson Publishing.			

Subject Code:	DS 544	Course Title:	Materials and Process in Design
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	2
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Materials			
Introduction to materials, properties of materials, Ferrous and non-ferrous metals, wood, structure and properties of wood, Plastics: Thermoplastics and Thermosetting plastics, Classification of thermoplastics and thermosetting plastics, Finishing metals, Some popular finishes (oil, paint,etc.), Industrial finishes for plastic, wood and metals, Finishing Wood, Composites, and its properties, Influence of materials and processes on product aesthetics. [14 H Lectures]			
Process			
Molding process, fastening and joining, Composites, Design in Plastics, Casting, Bending, Drawing process, Forging, Machining. [14 H Lectures]			
Studio Assignments			
Form exploration with different materials. [7 H Lab]			
Redesign of an existing regular product (e.g. PET bottle) in five different materials with a focus on change in form due to material change. [5 H Lab]			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Ashby M., Johnson K., 2002, Materials and Design: The Art and Science of Material Selection in Product Design: Butterworth-Heinemann. 2. Degarmo E. P., Materials and Processes in Manufacturing, 9th ed., John Wiley & Sons, 2002 3. Beck R. D.: Plastic Product Design, Van Nostrand Reinhold Co., New York, 1980 4. Garratt J.: Design and Technology, Cambridge University Press, UK, 20004 5. Thompson R.: Manufacturing processes for design professionals, Thames & Hudson, London 2007 			

Subject Code:	DS 560	Course Title:	Design Thinking
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	2
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Design thinking process; Different Design thinking Models; Stages of Human centered Design; Wicket problems in design thinking.		[07H Lecture,+3H Lab]	
Design Thinking Methodologies.		[07H Lecture,+3H Lab]	
Service Design thinking.		[07H Lecture,+3H Lab]	
Systems and Design thinking.		[07H Lecture,+3H Lab]	
Text/Reference books:			
1. Stickdorn, M.(2014). This is Service Design Thinking.: Basics - Tools - Cases.			
2. Plattner, H.&Meinel, C. (2016). Design Thinking Research: Taking Breakthrough Innovation Home.			
3. Mootee, I. (2013). “Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School.			
4. Kumar, V. (2016). Human-Centred Systems Thinking for Innovation, Design and Management			

Subject Code:	DS 577	Course Title:	Design Workshop II
Contact Hours:	L-0, T-0 P-3	Credit:	4
Programme :	M. Des	Semester :	2
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (50%), Quiz II (50%),		
Exposure and hands on training to the students on 3D product modeling using introduction to the geometry of platonic solids and study of their inter-relationships.		[14H]	
Familiarizing a wide variety of concepts, materials, tools, and fabrication techniques vital to product design. Materials like Wood, Polyurethane foam (PUF), fiber reinforced plastic (FRP), Scrap metals are explored. Student projects will be based on conceptual problems and solutions incorporating these materials. The course focus would be on developing the skill and ability to innovatively use the materials, processes and digital tools in developing solutions.		[14H]	
Text/Reference books:			
1. Williams, R., & Sheldon, C. (2009). Robin Williams Handmade Design Workshop: Create Handmade Elements for Digital Design. Peachpit Press.			
2. Cuffaro, D., & Zaksenberg, I. (2013). The Industrial Design Reference & Specification Book: Everything Industrial Designers Need to Know Every Day. Rockport Publishers.			
3. Sherwin, D. (2010). “Creative workshop: 80 challenges to sharpen your design skills". HOW books.			
4. Fullerton, T. (2014). Game design workshop: a playcentric approach to creating innovative games. CRC press.			

Subject Code:	DS 583	Course Title:	Strategic Design Management
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	2
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
<p>Introducing strategic design: Tangible Vs Intangible Design, Design thinking Vs Strategic Thinking; Design Management; Design management timeline.</p> <p>Approaches of strategic design; Tools and toolkits for strategic design; Design management as Integrative strategy; Role of designers in strategic design management. [07H Lecture,+3H Lab]</p> <p>Strategic brand management:- Brands for creating market identity, brand strategy, Brand architecture and dynamics, branding model evolution; measuring the impact of a brand in the market. [07H Lecture,+3H Lab]</p> <p>Innovation through strategic design; design driven innovation model; Design strategy management; Understanding the user group; Design process management; Design methods; Design economy; Design transformation; Project management process; Design policies; Business Model; Leadership and advocating design. [07H Lecture,+3H Lab]</p> <p>Design and Business; Design in an organization; Design as Strategic partner; Design as driven force of organizational success; Business models; Design model for e-commerce; Strategic design management for Public sector. [07H Lecture,+3H Lab]</p>			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Keller (2011). Strategic Brand Management 2. Kathryn, B. (2015). Design Management: Managing Design Strategy, Process and Implementation 3. Holland, R. & Busayawan, L. (2014). Managing Strategic Design 4. Thomas, L. & Thomas, W. (2009). Building Design Strategy: Using Design to Achieve Key Business Objectives. 			

Subject Code:	DS 598	Course Title:	Seminar - I
Contact Hours:	L-0, T-0 P-0	Credit:	2
Programme :	M. Des	Semester :	2
Pre-requisites:	NIL		
Evaluation scheme	Presentation (15%), Problem Identification (30%), Time management (15%), Design solution (40%)		

Course Details
Semester -3

Subject Code:	DS 600	Course Title:	Design Project
Contact Hours:	L-0, T-0 P-16	Credit:	8
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Minor project (20%), Major project (30%), Weekly assignment (50%)		

ANY TWO OF THE FOLLOWING SIX ELECTIVES

Subject Code:	DS 534	Course Title:	Culture and Design
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
<p>The influence of Culture on Design comes to the fore in many aspects, which are categorizing in Aesthetic feature (preference for design in different culture), [07H Lecture,+3H Lab]</p> <p>Semantics (interpretation of design and function) and Human - Space - Product interaction (the actual user of products in different culture). [07H Lecture,+3H Lab]</p> <p>User experience attributes are culturally bound. How to study Culture? How to gather useful information of Cultural identity, useful data and their comparative study and apply it in sensible way to narrow down a Design solution? [07H Lecture,+3H Lab]</p> <p>Human Factors and Culture, Role of Color and Culture. [07H Lecture,+3H Lab]</p>			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Chaplin, S. (1997). Visual culture: An introduction. Manchester University Press. 2. “Julier, G. (2013). The culture of design. Sage. 3. Balsamo, A. (2011). Designing culture: The technological imagination at work. Duke University Press. 4. Mathur, S. (2007). India by design: colonial history and cultural display. Univ of California Press. 			

Subject Code:	DS 543	Course Title:	Product Detailing
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Fundamentals of product detailing, Business objectives and product, Macro process and planning, Sustainable design strategy [2 H Lectures]			
Ergonomic, anthropometry and safety considerations, Product information and info-graphics [3 H Lectures]			
<u>Manufacturing processes:</u> General manufacturing process, Advanced manufacturing processes [7 H Lectures, + 4 H Lab]			
<u>Material selection:</u> Design primitives and material selection, Built environment and material selection, Natural and man-made materials, Smart materials [7 H Lectures, + 4 H Lab]			
<u>Model making and prototyping:</u> Additive and subtractive modeling, General materials for model making, CMF (color, material and finish), Testing of prototypes [7 H Lectures, + 4 H Lab]			
Intellectual property, Design documentation [2 H Lectures]			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Lefteri, C. (2007). Making it: Manufacturing techniques for Product Design. Laurence King. 2. Hallgrímsson, B. (2012). Prototyping and Model-making for Product Design. Laurence King. 3. Cuffaro, D., & Zaksenberg, I. (2013). The Industrial Design Reference & Specification Book: Everything Industrial Designers Need to Know Every Day. Rockport Publishers. 4. Lefteri, C. (2014). Materials for Design. Laurence King Pub. 			

Subject Code:	DS 557	Course Title:	Video and Animation Design
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Theory: History of moving pictures, film theory, narrative theory, visual narrative, storytelling techniques, linear and nonlinear narratives, film as communication medium. [07H Lecture,+3H Lab]			
Filmmaking and video design process. Animation principles, theory and techniques. Films and shorts screening, viewing, appreciation, criticism and discussion. [07H Lecture,+3H Lab]			
Video design: Concept development, script writing, storyboarding, production, digital videos, cinematography, motion graphics & visual effects, sound recording, editing, post production techniques. [07H Lecture,+3H Lab]			
Animation design: Concept development, character design, background design, storyboarding, animation process and method depending on the animation technique, animating to sounds, music or dialogues, sound recording, editing, post production techniques. [07H Lecture,+3H Lab]			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Kipphan, H. (2001). Handbook of print media: technologies and production methods. Springer Science & Business Media. 2. Felici, J. (2011). The complete manual of typography: a guide to setting perfect type. Adobe Press. 3. Lupton, E. (2014). Thinking with type. Chronicle Books. 4. Heller, S., & Womack, D. (2011). Becoming a Digital Designer: A Guide to Careers in Web, Video, Broadcast, Game and Animation Design. John Wiley & Sons. 			

Subject Code:	DS 566	Course Title:	Applied Ergonomics
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Sector specific approach of ergonomics. [07H Lecture,+3H Lab]			
Ergonomics for special needs. [07H Lecture,+3H Lab]			
Ergonomics in display and control design. [07H Lecture,+3H Lab]			
Ergonomics in designing pleasurable products, Ergonomics in medical science. [07H Lecture,+3H Lab]			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Burke, M. J. (1991). Applied ergonomics handbook. CRC Press. 2. D Alexander, 1998,“Applied Ergonomics” (CRC Press) 3. Sanders, M. S., & McCormick, E. J. (1987). Human factors in engineering and design .McGraw-Hill book company. 4. Wilson, J. R. (1999). Virtual environments applications and applied ergonomics. Applied Ergonomics. 			

Subject Code:	DS 558	Course Title:	Visual Ergonomics
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Characteristics of the human eye, Information design in space and devices.		[07H Lecture,+3H Lab]	
Ergonomics of icon, text legibility and color usage.		[07H Lecture,+3H Lab]	
Scanning and detection of the eye, Ergonomic issues in packaging, way-finding and icon design.		[07H Lecture,+3H Lab]	
Typography ergonomics, Ergonomics in print and digital media, Ergonomic issues in cartography.		[07H Lecture,+3H Lab]	
Text/Reference books:			
<ol style="list-style-type: none"> 1. Anshel, J. (Ed.). (2005). Visual ergonomics handbook. CRC Press. 2. Salvendy, G. (2012). Handbook of human factors and ergonomics. John Wiley & Sons. 3. Anshel, J. (2002). Visual ergonomics in the workplace. CRC Press. 4. Karwowski, W. (Ed.). (2001). International encyclopedia of ergonomics and human factors (Vol. 3). CRC Press. 			

Subject Code:	DS 582	Course Title:	Sustainable Design
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
Sustainable design principles. Physical, mental, spiritual, cultural, social, ethical and economic issues in designing for sustainability.		[07H Lecture,+3H Lab]	
Ecological footprints, ecosystem impact.		[07H Lecture,+3H Lab]	
Waste, reuse and recycling, benign emissions, green design.		[07H Lecture,+3H Lab]	
Integrated DFE/Eco design, design for sustainability, eco innovation, system-wide product/service strategies, sustainable consumption, health, modeling and mapping.		[07H Lecture,+3H Lab]	
Text/Reference books:			
<ol style="list-style-type: none"> 1. Williams, D. E. (2007). Sustainable design: Ecology, architecture, and planning. John Wiley & Sons. 2. Walker, S. (2012). Sustainable by design: Explorations in theory and practice. Routledge. 3. Mendler, S., & Odell, W. (2000). The HOK guidebook to sustainable design. John Wiley & Sons. 4. Fairs, M. (2009). Green design: creative sustainable designs for the twenty-first century. North Atlantic Books. 			

Subject Code:	DS 584	Course Title:	Design Styling and Trend Forecast
Contact Hours:	L-2, T-0 P-2	Credit:	4
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Midterm (30%), Quiz II (15%), End term (40%)		
<p>Success and failure in new products; Quality control of product development; Quality targets; Principles of creativity; concept design; embodiment and detail design; Product positioning; Branding and licensing; Design Paradigm; Early stages of Product and Service Development. [07H Lecture,+3H Lab]</p> <p>Empathetic design Research; Tools and information centric design process modeling; Challenges for product design and development; complex design problems; Product and process design based on life cycle engineering; Story telling in product design; Product form evaluation. [07H Lecture,+3H Lab]</p> <p>Principles of product styling: Perception of product style; Rules of visual perception; General rules and its meaning for product styling; Determinants of style; attractiveness and product style, Styling process. Ergonomic evaluation for recycling in product design; [07H Lecture,+3H Lab]</p> <p>Forecasting; Everyday Forecasting; Forecasting Techniques; Scenario Planning; Trend Forecasting and Design; Futurology and Trend Forecasting; Trend Forecasting in the Design. [07H Lecture,+3H Lab]</p>			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Silva, A. & Simões, R. (2011). Handbook of research on trends in product design and development: Technological and Organizational perspective 2. Green, W.S. & Jordan, P.W. (1999). Human factors in product design: current practices and future trends 3. Randy J. (2013). Product Design for the Web: Principles of Designing & Releasing Web Products. 4. Jackson, T. (2007). The process of trend development leading to a fashion season. Fashion Marketing, 168. 			

EMF's(Any TWO of the following six EMF's)

Subject Code:	EM 592h	Course Title:	Medical Equipment Design
Contact Hours:	L-0, T-0 P-0	Credit:	1
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Assignment I (30%), Quiz II (15%), Assignment II (40%)		
Systems perspective of medical equipment, product, space and interaction in medical domain, hospital space and the design issues, equipment design issues related to surgery. Dressing and patient well-being. [5H Lecture, 3H Lab]			
Medical equipment design for diseases like diabetes, hypertension etc. Safety aspects of medical equipment. . [5H Lecture, 3H Lab]			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Wiklund, M. E. (Ed.). (1995). Medical device and equipment design: Usability engineering and ergonomics. CRC Press. 2. Diakides, M., Bronzino, J. D., & Peterson, D. R. (Eds.). (2012). Medical Infrared Imaging: Principles and Practices. CRC press. 3. "Ogrodnik, P. J. (2012). Medical device design: innovation from concept to market. Academic Press. 4. Webster, J. (2009). Medical instrumentation: application and design. John Wiley & Sons. 			

Subject Code:	EM 592k	Course Title:	Product Design in Electronics
Contact Hours:	L-0, T-0 P-0	Credit:	1
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Assignment I (30%), Quiz II (15%), Assignment II (40%)		
Introduction to Electrical fundamentals:			
<ol style="list-style-type: none"> 1. Passive Components (Resistor, Inductor and Capacitors) and their characteristics. Basic experiments to plot their characteristics. 2. Sources of electricity: Voltage and current sources, their types and possible applications in various products. 3. Introduction to Diodes and its applications in electronic products. Experiment to plot the diode characteristics. 4. Basics of Transistor Technology and possible implementation in Electronic products. [5H Lecture, 3H Lab] 			
Electrical and Electronic materials:			
<ol style="list-style-type: none"> 1. Material classification: Conductors, Dielectrics & Insulators. 2. Mapping of the material to products. [5H Lecture, 3H Lab] 			
Text/Reference books:			
<ol style="list-style-type: none"> 1. R K Gupta, S L Gupta, (2004.)"Engineering Physics", Dhanpatrai Publications, 2. Allenby, B. R., & Graedel, T. E. (1993). Industrial ecology. Prentice-Hall, Englewood Cliffs, NJ. 3. Theraja, B. L., Theraja, A. K., Patel, U. A., Uppal, S. L., Panchal, J. C., Oza, B., ... & Patel, R. M. (2005). A Textbook of Electrical Technology Vol II. Chand & Co., New Delhi. 4. Ulrich, K. T. (2003). Product design and development. Tata McGraw-Hill Education. 			

Subject Code:	EM 593h	Course Title:	Typography
Contact Hours:	L-0, T-0 P-0	Credit:	1
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Assignment I (30%), Quiz II (15%), Assignment II (40%)		
<p>An exploration of typographic structures, terminology and methods as a tool for visual problem solving. This course uses both computer and hands on methods to address the language of type and its effective use. By studying the language of type through its history, and application, students will gain strong working knowledge of this essential element to graphic design. In order to be a successful designer you must know and love letter forms, their technical aspects, their aesthetic aspects and how to use and combine them successfully. This course is the foundation for your ongoing and or future graphics courses and is the centre point for a successful career in the graphic arts.</p> <p style="text-align: right;">[5H Lecture, 3H Lab]</p> <p>To introduce the language of type, its practical use and historical grounding. To equip students with aesthetic and conceptual problem solving skills. To recognize, evaluate and think critically about typography. To develop in the student skills in craftsmanship, professionalism, composition and work habits. To explore the expressive possibilities of typography and develop an individual approach to typography.</p> <p style="text-align: right;">[5H Lecture, 3H Lab]</p>			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Dorst, K. (1997). Describing Design: A Comparison of Paradigms. Delft, Technical University of Delft. 2. Dorst, K. and Cross, N. (2001). Creativity in the design process: co-evolution of the problem-solution. Design Studies 3. Elliot, P. (1972). The Sociology of the Professions. London, Macmillan 4. Lacoue-Labarthe, P., & Fynsk, C. (1998). Typography: Mimesis, philosophy, politics. Stanford University Press. 			

Subject Code:	EM 593i	Course Title:	Photography
Contact Hours:	L-0, T-0 P-0	Credit:	1
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Assignment I (30%), Quiz II (15%), Assignment II (40%)		
<p>Photographic techniques both in capture and production of digital images.</p> <p>Theory of camera controls to a variety of situations.</p> <p>Integrate the various compositional considerations that form the building blocks of design into meaningful and well considered images.</p> <p>Understanding of lighting techniques and apply these effectively to enhance various subjects and situations. [5H Lecture, 3H Lab]</p> <p>Photography as a medium to investigate ones environment with the purpose of developing an appreciation for the subtleties of visual imaging to express and convey messages and emotions.</p> <p>Sensitivity to social, cultural and environmental issues that reflect and nurture a sustainable design ethos. [5H Lecture, 3H Lab]</p>			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Collier, J., & Collier, M. (1986). Visual anthropology: Photography as a research method. UNM Press. 2. McNally, J. (2008). The moment it clicks: photography secrets from one of the world's top shooters. Pearson Education. 3. Kelby, S. (2012). The digital photography book. Peachpit Press. 4. Adams, A., & Baker, R. (1995). The Camera (Ansel Adams Photography, Book 1). Bulfinch, reprint edition, 			

Subject Code:	EM 595c	Course Title:	Information Design
Contact Hours:	L-0, T-0 P-0	Credit:	1
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Assignment I (30%), Quiz II (15%), Assignment II (40%)		
Information Design Principles. Information Design History. [5H Lecture, 3H Lab]			
Visual Communication for Information Design. Visualization Techniques. Information Design Research Methodology. [5H Lecture, 3H Lab]			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Mollerup, P. (2015). Data Design: Visualising Quantities, Locations, Connections. Bloomsbury Publishing. 2. Rendgen, S., & Wiedemann, J. (2014). Understanding the world: the atlas of info graphics. Taschen. 3. Harris, R. L. (2000). Information graphics: A comprehensive illustrated reference. Oxford University Press. 4. Druin, A., & Solomon, C. (1996). Designing Multimedia Environments for Children: Computers, Creativity, and Kids. Wiley Computer Publishing, John Wiley and Sons, Inc., One Wiley Drive, Somerset, NJ 08875. 5. Krum, R. (2013). Cool info graphics: Effective communication with data visualization and design. John Wiley & Sons. 			

Subject Code:	EM 598c	Course Title:	Packaging and Branding
Contact Hours:	L-0, T-0 P-0	Credit:	1
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Quiz I (15%), Assignment I (30%), Quiz II (15%), Assignment II (40%)		
<p>Understanding Brand Awareness and Managing Brand Image & Brand Positioning. Choosing the Right Brand Elements along with Product Design & Brand Perception. Brand Style & Brand Marketing, Package Design & Brand Impression Integrated with Marketing Communications for Brand Emotional Branding and Brand Extensions. [5H Lecture, 3H Lab]</p> <p>Enhance awareness and knowledge about branding issues in creative industries. Develop ability to identify strategic issues in branding of creative products. Survey academic research streams addressing branding issue. Develop critical perspectives in evaluating research in branding and applying them in strategic management of brands in creative industries. Conduct case study focusing on branding and marketing. Develop hands-on abilities on brand building and marketing. [5H Lecture, 3H Lab]</p>			
Text/Reference books:			
<ol style="list-style-type: none"> 1. Eckert, C. and Stacey, M. (2000). Sources of inspiration: a language of design. Design Studies 2. Clegg, G. L. (1969). The Design of Design. Cambridge, Cambridge University Press. 3. Cross, N., Christiaans, H. et al. (ed.) (1996). Analysing Design Activity. Chichester, Wiley. 4. Deliza, R., & MacFie, H. (2001). Product packaging and branding. In Food, people and society (pp. 55-72). Springer Berlin Heidelberg. 			

Subject Code:	DS 596	Course Title:	Summer Internship
Contact Hours:	L-0, T-0 P-0	Credit:	2
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		
Evaluation scheme	Presentation (15%), Problem Identification (30%), Time management (15%), Design solution (40%)		

Subject Code:	DS 699	Course Title:	MDes Thesis
Contact Hours:	L-0, T-0 P-0	Credit:	4
Programme :	M. Des	Semester :	3
Pre-requisites:	NIL		

Course Details
Semester -4

Subject Code:	DS 599	Course Title:	Seminar - II
Contact Hours:	L-0, T-0 P-0	Credit:	2
Programme :	M. Des	Semester :	4
Pre-requisites:	NIL		
Evaluation scheme	Presentation (15%), Problem Identification (30%), Time management (15%), Design solution (40%)		

Subject Code:	DS 699	Course Title:	MDes Thesis
Contact Hours:	L-0, T-0 P-0	Credit:	16
Programme :	M. Des	Semester :	4
Pre-requisites:	NIL		