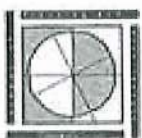


Master of Design

Course Structure and Detailed Syllabus for
Two Year Masters Degree Programme in Planning

Effective from the Academic Year 2024-25 onwards
(As Approved by the Senate in its 17th Meeting held on 27.05.2024)



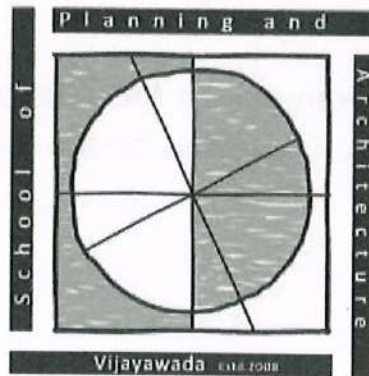
योजना तथा वास्तुकला विद्यालय, विजयवाड़ा
School of Planning and Architecture, Vijayawada
An Institute of National Importance, Ministry of Education, Govt. of India

(Handwritten signatures)

Course Structure and
Syllabus

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada



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Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

MDES' ABC' – Masters in Design, A – Year, B – Semester, C- Subject Number

Semester I – Foundation in Design Thinking

SUBJECTS		CREDITS (30)					ASSESSMENT			
Course ID	Subject Name	S/P	L	T		Int	Ext	Exam	Total	
MDES111	M. Des. Studio – I (Foundation Studio)	12	03			15	50	50	Jury	100
MDES112	Creativity, Ideation and Design Communication		01	03		04	50	50	Jury	100
MDES113	Basic Form Studies & Applied Ergonomics		02	02		04	50	50	Theory	100
MDES114	Design Studies, Materials and Manufacturing Process		02	02		04	50	50	Theory	100
MDES115	Elective I		02			03	100	-	Open	100
500										

Semester II – Advanced Design Concepts

SUBJECTS		CREDITS (30)					ASSESSMENT			
Course ID	Subject Name	S/P	L	T		Int	Ext	Exam	Total	
MDES121	M. Des. Studio – II (Advanced Design Studio)	12	03			15	50	50	Jury	100
MDES122	Design Thinking and Semantic Studies		03	01		04	50	50	Jury	100
MDES123	Advanced Form Studies & Human Centered Design		02	02		04	50	50	Theory	100
MDES124	Product Detailing and Sustainable Systems		03			04	50	50	Theory	100
MDES125	Elective II		02			03	100	-	Open	100
500										

Semester III – Innovation and Iteration

SUBJECTS		CREDITS (30)					ASSESSMENT			
Course ID	Subject Name	S/P	L	T		Int	Ext	Exam	Total	
MDES231	M. Des. Studio – III (Design Innovation Cell)	12	03			15	50	50	Jury	100
MDES232	Universal Human Values, Ethics & Environmental Psychology		03	01		04	50	50	Jury	100
MDES233	Design Prototyping and Iteration		02	02		04	50	50	Theory	100
MDES234	Industry Training		03			04	50	50	Viva	100
MDES235	Elective III		02			03	100	-	Open	100
500										

Note: MDES234 – Industry Training will be for a period of 06 weeks at the end of Sem II and evaluated as a part of Sem III.

Semester IV – Design Thesis and Entrepreneurship

SUBJECTS		CREDITS (30)					ASSESSMENT			
Course ID	Subject Name	S/P	L	T		Int	Ext	Exam	Total	
MDES241	M. Des. Studio – IV (Thesis)	21	03			24	60	40	Jury	100
MDES242	IPR, Professional Practice & Management		02	01		03	50	50	Theory	100
MDES243	Design Entrepreneurship & Business Strategies		02	01		03	50	50	Theory	100

300 Note: MDES241 – M. Design Studio - IV (Thesis) will be showcased as a Design Exhibition at the end of the semester as a 'Design Capstone Exhibition'

S – Studio

L – Lecture

T – Tutorial

P/I – Practical (Lab)/ Internship

R – Research

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Consolidated Course Structure

Category/ Semester	Year I - Sem I	Year I - Sem II	Year II - Sem III	Year II - Sem IV
Design	M. Des. Studio – I (Foundation Design Studio)	M. Des. Studio – II (Advanced Design Studio)	M. Des. Studio – III (Design Innovation Cell)	M. Des. Studio – IV (Thesis)
Humanities & Form Studies	Basic Form Studies & Applied Ergonomics	Advanced Form Studies & Human Centered Design	Universal Human Values, Ethics & Environmental Psychology	Design Entrepreneurship & Business Strategies
Construction & Management Studies	Design Studies, Materials and Manufacturing Process	Product Detailing and Sustainable Systems	Industry Training	IPR, Professional Practice & Management
Technology & Innovation	Creativity, Ideation and Design Communication	Design Thinking and Semantic Studies	Design Prototyping and Iteration	

Semester I – Electives:

Course ID	Subject Name	Category	Credits	Assessment
MDES1151	Introduction to Cruise Ship Design	Mobility	03	100; Open Ended
MDES1152	Industrial design (Equipment for agriculture, medical, automobile, packaging, set design, etc.)	Manufacturing		
MDES1153	Art, Culture and Design	Socio-culture		
MDES1154	Interaction design (interiors, user experience, furniture & kitchen, interactive products, graphics, etc.)	Products		
MDES1155	Photography and Media	Multimedia		
MDES1156	Accessory design (jewellery & ceramics, bags, wallets, fashion items, etc.)	Arts and Crafts		
MDES1157	Open Elective			

Semester II – Electives:

Course ID	Subject Name	Category	Credits	Assessment
MDES1251	Cruise Ship Interior Design	Cruise	03	100; Open Ended
MDES1252	Design for Circular Economy	Social		
MDES1253	Ceramic and Glass Design	Culture		
MDES1254	Lighting and Fixtures Design	Services		
MDES1255	Film & Animation Media	Multimedia		
MDES1256	Open Elective			

Semester III – Electives:

Course ID	Subject Name	Category	Credits	Assessment
MDES1351	Cruise Ship Recreation & Experience Design	Cruise	03	100; Open Ended
MDES1352	Landscape and Signage Design	Social		
MDES1353	Handicraft & Textile Design	Culture		
MDES1354	Transport & Automobile Design	Services		
MDES1355	Interaction and Interface Design	Multimedia		

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester I: Foundation in Design Thinking

Learning Outcomes: Develop understanding of product design process, sustainable ergonomics, and user-centered design. Acquire knowledge of materials and manufacturing techniques, and apply sustainable design practices. Cultivate creativity, overcome blocks, and use creative tools for idea generation. Develop visual communication skills through sketching, rendering, and 3D modelling software.

MDES111 – M. Des. Studio – I (Foundation Studio)

- Product design process, need and methodology
- Sustainable Ergonomics and introduction to user-centered design
- Prototyping and testing techniques
- Design principles and aesthetics
- Design for everyday use
- Materials selection and manufacturing techniques

MDES112 – Creativity, Ideation and Design Communication

- Importance of creativity and ideation in design.
- Strategies for overcoming creative blocks and generating new ideas.
- Creative tools for idea generation and concept development.
- Inclusive design process and methods for diverse user groups.
- Sketching and rendering techniques
- Utilizing advanced software for 3D modelling and 2D rendering
- Integration of IT Lab*
- Integration of Research Lab*

MDES113 – Basic Form Studies and Applied Ergonomics

- Introduction to basic form studies and aesthetics.
- Significance of applied ergonomics in design.
- Ergonomic considerations in product design.
- Ergonomics in space planning and interior design.
- Techniques for ergonomic evaluation and analysis.
- Integration of form studies and applied ergonomics.

MDES114 - Design Studies, Materials and Manufacturing Processes

- Introduction to design thinking
- Design research methods, analysis, and user empathy.
- Evolution of design and its cultural/social impact through different eras.
- Introduction to design management principles
- Study of materials, manufacturing techniques and sustainability.
- Advanced digital fabrication techniques.
- Integration of Workshop/Carpentry Lab and Material Lab*

MDES115 – Elective I

- Elective Course: (Choose one based on student's interest)
 - a) MDES1151 - Introduction to Cruise Ship Design
 - b) MDES1152 - Universally Accessible Design
 - c) MDES1153 - Art, Culture and Design
 - d) MDES1154 - Acoustic and Sound Design
 - e) MDES1155 - Photography and Media

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester II: Advanced Design Concepts

Learning Outcomes: Cultivate students' proficiency in the total design process by engaging them in a project-based learning experience. Students will apply their acquired knowledge to deliver effective design solutions for specific problems. The outcomes foster critical thinking, problem-solving skills, and the ability to translate knowledge into practical design solutions in association with other theory and elective courses. Explore virtual reality and augmented reality applications.

MDES121 – M. Des. Studio – II (Advanced Design Studio)

- Apply total design process to solve complex problems.
- Deliver effective design solutions by synthesizing knowledge acquired
- Formulate comprehensive design briefs that address identified problems.
- Evaluate and select the most promising design concepts based on defined criteria.
- Validate the design solution through testing and user feedback.

MDES122 – Design Thinking and Semantic Studies

- Introduction to Design Thinking and Social Innovation.
- Ideation and Creative Problem-Solving.
- Design Sprint Methodologies and Considerations.
- Design Thinking in Practice, Mindset and Reflection.
- Design narratives that effectively convey messages
- User Experience (UX) and User Interface (UI) design
- Integration of IT Lab
- Integration of Research Lab

MDES123 – Advanced Form Studies and Human Centered Design

- Explore innovative and unconventional design forms.
- Human – Centred Design & design for need
- Design for diverse user groups and accessibility.
- Product function and architecture
- Prioritize user needs, pattern, behaviours, and comfort.
- Create engaging and intuitive user experiences.

MDES124 – Product Detailing and Sustainable Systems

- Understanding different materials and components used
- Engineering and Manufacturing Considerations
- Exploring various finishing techniques and surface treatments
- Design for Manufacturing and Assembly
- Examining sustainable design principles and practices
- Analysing certifications and standards
- Integration of Material Lab

MDES125 – Elective II

- Elective Course: (Choose one based on student's interest)
 - a) MDES1251 - Cruise Ship Interior Design
 - b) MDES1252 – Design for Circular Economy
 - c) MDES1253 - Ceramic and Glass Design
 - d) MDES1254 - Lighting and Fixtures Design

e) MDES1255 - Film & Animation Media

Masters in Design Program (M. Des.)

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Semester III: Innovation and Iteration

Learning Outcomes: Students will develop innovative thinking skills and understand the role of design in entrepreneurship and innovation. They will gain knowledge and practical experience in intellectual property rights and patenting, preparing them for patentable design ideas and research-based projects.

MDES231 – M. Des. Studio – III (Design Innovation Cell)

- Researching passenger needs and preferences for informed design.
- Generating innovative ideas for ship layout, cabins, amenities, and entertainment.
- Considering sustainability and environmental factors in design.
- Utilizing technologies like virtual reality, augmented reality, IoT and AI for onboard experiences.
- Designing inclusively for passengers with disabilities or special needs.
- Collaborating on immersive entertainment experiences, interactive installations, and wellness-focused amenities.

MDES232 – Universal Human Values, Ethics & Environmental Psychology

- Introduction to universal human values and their significance.
- Major ethical theories and decision-making frameworks.
- Psychological impact of environments: environmental psychology.
- Social justice, equality, and ethical dimensions.
- Professional ethics in various fields.
- Values, ethics, and sustainability.
- Integration of Research Lab

MDES233 – Design Prototyping and Iteration

- Methods for prototyping- 3D modelling, paper prototyping, and rapid prototyping.
- Range of materials and tools for prototyping.
- Iterative approach - creating multiple versions and gathering feedback.
- Incorporating stakeholder and user feedback into the design process.
- Driving iterative improvements through design reviews.
- Collaborative sessions in the design process.
- Agile design principles.
- Integration of IT Lab*

MDES234 - Industry Internship and Networking

- 06-week internship in a design firm or relevant industry
- Exposure to real-world projects and professional environments
- Networking opportunities with industry experts and practitioners
- During Summer Vacation after Sem II & before Sem III

MDES235 – Elective III

- Elective Course: (Choose one based on student's interest)
 - a) MDES2351 - Cruise Ship Recreation and Experience Design
 - b) MDES2352 - Landscape and Signage Design
 - c) MDES2353 - Handicraft & Textile Design
 - d) MDES2354 – Transport & Automobile Design
 - e) MDES2355 - Interaction and Interface Design

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester IV: Design Thesis and Entrepreneurship

Learning Outcomes: Students will gain practical experience in project management and professional practice. They will apply their knowledge and skills to an advanced design project with a focus on patentable ideas. The thesis and patent application will showcase their ability to contribute to the field of design through innovation and intellectual property protection.

MDES241 – M. Des. Studio IV – Thesis

- Independent research and design project
- Development of a patentable design solution
- Written thesis and patent application preparation
- Integration of Research Lab

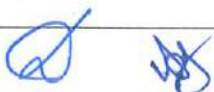
MDES242 – Intellectual Property Rights, Professional Practice & Management

- Introduction to Intellectual Property Rights
- Acts, Regulations and Laws
- Copyright and Design Protection
- Trademarks and Brand Protection
- Patents and Design Innovation
- Professional Practice and Management

MDES243- Design Entrepreneurship and Business Strategies

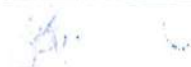
- Introduction to Design Entrepreneurship and its importance in business.
- Business strategies for design ventures.
- Funding and financing options for design start-ups.
- Applying design thinking in business and innovation.
- Branding, marketing, and growth strategies for design entrepreneurs.

Note: MDES241 – M. Design Studio - IV (Thesis) will be showcased as a Design Exhibition at the end of the semester as a 'Design Capstone Exhibition'



Detailed Syllabus
for
Master of Design





Detailed Syllabus for Master of Design





Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester I: Foundation Design Studio – I

I Year I Sem

MDES111 – Foundation Studio

15 Credits

Module I:

Product Analysis and Improvement:

Choose a product and conduct a comprehensive critique focusing on:

- Design for everyday use (at home, streets, schools, universities, markets, etc.)
- Design principles (universal design, discoverability, signifiers, use-centered, user-centered design, interactive, etc.)
- Sustainable ergonomics (age-group specific design – Kids, Teens, Adult, Elderly)
- Materials selection & manufacturing techniques (light weight, durable, tolerance for error)
- Product design process & methodology (human-centered iterative design or DD process, etc.)
- Prototyping and testing (Iterative design process)

The course will critique various products, taking into account Indian contextual use and possible functions. Generate 5-10 design concepts aimed at addressing the identified weaknesses and enhancing strengths for improved quality and functionality of the product. Provide a detailed justification for each conceptual solution, explaining how it resolves the identified problems or weakness and enhances the product's value by strengthening the opportunities. Develop one of the proposed concepts into a refined product design, incorporating feedback and iterative improvements based on user-centricity and design principles in the design studio.

Module II:

Smart City Solutions – Urban Mobility (Land-Air-Water), Smart Home Energy Monitoring/ Control Systems

- Survey & analyze the urban built environment to identify challenges faced by selected residents (user-centered) with a focus on prevalent issues, such as mobility, energy shortage, safety walkability, and accessibility to community or household essentials including parks and markets.
- Propose sustainable solutions to address these challenges, considering the limitations of available resources, challenges, and the long-term impact on the community and environment. (Eg. Pvt. or rental electric cycles, drones, kickboards, smartphone apps to monitor energy, etc.)
- Present the solutions in a compelling manner, emphasizing their feasibility, scalability, and potential to enhance the overall quality of life in the city.

Module III:

Tour of Rural Community Enhancement – Accessibility to Comfort & Convenience

- Lifestyle survey: Gain insight into the daily lives of rural residents, understanding their routines, challenges, and priorities.
- Identify key activities and elements that significantly affect their livelihoods and well-being.
- Propose value-added solutions to streamline daily tasks, improve efficiency, and enhance overall quality of life for rural communities.
- Explore opportunities for innovation and community development, leveraging local resources and cultural practices to create sustainable solutions tailored to the needs of the rural population.
- Educational study trip: Cultural heritage village, rural arts and crafts centers, eco-tourism, etc., to get a first-hand experience of rural traditional crafts like bamboo weaving, pottery, handloom, textile manufacturing etc.

Module IV:

8-10 hours' Time Problem - Future Product Design (Imagine its future)

- The basic idea of this problem is to be able to apply the syllabus mandated study areas including: universal design principles, everyday use products, ergonomics, materials and manufacturing, design process and methods, prototyping and testing (qualitative);
- Select a contemporary product and conduct user research to understand its current usage patterns and user demographics.
- Generate innovative design concepts envisioning the future of the product, considering technological advancements, societal trends, and user preferences. (Eg. Pen, Knife, TV, Cycle, etc.)
- Articulate the concepts and present in a compelling manner, highlighting their potential to meet evolving user needs, enhance user experiences, and contribute to future lifestyles and environments.

Essential Reading:

- Norman, D. A. (2013). The design of everyday things. MIT Press.
- Norman DA. Emotional Design: Why We Love (or Hate) Everyday Things. Basic Books; 2004.
- Papanek VJ. Design for the Real World. Third edition. Paperback edition. Thames and Hudson; 2019.
- Aspelund K. The Design Process. Fourth edition. Fairchild Books; 2022.
- Bill M, Castiglioni A, Danese B, et al. Design since 1945, Philadelphia Museum of Art; 1983.
- MacLean KJM. A Geometric Analysis of the Platonic Solids and Other Semi-Regular Polyhedra with an Introduction to the Phi Ratio: For Teachers, Researchers, and the Generally Curious. Second edition (with additional material). Big Picture; 2020.
- Bayer, H., Gropius, W., Gropius, I. Bauhaus 1925-1928. MoMA, New York, 1938.
- John Chris Jones, **Design Methods: Seeds of Human Futures**, Wiley.

Supplementary Reading/ Design Journals:

1. Papanek VJ. Design for the Real World. Third edition. Paperback edition. Thames and Hudson; 2019.
2. MacGregor N, British Museum, BBC Radio 4. A History of the World in 100 Objects. First American edition. Viking; 2011.

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester I: Foundation in Design Thinking

Year I Sem I

MDES112 – Creativity, Ideation & Design Communication

04 Credits

Unit 1: Creativity, Ideation and Inclusivity

- Introduction to creativity and its significance in design
- Exploring the role of ideation in generating innovative solutions
- Case studies highlighting the impact of creativity and ideation in successful designs
- Understanding the principles of inclusive design
- Conducting user research and empathy mapping for diverse user groups
- Applying inclusive design methods to create products and services that cater to different user needs

Unit 2: Creative blocks and risks in ideation

- Identifying common creative blocks and barriers
- Techniques for overcoming creative blocks, such as brainstorming, mind mapping, and lateral thinking
- Developing a creative mindset and fostering a conducive environment for ideation
- Promoting a culture of experimentation and risk-taking in design
- Embracing failure as a learning opportunity
- Strategies for fostering a mindset of innovation and embracing unconventional ideas

Unit 3: Creative Tools for Idea Generation

- Introduction to various creative tools and techniques
- Hands-on exercises using tools like SCAMPER, Six Thinking Hats, and Design Fiction
- Applying ideation techniques to develop and refine design concepts
- Developing freehand sketching skills for visual communication
- Techniques for shading, perspective, and rendering to bring designs to life
- Applying sketching as a tool for ideation and concept visualization

Unit 4: Advanced software for 2D rendering and 3D modelling

- Introduction to industry-standard software for 3D modelling and rendering
- Creating digital models and visualizations of design concepts
- Exploring lighting, texturing, and rendering techniques for realistic representations
- Applying rendering techniques to create realistic visualizations of interior spaces and product designs
- Exploring materials, lighting, and atmospheric effects for enhancing visual impact

Unit 5: Presentation Techniques

- Developing persuasive presentation skills for design proposals
- Creating professional design portfolios and documentation
- Engaging stakeholders through effective visual communication techniques
- Integration of IT Lab for learning software tools and applications

Essential Reading:

- Robert A. Curedale. 50 Brainstorming Methods: For team and individual ideation, Design community college Inc., 2013
- Rich Gold, The Plenitude: Creativity, Innovation, and Making Stuff, The MIT Press, 2007.
- Leski, K. The Storm of Creativity, The MIT Press, 2015.
- Indi Young. Practical Empathy: For Collaboration and Creativity in Your Work 1st Edition, Rosenfeld Media, 2015.
- Coen Luijten. Creativity Works : Unleash your Creativity, Beat the Robot and Work Happily Ever After, BIS, 2018.
- Tom Kelley. The Art Of Innovation: Lessons in Creativity from IDEO, America's Leading Design Firm, Profile books, 2016.
- Meredith Davis, Jamer Hunt. Visual Communication Design: An Introduction to Design Concepts in Everyday Experience, Bloomsbury Publishing, 2017.
- Gavin Ambrose. Design Thinking for Visual communication, Bloomsbury Publishing, 2015.

Supplementary Reading/ Design Journals:

- John Twyford. Graphic Communication, Batsford Ltd., 1981
- Edward R. Tufte. The Visual Display of Quantitative Information, Graphics Press, 2001
- Peter Zec. International Yearbook Communication Design, Red dot editions, 2018.
- Edward Gottschall. Typographic Communications Today, The MIT Press, 1989.
- Kate Nash. Interactive Documentary, Theory and Debate. Routledge, London, 2021.
- Journals, Papers, and reference materials as per topics & instructor.

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester I: Foundation in Design Thinking

Year I Sem I

MDES113 – Basic Form Studies and Applied Ergonomics

04 Credits

Unit 1: Fundamental design principles and elements

- Introduction to design principles like balance, proportion, rhythm, and harmony
- Exploring the use of lines, shapes, colours, and textures in design
- Analysing the impact of design elements on user experience

Unit 2: Human anthropometry

- Understanding human body dimensions and proportions
- Anthropometric data collection and analysis
- Applying anthropometric principles to design products and spaces that cater to human needs

Unit 3: Ergonomic studies

- Integrating ergonomic considerations in the design process
- Ideation techniques for generating ergonomic solutions
- Applying ergonomic principles to improve user comfort, safety, and efficiency

Unit 4: Ergonomics qualities

- Exploring ergonomic qualities like adjustability, accessibility, and usability
- Case studies highlighting the importance of ergonomic design in various industries
- Evaluating and improving the ergonomic qualities of existing designs

Unit 5: Lab Studies

- Hands-on experience with woodworking tools and equipment
- Experimentation with different materials and their properties
- Understanding construction techniques and detailing for translating design concepts into physical prototypes

Essential Reading:

- Wong Wucius. Principles of form and design. John Wiley & Sons Inc., 1993.
- Francis D.K. Ching, Architecture Form Space and Order, 3rd Edition, Wiley
- Mark S. Sanders, & Ernest J. McCormick, Human factors in Engineering & Design, McGraw-Hill, Inc
- Alvin R. Tilley, Henry Dreyfuss Associates: The Measure of Man and Woman: Human Factors in Design, Revised Edition
- Bridger, RS: Introduction to Ergonomics, 2nd Edition, Taylor & Francis, 2003.
- E. Grandjean, Fitting the task to the man, Taylor and Francis, 1963.
- W.E. Woodson, Human Factor Design Handbook, McGraw Hill, New York, 1981
- Ken Parsons, Human thermal environment, 2nd Edi., Taylor and Francis, 2003
- Debkumar Chakrabarti, Indian Anthropometric Dimensions (For Ergonomic Design Practice
- Journals, Papers, and reference materials as per topics & instructor

Supplementary Reading:

- Lidwell, W., Holden, K., Butler, J. Universal Principles of Design, revised and updated. Rockport publishers, 2010.



- Bayer, H., Gropius, W., Gropius, I. Bauhaus 1925-1928. MoMA, New York, 1938.
- Neufert's, Architect's Data, Blackwell Publishers
- Dormer, Peter, Design Since 1945 (World of Art). Thames & Hudson, 1993.
- Norman, D. Emotional Design - Why we love or (hate) everyday things. Basic Books, New York, 2004.
- Norman, D. The Design of Everyday Things, Revised and Expanded Edition. Basic Books, New York, 2013.
- Wong Wucius. Principles of Color Design. John Wiley & Sons Inc., New York, 1986.

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada
Semester I: Foundation in Design Thinking

Year I Sem I

MDES114 - Design Studies, Material & Manufacturing Processes

04 Credits

Unit 1: Evolution and Impact of Design

- Studying the historical development of design from ancient civilizations to modern times
- Analysing design movements and their influence on contemporary design practices
- Exploring the cultural and societal factors that shape design trends
- Exploring the role of design in shaping culture, society, and identity
- Analysing the ethical and sustainable implications of design decisions
- Investigating the relationship between design, technology, and globalization

Unit 2: Introduction to design thinking and management principles

- Understanding the principles and process of design thinking
- Applying human-centered design methodologies to solve complex problems
- Case studies showcasing successful applications of design thinking in various domains
- Understanding the fundamentals of design management
- Exploring project management techniques for design projects
- Examining the role of design managers in coordinating multidisciplinary teams

Unit 3: Study of materials and their properties

- Introduction to different materials used in design, such as metals, polymers, ceramics, and composites
- Understanding material properties, including strength, durability, and aesthetics
- Material selection criteria for specific design applications

Unit 4: Construction & Manufacturing techniques and processes

- Overview of various manufacturing processes, including casting, moulding, machining, and additive manufacturing
- Exploring the advantages and limitations of different manufacturing methods
- Understanding the impact of manufacturing processes on design feasibility and quality
- Understanding construction techniques for building functional prototypes and final products
- Exploring joints, connections, and assembly methods for different materials

Unit 5: Advanced Digital Fabrication Techniques

- Introduction to advanced digital fabrication technologies like CNC machining, laser cutting, and 3D printing
- Hands-on experience with digital fabrication tools and equipment
- Exploring the integration of digital fabrication in the design process
- Integration of Workshop/Carpentry Lab and Material Lab for practical application of materials and manufacturing processes

Essential Reading:

- Clark, H. and Brody, D. eds. (2010) Design Studies: A reader, New York: Berg.
- John Chris Jones, Design Methods: Seeds of Human Futures, Wiley.
- Cross, Nigel. (1993). A history of design methodology.
- Ben Highmore. The Design Culture Reader, Routledge, London, 2008.
- Elvin Karana, Owain Pedgley and Valentina Rognoli. Materials Experience, Elsevier Ltd., 2014.
- Tim Brown. "Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation".

- Paul Wahl. Designing Regenerative Cultures, Triarchy Press, 2016.
- Gerard Goggin. Cell phone culture: Mobile technology in everyday life, Routledge, 2006.
- Armstrong & McDowell. Fashioning Professionals: Identity and Representation at Work in the Creative Industries, Bloomsbury, 2018.
- Thomas Lockwood. Design Thinking, Allworth, 2010.
- Wallschlaeger, Cynthia Snyder. Basic Visual Concepts and Principles for Artists, Architects and Designers, Wm. C. Brown Publishers, 1992.
- Norman, D. The Design of Everyday Things, Basic Books, New York, 2013.
- Ashby. Ashby. Materials and the environment: Eco-informed materials choice, Butterworth-Heinemann, 2009.
- Rob Thomson. Sustainable materials, processes and production, Thames & Hudson, 2013.
- Rob Thomson. Manufacturing processes for design professionals, Thames & Hudson, 2007.
- Lucy Johnston. Digital Handmade, W Norton, 2015.
- Paul Kunkel. Digital Dreams, Universe Pub., 1999.
- Ann Marie Shillito. Digital Crafts, Bloomsbury Visual Arts, 2013.
- Journals, Papers, and reference materials as per topics & instructor

Supplementary Reading/ Design Journals:

- Clarke, Alison J. (2011) Design Anthropology. Vienna: Springer
- Heskett, J., (2002) Design: A very short Introduction, Oxford: Oxford University Press
- Julier G. (2013) The Culture of Design, London: Sage
- Papanek, Victor (2000) Design for the Real World: Human Ecology and Social Change
- Christopher Alexander. The Timeless Way of Building. Center for environmental structure, Oxford Univ. Press, 1979.
- Michael Lewrick, Patrick Link, and Larry Leifer. "The Design Thinking Playbook: Mindful Digital Transformation of Teams, Products, Services, Businesses and Ecosystems".
- Elizabeth Goodman, Mike Kuniavsky, and Andrea Moed. "Observing the User Experience: A Practitioner's Guide to User Research"
- Brenda Laurel. "Design Research: Methods and Perspectives".
- Bella Martin and Bruce Hanington. "Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions".
- Rex Hartson and Pardha Pyla. "The UX Book: Process and Guidelines for Ensuring a Quality User Experience."
- Jim Kalbach. "Mapping Experiences: A Complete Guide to Creating Value through Journeys, Blueprints, and Diagrams".
- Alistair Croll and Benjamin Yoskovitz. "Lean Analytics: Use Data to Build a Better Startup Faster"
- Indi Young. "Practical Empathy: For Collaboration and Creativity in Your Work".
- Roman Krznaric. "Empathy: Why It Matters, and How to Get It"
- Paul Boag. "User Experience Revolution: A Practical Guide to Developing and Executing a Successful UX Strategy".

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester I: Foundation in Design Thinking

Year I Sem I

MDES1115 – Elective - I

03 Credits

a) Cruise Ship Design

- Design challenges and considerations specific to cruise ships.
- Layout and organization of cabins, public areas, and recreational facilities.
- Basic interior design principles for cruise ships.
- Safety regulations and standards in cruise ship design.
- Environmental sustainability in cruise ship design.

b) Industrial Design

- Principles of inclusive design for people with disabilities.
- Specific requirements for mobility, sensory perception, and cognitive abilities.
- Case studies and examples of accessible design.
- Strategies and solutions for creating inclusive spaces, products, and interfaces.
- Importance of user research and empathy in inclusive design.

c) Art, Culture, and Design

- Influence of culture on design aesthetics and meanings.
- Exploration of different cultural influences on design styles.
- Role of design in preserving and promoting cultural heritage.
- Ethical considerations in cultural appropriation.
- Case studies highlighting the intersection of art, culture, and design.

d) Interaction Design

- Introduction to UXD, User experience design
- UXD Design methods, process, and tools
- Ideation in design, Design thinking process
- Human factors -psychology, physiology in interaction design
- Affordances: Designing Intuitive User Interfaces
- Use-centered design, Human-centered design
- Prototype development, Usability testing

e) Photography and Media

- Fundamentals of photography, including composition and lighting.
- Using photography for visual storytelling in design.
- Different genres of photography.
- Hands-on experience with cameras and editing software.
- Incorporating photography in design portfolios and presentations.

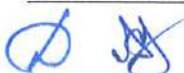
Essential Reading:

- Philip S. Dawson. Cruise Ships: An Evolution in Design. Conway Maritime, 2000.

- Chris Frame, Rachelle Cross. The Evolution of the Passenger Ship. The History Press, August, 2024.
- Buzova, D. Cruise Ships and Sustainability. In: The Palgrave Handbook of Global Sustainability. Palgrave Macmillan, Cham, 2022.
- Lewis E.U; Principles of Naval Architecture (2nd Revision) Vol. III 1989; SNAME, New York
- D J Eyres and G J Bruce; Ship Construction, Butterworth Heinemann, 2012.
- Charlotte Fiell. Industrial Design A-Z, Taschen, 2016
- John Heskett. Industrial design, Oxford University Press, 1980
- Walther Scheidig. Crafts of the Weimar Bauhaus, 1919-1924: an early experiment in industrial design, Reinhold, 1967.
- Reigeluth, Charles M.; Instructional-Design Theories and Models: A New Paradigm of Instructional Theory (Instructional Design Theories & Models); Lea, 1999.
- Cooper, Alan; Reimann, Robert; About Face 2.0 the Essentials of Interaction Design; Wiley, 2003
- Norman, D. The Design of Everyday Things, Revised and Expanded Edition. Basic Books, New York, 2013.
- Goodman & Kuniavsky. Observing the User Experience: A Practitioner's Guide to User Research, Morgan Kaufmann, 2012.
- Bill Buxton. Sketching User Experiences: Getting the Design Right and the Right Design Book, Morgan Kaufmann, 2007.
- Jeffrey Rubin. Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests, John Wiley & Sons, 2011.
- Peter Quartermaine. Cruise: Identity, Design and Culture. Rizzoli International Publications, 2006.
- Daniel Christian. Designing Regenerative Cultures, Triarchy Press Ltd., 2016.
- Gerard Goggin. Cell Phone Culture: Mobile technology in everyday life. Routledge, 2006.
- Fallan, K. The Culture and Nature in the History of Design. Routledge, 2019.
- London, B & Stone, J. A Short Course in Digital Photography, Pearson Education, Prentice Hall, 2012.
- Kelsey & Stimson. Clark Studies in Visual Arts, The Meaning of Photography, Yale Univ. Press.
- Agfa. 1994. An Introduction to Digital Photo Imaging. Agfa Publisher
- Agfa. 1994. An Introduction to Digital Scanning. Agfa Publisher

Supplementary Reading/ Journals:

- Ships and Offshore Structures. Francis & Taylor, Online.
- Pacific Science Review. Elsevier Journal.
- Energy Conversion and Management. Elsevier Journal.
- Journals, Papers, and reference materials as per topics & instructor.
- Tristan Perez; Ship Motion Control, Course Keeping and Roll Stabilization Using Rudder and Fins, 2005; Springer.
- Anthony F. Molland and Stephen R. Turnock; Marine Rudders and Control Surfaces - Principles, Data, Design and Applications, 2007; Butterworth-Heinemann



Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada
Semester II: Advanced Design Concepts

II Year II Sem

MDES121 – M. Des. Studio – II (Advanced Design Concepts)

15 Credits

Objectives/Learning Outcomes: Cultivate students' proficiency in the total design process by engaging them in a project-based learning experience. Students will apply their acquired knowledge to deliver effective design solutions for specific problems. The outcomes foster critical thinking, problem-solving skills, and the ability to translate knowledge into practical design solutions in association with other theory and elective courses. Explore virtual reality and augmented reality applications.

- Apply total design process to solve complex problems.
- Deliver effective design solutions by synthesizing knowledge acquired
- Formulate comprehensive design briefs that address identified problems.
- Evaluate and select the most promising design concepts based on defined criteria.
- Validate the design solution through testing and user feedback.

Module I: User/Design Research – Search, discover

Apply total design process to solve complex problems: Surveys and Questionnaires: Collecting qualitative and quantitative data on base design cases, passenger preferences, habits, and satisfaction levels, etc.

Module II: Design Synthesis - Define insights, keywords, generate key ideas

Deliver effective design solutions by synthesizing knowledge acquired: Analyzing survey data to identify trends and significant patterns. Examining qualitative and quantitative and synthesize them to define insights and generate key design ideas, and form keywords.

Module III: Design Development - Develop ideas, ideation, brainstorm

Formulate comprehensive design solutions and briefs that address identified problems: This is design development stage where solutions are define, ideated, brainstorm, and developed into possible solutions. It also involves design or idea evaluation and selection of the most promising design concepts based on defined criteria.

Module IV: Design Prototyping & Testing - Implement, select, deliver

Validate the design solution through testing and user feedback: Selected design ideas and solutions are to be developed into modules and prototypes. These prototypes are to be tested with relevant methods, such as human-centered design iterative processes, parametric simulations, etc., using appropriate design tools and software.

Essential Reading

- "Design Thinking" by Peter G. Rowe
- "The Design of Everyday Things" by Don Norman
- "Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation" by Tim Brown
- "Sketching User Experiences: The Workbook" by Bill Buxton
- "Thinking with Type: A Critical Guide for Designers, Writers, Editors, & Students" by Ellen Lupton

- "Graphic Design: The New Basics" by Ellen Lupton and Jennifer Cole Phillips
- "The Art of Innovation: Lessons in Creativity from IDEO, America's Leading Design Firm" by Kelley & Littman
- "Designing Interactions" by Bill Moggridge
- "Make It New: The History of Silicon Valley Design" by Barry M. Katz
- "The Design of Everyday Things" by Don Norman
- "Engineering Design: A Systematic Approach" by Gerhard Pahl and Wolfgang Beitz
- "Universal Principles of Design" by William Lidwell, Kritina Holden, and Jill Butler
- "Designing for the Digital Age: How to Create Human-Centered Products and Services" by Kim Goodwin
- "Product Design and Development" by Karl T. Ulrich and Steven D. Eppinger

Supplementary Reading/Design Journals:

- Journals/other relevant reading materials as per instructors/coordinators.

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester II: Advanced Design Concepts

Year I Sem II

MDES122 – Design Thinking & Semantic Studies

04 Credits

Unit 1: Introduction to Design Thinking and Social Innovation

- Overview of design thinking principles and process
- Understanding the role of design thinking in social innovation
- Exploring case studies of successful design thinking projects in social contexts

Unit 2: Creative Problem-Solving, Communication and Cognition

- Techniques for generating and selecting innovative ideas
- Tools for creative problem-solving within design thinking
- Understanding the cognitive processes involved in design communication
- Applying cognitive psychology principles to enhance design effectiveness
- Strategies for designing with cognitive biases and mental models in mind

Unit 3: Interpreting Semiotics in Design

- Understanding semiotics and its relevance to design
- Analysing the cultural context and its impact on design elements and narratives
- Examining the role of cultural references and symbolism in design communication

Unit 4: Design Thinking and Narratives

- Developing a design thinking mindset and fostering a culture of innovation
- Reflection on the design thinking process and its impact on social innovation
- Principles of storytelling in design
- Creating compelling narratives through visual and interactive elements
- Techniques for designing coherent and engaging design narratives

Unit 5: User Experience (UX) and User Interface (UI) Design

- Introduction to user experience (UX) design principles and processes
- Designing intuitive and user-centred user interfaces (UI)
- Usability testing and iteration for enhancing user experience

Essential Readings:

1. "Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation" by Tim Brown
2. "Designing for Social Change: Strategies for Community-Based Graphic Design" by Andrew Shea
3. "The Field Guide to Human-Centered Design" by IDEO.org
4. "Creative Confidence: Unleashing the Creative Potential Within Us All" by Tom Kelley and David Kelley
5. "Thinkertoys: A Handbook of Creative-Thinking Techniques" by Michael Michalko



6. "The Innovator's DNA: Mastering the Five Skills of Disruptive Innovators" by Jeff Dyer, Hal Gregersen, and Clayton M. Christensen
7. "Sprint: How to Solve Big Problems and Test New Ideas in Just Five Days" by Jake Knapp, John Zeratsky, and Braden Kowitz
8. "Design Sprint: A Practical Guidebook for Building Great Digital Products" by Richard Banfield, C. Todd Lombardo, and Trace Wax
9. Umberto Eco: A Theory of Semiotics, Indiana University Press, 1979.
10. "The Design of Business: Why Design Thinking is the Next Competitive Advantage" by Roger L. Martin
11. "This is Service Design Thinking: Basics, Tools, Cases" by Marc Stickdorn and Jakob Schneider
12. "Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School" by Idris Mootee
13. "Storytelling for User Experience: Crafting Stories for Better Design" by Whitney Quesenbery and Kevin Brooks
14. "Made to Stick: Why Some Ideas Survive and Others Die" by Chip Heath and Dan Heath
15. "Don't Make Me Think, Revisited: A Common-Sense Approach to Web Usability" by Steve Krug
16. "The Elements of User Experience: User-Centered Design for the Web and Beyond" by Jesse James Garrett
17. "About Face: The Essentials of Interaction Design" by Alan Cooper, Robert Reimann, David Cronin, and Christopher Noessel
18. Ben Shneiderman, Catherine Plaisant. Designing the User Interface: Strategies for Effective Human-computer Interaction, Pearson/Addison Wesle, 2005.
19. Journals/Reading materials as per instructors/coordinators.

Supplementary Readings/Journals:

1. Journals/other relevant reading materials as per instructors/coordinators.



Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester II: Advanced Design Concepts

Year I Sem II

MDES123 – Advanced Form Studies & Human Centered Design (2T+ 1L) 04 Credits

Unit 1: Innovative and Unconventional Design Forms

- Introduction to innovative and unconventional design forms
- Examples of cutting-edge design trends and concepts
- Exploring the intersection of aesthetics and functionality in design

Unit 2: User Groups and Accessibility

- Understanding the importance of inclusivity and accessibility in design
- User-centered design for diverse populations
- Strategies and considerations for designing inclusive products and experiences

Unit 3: Ergonomics and User Interaction

- Principles of ergonomics and its impact on product design
- Human factors and user-centered design considerations
- Designing for comfortable and efficient user interaction

Unit 4: Prioritizing Needs, Patterns, Behaviours, and Comfort

- User research and needs assessment methods
- Analysing user patterns, behaviours, and preferences
- Designing for user comfort and ergonomics

Unit 5: Intuitive User Experiences

- Principles of user experience (UX) design
- Techniques for creating engaging and intuitive interfaces
- Usability testing and iterative design processes for enhancing user experience

Essential Readings:

1. Lidwell W, Holden K, Butler J. Universal Principles of Design. Rockport Publishers.
2. Pye D. The Nature and Art of Workmanship. Revised edition. (Shales E, ed.). Bloomsbury Visual Arts; 2020.
3. Elam K. Geometry of Design: Studies in Proportion and Composition. 2nd ed., rev. and updated. Princeton Architectural Press; 2011

Supplementary Readings:

1. Heskett J. Design: A Very Short Introduction. Oxford University Press; 2005.
2. Proctor R. 1000 Eco Design. Logos; 2009.



Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester II: Advanced Design Concepts

Year I Sem II

MDES124 – Product Detailing and Sustainable Systems

04 Credits

Unit 1: Material and Component Study

- Understanding Different Materials and Components Used
- Overview of common materials used in design and manufacturing
- Properties and characteristics of different materials
- Understanding the role of components in product design and assembly
- Different types of finishing techniques for enhancing product aesthetics
- Surface treatment methods for improving durability and functionality

Unit 2: Engineering and Manufacturing in Design

- Principles of engineering design and manufacturing processes
- Design for manufacturability and assembly (DFMA) guidelines
- Cost considerations and optimization in engineering and manufacturing
- Strategies for designing products that are easy to manufacture and assemble
- Design guidelines for minimizing production costs and lead times

Unit 3: Product Function and Architecture

- Understanding the relationship between product function and design
- Principles of designing functional and efficient product architecture
- Balancing form and function in design decision-making

Unit 4: Sustainable Design Principles and Practices

- Introduction to sustainable design principles and their importance
- Understanding the environmental, social, and economic impacts of design
- Exploring sustainable design strategies and best practices
- Strategies for minimizing environmental footprint in design projects
- Considerations for energy efficiency and waste reduction in design

Unit 5: Disaster Management Strategies & Design

- Understanding the role of design in disaster management and resilience
- Design considerations for mitigating and responding to natural disasters
- Case studies and examples of design solutions for disaster management

Essential Reading:

- Elvin Karana, Owain Pedgley and Valentina Rognoli. *Materials Experience*, Elsevier Ltd., 2014.
- Christopher Alexander. *Notes on the Synthesis of Form*. Harvard University Press, 1964.
- John Chris Jones, *Design Methods: Seeds of Human Futures*, Wiley.
- Cross, Nigel. (1993). *A history of design methodology*.
- Don Norman, *The Design of Everyday Things*. Basic Books, New York, 2013.
- William Lidwell. *Deconstructing product design*. Rockport publishers, 2009.
- Stuart Walker. *The handbook of Design for Sustainability*. A & C Black, 2013.
- Kent E. Portney. *Sustainability*. The MIT Press, 2015
- Crul & Diehl. *Design for Sustainability: A Step-by-Step Approach*, UNEP, 2009.
- Otto & Troni. *A Practical Guide to Climate-resilient Buildings & Communities*. UNEP, 2021.
- Heskett, J., (2002) *Design: A very short Introduction*, Oxford: Oxford University Press
- Julier G. (2013) *The Culture of Design*, London: Sage
- Julier G. (2017) *The Economy of Design*, London: Sage
- Papanek, Victor (2000) *Design for the Real World: Human Ecology and Social Change*
- Boradkar, Prasad (2010) *Designing Things: A Critical Introduction to the Culture of Objects*, New York: Berg.
- Clark, H. and Brody, D. eds. (2010) *Design Studies: A reader*, New York: Berg.
- Journals, Papers, and reference materials as per topics & instructor

Supplementary Reading/ Design Journals:

- Ezio Manzini and Carlo Vezzoli, *Product-Service Systems and Sustainability*. Taylor & Francis Group, London, 2014.
- *Design Issues*, MIT Press
- *Design and Culture*, Taylor & Francis, *The Design Journal*, Taylor & Francis

- Design Studies, Elsevier

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester II: Advanced Design Concepts

Year I Sem II

MDES1125 – Elective - II

03 Credits

a) Cruise Ship Interior Design

- Space planning and optimization for efficient flow.
- Compliance with safety and regulatory standards.
- Creating immersive theming and aesthetics.
- Designing comfortable and functional cabins.
- Captivating public areas and entertainment spaces.

b) Design for Circular Economy

- Emphasizing reduce, reuse, and recycle principles.
- Designing products and systems for resource efficiency.
- Using sustainable materials and manufacturing processes.
- Exploring innovative business models for sustainability.
- Considering lifecycle from extraction to disposal.

c) Ceramic and Glass Design

- Material exploration and experimentation.
- Balancing form and function.
- Surface treatments and finishes for visual appeal.
- Incorporating colour and pattern.
- Emphasizing sustainability and kiln technology.

d) Lighting and Fixtures Design

- Understanding lighting design principles.
- Focus on energy efficiency and sustainability.
- Custom fixture design for unique aesthetics.
- Human-centric lighting considerations.
- Outdoor and landscape lighting techniques.

e) Film & Animation Media

- Crafting compelling storytelling and narratives.
- Attention to visual design and aesthetics.
- Mastering animation techniques and software.
- Sound design and music integration.
- Post-production and editing for a polished final product.

Essential Reading:

- Norman Friedman (2012)., 'Marine Structural Design', Butterworth-Heinemann., 2nd Edition.
- Philip S. Dawson. Cruise Ships: An Evolution in Design. Conway Maritime, 2000.

- Chris Frame, Rachele Cross. The Evolution of the Passenger Ship. The History Press, August, 2024.
- Loyens, D., Chakraborty, S., Pimenta, D. (2023). Product Design for the Circular Economy: A Design Process for Footwear. DOI: https://doi.org/10.1007/978-3-031-33890-8_13
- Lerwen Liu, Seeram Ramakrishna. Designing for the Circular Economy. Springer Nature, 2020
- Charter, Martin (2018). 'Designing for the Circular Economy'. Routledge.
- T. Kono, L. Lynn. Strategic New Product Development for the Global Economy. Springer, 2007
- Vanessa Cutler. New Technologies in Glass, A & B Black, 2012
- Sudha Pillai (2003)., 'Ceramics: A Potter's Handbook', Bharatiya Kala Prakashan.
- Neil MacMillan (2020)., 'Ceramics: Art and Perception', Bloomsbury Publishing.
- Shackelford & Doremus. Ceramic and Glass Materials Structure, Properties and Processing. Springer, 2008
- Tunmise Ayode Otitoju et al. Advanced ceramic components: Materials, fabrication, and applications Author links open overlay panel, Elsevier, 2020. DOI: <https://doi.org/10.1016/j.jiec.2020.02.002>
- Susan M. Winchip (2017)., 'Fundamentals of Lighting', Fair Child Books, Bloomsbury., 2nd Edition.
- Michael Wilson and Peter Tregenza (2011)., 'Daylighting: Architecture and Lighting Design', Routledge.
- Mark Karlen, Christina Spangler (2012)., 'Lighting Design Basics', Wiley., 2nd Edition.
- Christopher Cuttle (2015)., 'Lighting Design: A Perception-Based Approach', Routledge.
- Gordon B. Arnold. Animation and the American Imagination: A Brief History. ABC-CLIO, 2016
- Jonathan Cooper. Game Anim: Video Game Animation Explained. Import, CRC Press, 2021.
- Elvin Hernandez. Set the Action! Creating Backgrounds for Compelling Storytelling in Animation, Comics, and Games. Routledge, 2017.
- Satyajit Ray (2013)., 'Our Films Their Films', Orient Blackswan.
- K. Hariharan, Sasikumar Krish (2017)., 'Film Studies: An Introduction', Oxford University Press.
- Kristin Thompson, David Bordwell (2010)., 'Film Art: An Introduction', McGraw-Hill Education., 10th Edition.

Supplementary Reading/ Design Journals:

- Julius Panero, Martin Zelnik (1979)., 'Human Dimension and Interior Space: A Source Book of Design Reference Standards', Watson-Guption.
- Walter R. Stahel (2019)., 'The Circular Economy: A User's Guide', Routledge.
- Journals/other relevant reading materials as per instructors/coordinators.

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester III: Design Innovation Cell

II Year III Sem

MDES231 – M. Des. Studio – III (Design Innovation Cell)

15 Credits

Objectives:

- Researching passenger needs and preferences for informed design.
- Generating innovative ideas for ship layout, cabins, amenities, and entertainment.
- Considering sustainability and environmental factors in design.
- Utilizing technologies like virtual reality, augmented reality, IoT and AI for onboard experiences.
- Designing inclusively for passengers with disabilities or special needs.
- Collaborating on immersive entertainment experiences, interactive installations, and wellness-focused amenities.

Module I: User/Design Research – Search, discover

Researching passenger needs and preferences for informed design:

Surveys and Questionnaires: Collecting quantitative data on passenger preferences, habits, and satisfaction levels. Engaging with passengers directly to gather in-depth qualitative insights about their experiences and expectations. Observing passengers in real-world settings to understand their behaviors and interactions without interference. Creating detailed profiles that represent different segments of passengers to guide design decisions. Visualizing the entire passenger experience from booking to disembarkation to identify pain points and opportunities for improvement.

Module II: Design Synthesis - Define insights, keywords, generate key ideas

Generating innovative ideas for ship layout, cabins, amenities, and entertainment:

Analyzing survey data to identify trends and significant patterns. Examining qualitative data from interviews and focus groups to extract common themes and insights. Using the gathered insights to inform design choices that address real passenger needs and preferences. Continuously refining designs based on feedback and testing with actual users. Generating Innovative Ideas for Ship Layout, Cabins, Amenities, and Entertainment Generating innovative ideas requires a combination of creativity, strategic thinking, and an understanding of passenger needs. This involves: Encouraging free-flowing ideas in a group setting to generate a wide range of concepts. Visualizing connections between different ideas to explore new possibilities. Applying specific prompts to existing ideas to create new innovations (Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse). Understanding and articulating the specific challenges and constraints in ship design. Divergent Thinking: Exploring multiple potential solutions before narrowing down to the most viable options. Building physical or digital models of ideas to test their feasibility and appeal with real users. Specific Applications: Designing functional and aesthetically pleasing layouts that optimize space and flow while enhancing passenger experience. Creating comfortable and adaptable living spaces that cater to diverse passenger needs, including accessibility features. Amenities and Entertainment: Innovating on amenities (e.g., spas, fitness centers) and entertainment options (e.g., theaters, virtual reality experiences) to offer unique and engaging activities. Integrating eco-friendly materials and practices into design to minimize environmental impact. Technology Integration: Leveraging advanced technologies (e.g., smart cabins, interactive installations) to enhance passenger convenience and engagement.

Module III: Design Development - Develop ideas, ideation, brainstorm

Considering sustainability and environmental factors in design & Inclusive design:

Sustainability and environmental considerations have become paramount due to the growing awareness of ecological impacts and the need for responsible resource management. Sustainable design aims to minimize negative environmental effects by using resources efficiently, reducing waste, and creating products and systems that are eco-friendly throughout their lifecycle. This approach includes selecting materials with lower environmental footprints, designing for durability and recyclability, and reducing energy consumption in both the production and use phases. Key strategies include life cycle assessment (LCA) to evaluate the environmental impacts of products from cradle to grave, eco-design principles that prioritize the use of renewable resources, and the incorporation of circular economy concepts that promote reusability and recycling. Designers also focus on creating adaptable and modular products that can be easily repaired or upgraded, extending their lifespan and reducing the need for new materials. Modern technologies such as Virtual Reality (VR), Augmented Reality (AR), the Internet of Things (IoT), and Artificial Intelligence (AI) are revolutionizing onboard experiences, particularly in the context of transportation

and hospitality industries like cruise ships and airplanes. These technologies enhance passenger experiences by providing immersive, interactive, and personalized services.

Module IV: Design Prototyping & Testing - Implement, select, deliver

Utilizing technologies like virtual reality, augmented reality, IoT and AI for onboard experiences:

In the field of design, particularly in environments such as cruise ships, hotels, and public spaces, creating engaging and holistic experiences for users is paramount. This involves a multidisciplinary approach that integrates immersive entertainment, interactive installations, and wellness-focused amenities to enhance the overall experience and well-being of users. Immersive entertainment experiences are designed to deeply engage users, often by leveraging advanced technologies and creative storytelling. These experiences can range from virtual reality (VR) simulations and augmented reality (AR) applications to interactive theater and live performances. Creating immersive entertainment requires collaboration between designers, technologists, artists, and storytellers. Designers work with VR/AR developers, animators, and software engineers to create seamless and captivating experiences. They also collaborate with writers, directors, and performers to ensure that the content is compelling and engaging. The use of VR and AR can transport users to different worlds, provide interactive gaming experiences, or offer educational simulations. For instance, a VR installation on a cruise ship might allow passengers to explore underwater worlds or historic sites, while AR apps could enhance onboard activities with interactive elements.

Essential Reading

- The Elements of User Experience: User-Centred Design for the Web by Jesse James
- Observing the User Experience: A Practitioner's Guide to User Research by Mike Kuniavsky
- Sketching User Experiences: Getting the Design Right and the Right Design Book by Bill Buxton
- Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests (Paperback) by Jeffrey Rubin.
- Shneiderman, Ben; Designing the User Interface: Strategies for Effective Human-Computer Interaction. 1997
- "Observing the User Experience: A Practitioner's Guide to User Research" by Mike Kuniavsky
- "User Experience Research: Discover What Customers Really Want" by Stephanie Marsh
- "101 Things I Learned in Architecture School" by Matthew Frederick
- "Designing Spaces for Natural Ventilation: An Architect's Guide" by Ulrike Passe and Francine Battaglia
- "Design for Experience: Where Technology Meets Design and Strategy" by J. Robert Rossman and Mathew D. Duerden
- "Sustainable Design: A Critical Guide" by David Bergman
- "Cradle to Cradle: Remaking the Way We Make Things" by William McDonough and Michael Braungart
- "Augmented Reality: Principles and Practice" by Dieter Schmalstieg and Tobias Hollerer
- "The Fourth Industrial Revolution" by Klaus Schwab
- "Virtual Reality" by Steven M. LaValle
- "Inclusive Design: Designing and Developing Accessible Environments" by Rob Imrie and Peter Hall

Supplementary Reading/Design Journals:

- "Universal Design Handbook" by Wolfgang Preisler and Korydon H. Smith
- "The Experience Economy: Competing for Customer Time, Attention, and Money" by B. Joseph
- "Designing for Interaction: Creating Innovative Applications and Devices" by Dan Saffer
- "Wellbeing: A Complete Reference Guide, Wellbeing and the Environment" edited by Rachel Cooper, Elizabeth Burton, and Cary L. Cooper

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester III: Innovation & Iteration

Year II Sem III

MDES232 – Universal Human Values, Ethics & Environmental Psychology 04 Credits

Unit 1: Introduction to Environmental Psychology

- Understanding the fundamentals of environmental psychology
- Exploring the relationship between humans and their built environment
- Studying the psychological effects of different environmental factors
- Examining the influence of the physical surroundings on human behaviour and emotions
- Introducing key theories and research in environmental psychology

Unit 2: Human Behaviour and Its Influence

- Analysing human behaviour patterns in various contexts
- Understanding the impact of social and cultural factors on behaviour
- Exploring cognitive processes and decision-making in relation to the environment
- Investigating the influence of personal experiences and individual differences on behaviour
- Examining the role of perception and interpretation in shaping behaviour

Unit 3: Emotional and Sensory Aspects of Design

- Exploring the emotional responses evoked by different design elements
- Understanding the role of aesthetics and visual stimuli in eliciting emotions
- Examining the impact of sensory experiences (such as sound, touch, and smell) on emotions
- Analysing the use of colour, lighting, and materials to create specific emotional responses

Unit 4: Designing for Well-being and User Experience

- Investigating the relationship between environmental design and well-being
- Exploring the concept of user experience (UX) in relation to the built environment
- Understanding the role of design in promoting physical and mental health
- Examining the principles of user-centered design and its impact on well-being
- Studying the incorporation of nature, biophilia, and green spaces in design for enhanced well-being

Unit 5: Design for Environment

- Exploring the intersection of environmental psychology and sustainable design
- Understanding the role of environmental design in promoting sustainable behaviours
- Examining the concept of resilience and designing for adaptive environments
- Considering the ethical and social responsibility aspects of sustainable design

Essential Reading:

- Norman DA. Emotional Design: Why We Love (or Hate) Everyday Things. Basic Books; 2004.
- Norman, D. The Design of Everyday Things, Revised and Expanded Edition. Basic Books, New York, 2013.
- Gibson, J. The Ecological Approach to Visual Perception: Classic Edition, Psychology Press, 2014.
- Dak Kopec. Environmental Psychology for Design, Bloomsbury Academic, 2018.
- Dak Kopec. Environmental psychology for design, Fairchild Books, New York, 2020.
- Flach & Dominguez. USE - Centered Design: Integrating the User, Instrument, and Goal, Vol 3 (3). Doi: <https://doi.org/10.1177/106480469500300306>

- Harry Heft L. Erlbaum. *Ecological Psychology in Context: James Gibson, Roger Barker, and the Legacy of William James's Radical Empiricism*, Psychology Press, 2001.

Supplementary Reading/Journals:

- Mihaly Csikszentmihalyi. *FLOW: The Psychology of Optimal Experience*, Harper Perennial Modern Classics, 2008.
- Norman, D. *The Psychology of Everyday Things*, Basic Books, 1988.
- Journals, Papers, and reference materials as per topics & instructor.

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester III: Innovation & Iteration

Year II Sem III

MDES233 – Design Prototyping and Iteration

05 Credits

Unit 1: Introduction to Prototyping Methods

- Overview of prototyping methods used in the design process
- Exploring techniques such as 3D modelling, paper prototyping, and rapid prototyping
- Understanding the benefits and limitations of each prototyping method
- Applying appropriate prototyping methods based on project requirements and constraints
- Introduction to prototyping tools and software

Unit 2: Materials and Tools for Prototyping

- Exploring a range of materials commonly used in prototyping, such as foam, wood, plastic, and electronics
- Understanding the properties and characteristics of different prototyping materials
- Introduction to prototyping tools and equipment, including hand tools, 3D printers, laser cutters, and electronics components
- Selecting appropriate materials and tools based on project needs and feasibility
- Safety considerations when working with prototyping materials and tools

Unit 3: Iterative Prototyping Process

- Emphasizing the iterative approach in the prototyping process
- Understanding the importance of creating multiple versions of prototypes
- Gathering feedback from stakeholders and users to inform design iterations
- Conducting design reviews and collaborative sessions to drive iterative improvements
- Incorporating user feedback into the prototyping process to enhance usability and functionality

Unit 4: Stakeholder and User Feedback in Prototyping

- Importance of stakeholder and user involvement in the prototyping process
- Techniques for gathering feedback from stakeholders and users
- Analyzing and interpreting feedback to identify areas for improvement
- Integrating stakeholder and user feedback into the design iterations
- Effective communication and collaboration with stakeholders and users during the prototyping phase

Unit 5: Agile Design and Prototyping

- Introduction to Agile design methodologies and their relevance to prototyping
- Applying Agile principles, such as rapid iterations and continuous improvement, to the prototyping process
- Managing prototyping projects in an Agile environment, including sprint planning, backlog management, and user story development
- Collaborating with cross-functional teams and adapting to changing requirements during prototyping
- Benefits and challenges of adopting an Agile approach in design and prototyping

Essential Reading:

- Bjarki Hallgrímsson. *Prototyping and Model making for Product Design*. Laurence King Publishing, 2012.
- Carla Viviana Coleman. *Rapidly Prototyping Interfaces with InDesign*. Taylor & Francis Group, New York, 2018.
- Mike Kuniavsky. *Observing the User Experience: A Practitioner's Guide to User Research*, Elsevier, 2003.
- Bill Buxton. *Sketching User Experiences: Getting the Design Right and the Right Design Book*, Morgan Kaufmann, 2010.
- *Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests (Paperback)* by Jeffrey Rubin.
- "Eleven lessons. A study of the design process". Design Council, 2022.



- Journals, Papers, and reference materials as per topics & instructor

Supplementary Reading/ Design Journals:

- Christopher Alexander. Notes on the Synthesis of Form. Harvard University Press, 1964.
- Robert Curedale, Service Design Process & Methods, Design Community College Inc., 2018
- John Chris Jones, Design Methods: Seeds of Human Futures, Wiley.
- Don Norman, The Design of Everyday Things. Basic Books, New York, 2013.
- Design Studies, Elsevier; Design Issues, MIT Press
- Design and Culture, Taylor & Francis, The Design Journal, Taylor & Francis

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester III: Innovation & Iteration**Year II Sem III****MDES234 – Industry Training****03 Credits**

The 06-week internship in a design firm or relevant industry offers students a valuable opportunity to gain firsthand experience in the design field. This immersive experience exposes them to real-world projects and professional environments, allowing them to apply their theoretical knowledge and skills in a practical setting.

Through the internship, students have the chance to work alongside industry professionals, learning from their expertise and gaining insights into the industry's best practices. Additionally, the internship provides networking opportunities, enabling students to establish connections with industry experts and practitioners.

These connections can be valuable for future career prospects, mentorship, and accessing a wider professional network. Overall, the internship enhances students' understanding of the design industry, builds their professional capabilities, and helps them transition from academic studies to the professional world.

Note: MDES234 – Industry Training will be for a period of 06 weeks at the end of Sem II and evaluated as a part of Sem III.

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester III: Innovation & Iteration

Year II Sem III

MDES1235 – Elective - III

03 Credits

a) Cruise Ship Recreation and Experience Design

- Designing engaging recreational spaces and experiences on cruise ships.
- Considering passenger demographics and preferences for inclusive options.
- Integrating technology and digital interfaces for enhanced experiences.
- Balancing safety, comfort, and aesthetics in recreational area design.

b) Landscape & Signage Design

- Creating appealing and functional outdoor spaces.
- Designing wayfinding systems and signage for navigation.
- Considering accessibility and inclusivity.
- Collaborating with stakeholders for integration.
- Enhancing user experience and interaction with the environment.

c) Handicraft & Textile Design

- Creating unique textile and handicraft products using traditional techniques.
- Incorporating sustainability and ethical considerations in material selection.
- Balancing aesthetics and functionality for fashion, home decor, and art.
- Experimenting with innovative techniques and technologies.

d) Transport & Automobile Design

- Designing vehicles with a focus on aesthetics, functionality, and user experience.
- Incorporating innovative technologies and materials for performance and sustainability.
- Considering ergonomics, safety, and brand identity in vehicle design.
- Collaborating with engineers and manufacturers for feasibility and production readiness.

e) Interaction and Interface Design

- Designing intuitive interfaces for digital products and services.
- Conducting user research and usability testing.
- Creating wireframes, prototypes, and mock-ups for visualization.
- Implementing designs with developers and engineers.



Essential Reading:

- Choudhary & Kumar. Seafaring Elegance: The Art of Cruise Interior Design. LWRN Studio, 2024.
- Peter & Peter. Cruise: Identity, Design and Culture, Rizzoli International Publications, 2006
- Indian Handloom and Handicrafts by Mukherjee &, Debashree, 2009.
- Handloom Industry in India: An Overview by K.S Suresh Kumar & C. Ganesh. 2014
- Jordan Meadows. Vehicle Design: Aesthetic Principles in Transportation Design, Routledge, 2017.
- Stein, J.A. Curves of Steel: Streamlined Automobile Design at Phoenix Art Museum, Coach built Press, 2009. .
- Wilbert O. Galitz. The Essential Guide to User Interface Design: An Introduction to GUI Design Principles and Techniques, Wiley & Sons, 2002.

Supplementary Reading/ Design Journals:

- Kelley, P. Imagine!: Automobile Concept Art from the 1930s to the 1980s. Dalton Watson Fine Books, 2019.
- Woodson Wesley E, Human Factors Design Handbook, McGraw-Hill Education; 1992
- Norman, Donald: A Design of Everyday Things, Basic Books, 2002
- The Elements of User Experience: User-Centred Design for the Web by Jesse James
- Observing the User Experience:A Practitioner's Guide to User Research by Mike Kuniavsky
- Sketching User Experiences: Getting the Design Right and the Right Design Book by Bill Buxton
- Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests (Paperback) by Jeffrey Rubin.
- Shneiderman, Ben; Designing the User Interface: Strategies for Effective Human-Computer Interaction. 1997
- Journals/relevant materials as per instructor/ecordinators.



Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester IV: Design Thesis and Entrepreneurship

Year II Sem IV

MDES241 – M. Des. Studio – IV (Thesis)

24 Credits

Thesis Project:

The student, in partial fulfillment of M. Des. programme, would be required to complete a design project on a choice-based system under the supervision of designated thesis guides. The project or artefact design should have adequate theoretical basis, and be supported by proof of concepts, and above all a prototype. The project would have to be approved by concerned faculties, and it should have the potential to demonstrate the student's design maturity, attitude, aptitude and approaches as a professional. The student's capacity and aptitude to study, research, analyze, and iterate upon design concepts and solutions would be reflected in this thesis exercise. Upon allocation of thesis guide, the student would earnestly seek the guidance, and mentorship of the faculty concerned.

Exhibition:

This exhibition would be for evaluation of the final project through assessment by the guide and final jury member(s). These exhibitions may involve university exhibition to the jury member(s) or exhibition to the public on other platforms, besides the university, if possible. Placement, preparation of portfolio, and other industry activities are the responsibility of the student, and may be in coordination of support from faculty and the university concern. Internal and external marking systems may be divided into 50% each.

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Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester IV: Design Thesis and Entrepreneurship

Year II Sem IV

MDES242 – Intellectual Property Rights, Professional Practice & Management (3L) 03 Credits

Unit 1: Introduction to Intellectual Property Rights

- Overview of intellectual property rights and their significance in the design industry.
- Understanding different forms of intellectual property, such as copyrights, trademarks, and patents.
- Exploring the importance of protecting and managing intellectual property assets.

Unit 2: Copyright and Design Protection

- Understanding copyright laws and how they apply to design works.
- Exploring the scope of copyright protection for design creations and original works.
- Learning about copyright infringement and how to enforce copyright protection.

Unit 3: Trademarks and Brand Protection

- Introduction to trademarks and their role in branding and design.
- Understanding the process of trademark registration and maintenance.
- Exploring strategies for brand protection and enforcement of trademark rights.

Unit 4: Patents and Design Innovation

- Overview of patent laws and their relevance to design innovation.
- Understanding the criteria for patentability and the patent application process.
- Exploring the benefits and challenges of obtaining and enforcing design patents.

Unit 5: Professional Practice and Management

- Exploring the principles of professional practice in the design industry.
- Understanding ethical considerations and professional responsibilities in design work.
- Learning about project management techniques, client relationships, and effective communication in design practice.

Essential Reading:

- Gerre L. Jones. How to Market Professional Design Services, McGraw-Hill, 1973.
- Armstrong & McDowell. Fashioning Professionals: Identity and Representation at Work in the Creative Industries, Bloomsbury Publishing, 2018.
- Brean, D. H. In: Luchs, Swan, Griffin. Chapter 24-Intellectual Property Protection for Designs, Wiley & Sons, Inc. 2016.
- Gazette of India. THE DESIGNS ACT, 2000 No. 16 of 2000 [25th May, 2000].
- Govt. of India. Ministry of commerce & industry. THE DESIGNS RULES, 2001.



- Brigitte Borja De Mozota, Design Management: Using Design to Build Brand Value and Corporate Innovation, Allworth, 2003.
- Marty Neumeier, Brand Gap: How to Bridge the Distance Between Business Strategy and Design: a Whiteboard Overview, New Riders, 2006.
- W. Chan Kim and Renee Mauborgne. Blue Ocean Strategy: How to Create Uncontested Market Space and Make Competition Irrelevant. Harvard Business School Press, 2005
- Marc Annacchino. New Product Development: from Initial Idea to Product Management, Butterworth-Heinemann Ltd (16 October 2003)
- Kathryn Best. Design Management: Managing Design Strategy, Process and Implementation, Bloomsbury Publishing, 2015.
- Antonio Nieto-Rodriguez. Harvard Business Review Project Management Handbook: How to Launch, Lead, and Sponsor Successful Projects, Harvard Business Review Press, 2021
- DMI (Design Management Institute Journals) Journals

Supplementary Reading/ Design Journals:

- Design Management Journal, Wiley Online Library.
- Sharad Sarin. Strategic Brand Management for B2B Markets: A Road Map for Organizational Transformation, Atlantic Publishers and Distributors (P) Ltd., 2024.
- Tony Fry. Design Futuring: Sustainability, Ethics and New Practice, Berg publishers, 2009.

Masters in Design Program (M. Des.)

School of Planning and Architecture, Vijayawada

Semester IV: Design Thesis and Entrepreneurship

Year II Sem IV

MDES243 – Design Entrepreneurship and Business Strategies

03 Credits

Unit 1: Introduction to Entrepreneurship and Start-up Ecosystems

- Understanding the fundamentals of entrepreneurship
- Exploring the start-up ecosystem, including incubators, accelerators, and funding sources
- Identifying key characteristics and skills of successful entrepreneurs
- Examining case studies of successful design start-ups
- Developing an entrepreneurial mindset and identifying opportunities for design ventures

Unit 2: Business Model Development for Design Ventures

- Introduction to business models and their relevance to design ventures
- Understanding different types of business models, such as subscription-based, freemium, and marketplace models
- Conducting market research and competitive analysis to inform business model development
- Creating value propositions and identifying revenue streams for design ventures
- Validating and refining the business model through prototyping and customer feedback

Unit 3: Integrating Design into Business Strategies

- Recognizing the strategic value of design in business
- Exploring the role of design in shaping customer experience and differentiation
- Integrating design thinking into strategic planning processes
- Developing design leadership skills to drive innovation and growth
- Leveraging design as a competitive advantage and driver of business success

Unit 4: Branding, Advertisement and Packaging Design

- Understanding the importance of branding in establishing a strong identity for design ventures
- Developing brand strategies and positioning statements
- Designing visual identities, including logos, typography, packaging and colour schemes
- Creating compelling advertisement designs to effectively communicate brand messages
- Applying brand consistency across various marketing channels and touchpoints

Unit 5: Pitching for Design Start-ups



- Crafting a persuasive pitch for design start-ups
- Structuring and delivering effective presentations to potential investors and stakeholders
- Developing storytelling skills to engage and inspire audiences
- Incorporating visual design and multimedia elements in presentations
- Receiving and incorporating feedback to continuously improve pitching skills

Essential Reading:

- Kelley & Littman. *The Ten Faces of Innovation: IDEO's Strategies for Beating the Devil's Advocate and Driving Creativity Throughout Your Organization*, Currency/Doubleday, 2005.
- Armstrong *Productize: The Ultimate Guide to Turning Professional Services into Scalable Products*, Vectoris, 2021.
- Douglas Davis. *CREATIVE STRATEGY AND THE BUSINESS OF DESIGN*, Adams Media, 2016.
- Harvard Business Review. *HBR Guide to Setting Your Strategy*. Harvard Business Review Press, 2020
- William D'Arienzo, *BRAND MANAGEMENT STRATEGIES : LUXURY AND MASS MARKETS - BUNDLE BOOK + STUDIO ACCESS CARD*, Fairchild Books, 2016.
- Journals as per instructors/course coordinators.

Supplementary Reading/ Design Journals:

- Design Management Journal, Wiley Online Library.
- Harvard Business Review. *HBR Guide to Managing Strategic Initiatives*, Harvard Business Review Press, 2020.