Course Code	DES2xx/DES5xx
Course Name	DESIGN PROCESSES AND PERSPECTIVES
Credits	4
Course Offered to	UG
Course Description	This course introduces students to the theoretical and practical aspects of design evolving processes. The course presents the varied palette of design from design of physical objects, to design of human-computer interactions, to design of services, to design of micro systems and connected/complex systems. It offers tasks that initiate the process of learning fundamental skills such as observation & representation, investigation, analyisation, synthesisation, conceptualization, reflections, projection, visualization & representation.. Topics such as Design Processes, Design Perspectives, Design Context & Concerns, Problem Solving Methods, Idea Generation, User-Focused Thinking and Basic Communication are covered during the course. It also introduces students to various stages of problem solving process from problem identification to investigation and analysis of needs as well as tools and techniques used for generation, iteration, evolution and communication of ideas and design concepts. This course helps sensitize students to study the social, cultural and physical environment in which his/her design has to operate, so that the design has a meaning or relevance to the people concerned. Broadly, the course gives students the opportunity to develop essential design thinking skills such as exploring the designed space to identify problem, applying the design thinking process to problems, visualizing design solutions, refining final designs and communicating ideas in visually appropriate form through assignments and projects.

Pre-requisites

Pre-requisite (Mandatory)	Pre-requisite (Desirable)	Pre-requisite (Other)
Completion of DESIGN DRAWING & VISUALISATION (DDV) Course Parallel Course VISUAL DESIGN & COMMUNICATION	Ability to Sketch Ability to Interact with People Ability to Communicate Abilty to Work Beyond Expected Requirements	Working Knowledge of Softwares like Adobe Photoshop, Illustrator Balsmiq, Sketch etc with easy access to a computer.

*Please insert more rows if required

Post Conditions*(For suggestions on verbs please refer the second sheet)

CO1	CO2	CO3	CO4	CO5
• Develop the ability to identify, reflect, analyze and evaluate an issue or problem, keeping subjective views of all stakeholders in mind, in order to develop insights, which can help develop well defined problem statement.	• Develop the ability to empathise with the 'other' while developing the ability to reflect critically on the designer 'self' thus developing the ability to create scenarios and initiate, express and communicate concepts.	• Develop the ability to select methodologies and develop processes in problem sol	• Develop the ability to engage in complex problem solving and to create collaborations engaging by planning and generating design solutions in a more holistic approach, which includes all stakeholders, systems, communities and complexities of issues.	

Weekly Lecture Plan

Week Number	Lecture Topic	COs Met	Assignment/Labs/Tutorial
1	**1. INTRODUCTION TO PROBLEM SOLVING PROCESS** 1a. Factors Influencing Design. 1b. Brief/Opportunity/Need/'Leap of Faith' 1c. Research/ Investigation 1d. Analysis/Synthesis/Findings/Insights 1e. Problem Statement 1f. Conceptualisation/Ideation/ Visualization 1g. Options & Alternatives 1h. Final Solution, Implementation/execution, 1i. Evaluation/Validation/Testing 1j. Improve/Modify/Amend/Revise **2 ANALYSIS OF A SIMPLE PROBLEM IN A GIVEN CONTEXT** 2a. Mind Maps, 2b. Affinity Mappings, 2c. Empathy Mapping 2d. User Story Mapping 2e. Semiotic Analysis (Syntax-Semantic-Pragmatic) 2f. Observations, Insights and Opportunities 2g. Soft Prototyping the idea/concept 2h. Documentation, report making and presentations	C01	1. IDENTIFYING A MICRO/SIMPLE PROBLEM/NEED/OPPORTUNITY OR AN EXISTING DESIGN THAT REQUIRES IMPROVEMENT AND Assignments : i. Identify a Micro/Simple Problem from the local environment or public space which can include product, space, communication, system, services, human interaction, experiences, activities, issues of concern etc. ii. Conduct a field study in a chosen environment – communication of it's understanding and identifying problems through maps, sketches, illustration, interaction with people and textual reports. iii. Articulate a Problem Statement. iv. Design / Conceptualise the Research. 2.SCOPING THE CONTEXT OF THE PROBLEM AREA i. Identify a Simple Problem/Need/Opportunity etc and scope the context ii. Analyse the problem /need/ opportunity using diffrent methods

2	**3. DESIGN PERSPECTIVES : CONTEXT & CONCERNS** 3a. Understanding and defining 'Context' – Exposure to different perspectives, concerns and issues in the context of design. 3b. Understanding and defining 'Concerns' – Fundamental yet subjective questions like what makes a good designer. Areas of concerns : social concerns, economic concerns, political concerns, environmental concerns etc. 3c. Tangible and Intangible relevance of broadening one's perspectives in Arts Aesthetics, Science and Technology in Design. 3d. The Challenges in Design - Designing for the Real World 3e. Emerging Areas of Design. 3f. Relevance of Design in the Context of India. 3g. Importance of Sustainable Design Practices - Preserving traditional practices & designing for the underserved communities. 3h. Wicked Problems.	C01	3. MICRO TO MACRO PROBLEMS/NEEDS/OPPORTUNITIES Assignments : 3a. Five Personal Problems (ask the self) 3b. Five Problems from 5 People. 3c. Five Problems from the Newspaper 3d. Five City Level Problems 3e. Five Problems from the Planetary Crisis 3f. Mapping of the 4/5 Ws & an H to one in each of the above categories. 3g. Create an Exhaustive Mapping of the Stakeholders in the Problem Area Identified 3h. Describe 'Wicked Problems' and illustrate with examples 3i. Write short essays on the following : a) Your Definition and Interpretation of 'Context' b) Your Understanding and Articulation of 'Concerns' c) Meaning and Significance of Inclusive Design Practices
3	**4. THE NOTION OF THE DESIGNER 'SELF' AND THE 'OTHER/USER'** 4a. The Hierarchy of the 'Other' **5. PROBLEM STATEMENT** 5a. Framing the Problem with Rreference to Context; 5b. Framing Research Questions 5c. Framing the Design Process : Identifying Methodologies and Strategies related to the different stages of Problem Solving Process **6. CREATIVE DESIGN THINKING METHODS** Introduction to various Techniques/Tools for Ideation: 6a. Brain Storming, 6b. Browsing, 6c. Word Association, 6d. Attribute Listing, 6e. Mind Mapping, 6f. Affinity Mapping, 6g. Card Sorting, 6h. 3 W & H, 6i. SCAMPER, 6j. SWOT Analysis.	C04, C02	4. DESIGNER SELF AND THE OTHER Assignments : 4a. Create an Exhaustive Mapping of the Stakeholders in the Problem Area Identified – 'Extrospection' of 'Other/User' in the Community, Society and Environment 5. SCOPING A PROBLEM Assignments : i. Identifying areas for potential design solutions and choose one – PROBLEM X ii. Research, Data Collection and Analysis of Findings iii. Redefining or Reinterpreting the Design Problem taking into account the analysis and synthesis of the relevant information collected. 6. EXPLORING IDEATION METHODS Assignments : i. Using the analysis of PROBLEM X, apply appropriate ideation methods to scope possible solutions. Explore Creative Thinking Experiences – Visual (Mapping, Diagrams, Scamper, SWOT etc), Verbal (Brainstorming etc), Spatial (Role Play etc).
4	**7. VISUALISATION / CONCEPTUALISATION / IDEATION OF MULTIPLE SOLUTIONS** **8. SELECTION OF 3 OPTIMAL SOLUTIONS** **9. IMPLEMENTATION OF FINAL SOLUTION /EXECUTION OF FINAL SOLUTION**	C03	7. EXPLORING MULTIPLE SOLUTIONS Assignments : i. Conceptualizing solutions based on Problem Statement of PROBLEM X and following a process of extensive explorations. 8. THREE ALTERNATE SOLUTIONS Assignments : i. Selecting effective options and working on them to culminate into 3 Alternative Optimal Solutions. 9. PAPER PROTOTYPES Assignments : a. Identifying one Final Optimal Solution. b. Translate Concept Drawings to Working Drawing. c. Execute Model, Prototype, Mockup etc
5	**10. CONTINUATION OF IMPLEMENTATION OF FINAL SOLUTION/EXECUTION OF FINAL SOLUTION** **INTRODUCTION TO DIGITAL TOOLS FOR PROTOTYPING**	C03, C02	10. DIGITAL PROTOTYPES Assignments : i. Translate Working Drawings on Paper to the Digital Platform. ii. Execute Model, Digital Prototype, Mockup etc

6	**11. VALIDATION/TESTING** **12. DOCUMENTATION MTHODS**		11. EVALUATION OF FINAL SOLUTION Assignments : i. Evaluation and Review of Final Solutions through Tests and Interviews. 12. DOCUMENTATION OF DESIGN PROCESS (applied in selected PROBLEM X) Assignments : i. Completing of all on-going assignments and documentation of PROBLEM X.
7	**13. SELF-ACTUALISATION** 13a. Mapping of the Self based on Maslow's Hierarchy of Human Needs. 13b. Mapping of Self based on Ownership of Position taken on Political, Social, Economic, Environmental, Technological, Health etc Issues.	C03, C02	13. REFLECTIVE THINKING AND SELF- DISCOVERY Assignments : i. Create a Mind Map of the 'Self' based on Maslow's Hierarchy of Human Needs ii. Create a Mind Map of the 'Self' based on personal positions taken by individual students.
8	**14. END TERM PROJECT – GROUP PROJECT** 14a. Complex Problem Solving / Solving Wicked Problems 14b. Introduction to Sustainable Development Goals	C03, C02, C01	
9	**14. END TERM PROJECT – GROUP PROJECT**	C03, C02, C01	
10	**14. END TERM PROJECT – GROUP PROJECT**	C03, C02, C01	
11	**14. END TERM PROJECT – GROUP PROJECT**	C03, C02, C01	
12	**14. END TERM PROJECT – GROUP PROJECT**	C03, C02, C01	
13	**14. END TERM PROJECT – GROUP PROJECT**	CO4, C03, C02, C01	

*Please insert more rows if required

Weekly Lab Plan

Week Number	Laboratory Exercise	COs Met	Platform (Hardware/Software)
1	1. IDENTIFYING A MICRO/SIMPLE PROBLEM/NEED/OPPORTUNITY OR AN EXISTING DESIGN THAT REQUIRES IMPROVEMENT AND Assignments : i. Identify a Micro/Simple Problem from the local environment or public space which can include product, space, communication, system, services, human interaction, experiences, activities, issues of concern etc. ii. Conduct a field study in a chosen environment – communication of it's understanding and identifying problems through maps, sketches, illustration, interaction with people and textual reports. iii. Articulate a Problem Statement. iv. Design / Conceptualise the Research. 2.SCOPING THE CONTEXT OF THE PROBLEM AREA i. Identify a Simple Problem/Need/Opportunity etc and scope the context ii. Analyse the problem /need/ opportunity using diffrent methods	C01	Journal, Sketch Book Softwares - Adobe Ilustrator Open Sourse - Inkscape, Svg- Edit Open Source - Simple Mind, Coggle
2	3. MICRO TO MACRO PROBLEMS/NEEDS/OPPORTUNITIES Assignments : 3a. Five Personal Problems (ask the self) 3b. Five Problems from 5 People 3c. Five Problems from the Newspaper 3d. Five City Level Problems 3e. Five Problems from the Planetary Crisis 3f. Mapping of the 4/5 Ws & an H to one in each of the above categories. 3g. Create an Exhaustive Mapping of the Stakeholders in the Problem Area Identified 3h. Describe 'Wicked Problems' and illustrate with examples 3i. Write short essays on the following : a) Your Definition and Interpretation of 'Context' b) Your Understanding and Articulation of 'Concerns' c) Meaning and Significance of Inclusive Design Practices	C01	Journal, Sketch Book Softwares - Adobe Ilustrator Open Sourse - Inkscape, Svg- Edit Open Source - Simple Mind, Coggle

3	4. DESIGNER SELF AND THE OTHER Assignments : 4a. Create an Exhaustive Mapping of the Stakeholders in the Problem Area Identified – 'Extrospection' of 'Other/User' in the Community, Society and Environment 5. SCOPING A PROBLEM Assignments : i. Identifying areas for potential design solutions and choose one – PROBLEM X ii. Research, Data Collection and Analysis of Findings iii. Redefining or Reinterpreting the Design Problem taking into account the analysis and synthesis of the relevant information collected. 6. EXPLORING IDEATION METHODS Assignments : i. Using the analysis of PROBLEM X, apply appropriate ideation methods to scope possible solutions. Explore Creative Thinking Experiences – Visual (Mapping, Diagrams, Scamper, SWOT etc), Verbal (Brainstorming etc), Spatial (Role Play etc).	C02	Journal, Sketch Book Softwares - Adobe Ilustrator Open Sourse - Inkscape, Svg- Edit Open Source - Simple Mind, Coggle
4	7. EXPLORING MULTIPLE SOLUTIONS Assignments : i. Conceptualizing solutions based on Problem Statement of PROBLEM X and following a process of extensive explorations.[1] 8. THREE ALTERNATE SOLUTIONS Assignments : i. Selecting effective options and working on them to culminate into 3 Alternative Optimal Solutions. 9. PAPER PROTOTYPES Assignments : a. Identifying one Final Optimal Solution. b. Translate Concept Drawings to Working Drawing. c. Execute Model, Prototype, Mockup etc	C02, C03	Journal, Sketch Book Softwares - Adobe Ilustrator Open Sourse - Inkscape, Svg- Edit Open Source - Simple Mind, Coggle
5	10. DIGITAL PROTOTYPES Assignments : i. Translate Working Drawings on Paper to the Digital Platform. ii. Execute Model, Digital Prototype, Mockup etc	C01, C02, C03	Journal, Sketch Book Softwares - Adobe Photoshop, Ilustrator, Balsmiq, SketchWare etc
6	11. EVALUATION OF FINAL SOLUTION Assignments : i. Evaluation and Review of Final Solutions through Tests and Interviews. 12. DOCUMENTATION OF DESIGN PROCESS (applied in selected PROBLEM X) Assignments : i. Completing of all on-going assignments and documentation of PROBLEM X.	C03, C02	Journal, Sketch Book Softwares - Adobe Photoshop, Ilustrator, Balsmiq, SketchWare etc
7	13. REFLECTIVE THINKING AND SELF- DISCOVERY[1] Assignments : i. Create a Mind Map of the 'Self' based on Maslow's Hierarchy of Human Needs ii. Create a Mind Map of the 'Self' based on personal positions taken by individual students.	C03, C02, C01	Softwares - Adobe Ilustrator Open Sourse - Inkscape, Svg- Edit Softwares - Adobe Photoshop Open Source - Gimp, Paint.net, Pixlr Balsmiq, SketchWare etc Softwares - Adobe Indesign Open Sourse - Scribus Open Source - Simple Mind, Coggle
8	14. END TERM PROJECT – GROUP PROJECT Assignment: SELECT PROJECT FROM SUSTAINABLE DEVELOPMENT GOALS	C03, C02, C01	Softwares - Adobe Ilustrator Open Sourse - Inkscape, Svg- Edit Softwares - Adobe Photoshop Open Source - Gimp, Paint.net, Pixlr Balsmiq, SketchWare etc Softwares - Adobe Indesign Open Sourse - Scribus Open Source - Simple Mind, Coggle

9	14. END TERM PROJECT – GROUP PROJECT Contd.	C03, C02, C01	Softwares - Adobe Ilustrator Open Sourse - Inkscape, Svg- Edit Softwares - Adobe Photoshop Open Source - Gimp, Paint.net, Pixlr Balsmiq, SketchWare etc Softwares - Adobe Indesign Open Sourse - Scribus Open Source - Simple Mind, Coggle
10	14. END TERM PROJECT – GROUP PROJECT Contd.	C03, C02, C01	Softwares - Adobe Ilustrator Open Sourse - Inkscape, Svg- Edit Softwares - Adobe Photoshop Open Source - Gimp, Paint.net, Pixlr Balsmiq, SketchWare etc Softwares - Adobe Indesign Open Sourse - Scribus Open Source - Simple Mind, Coggle
11	14. END TERM PROJECT – GROUP PROJECT Contd.	C03, C02, C01	Softwares - Adobe Ilustrator Open Sourse - Inkscape, Svg- Edit Softwares - Adobe Photoshop Open Source - Gimp, Paint.net, Pixlr Balsmiq, SketchWare etc Softwares - Adobe Indesign Open Sourse - Scribus Open Source - Simple Mind, Coggle
12	14. END TERM PROJECT – GROUP PROJECT Contd.		Softwares - Adobe Ilustrator Open Sourse - Inkscape, Svg- Edit Softwares - Adobe Photoshop Open Source - Gimp, Paint.net, Pixlr Balsmiq, SketchWare etc Softwares - Adobe Indesign Open Sourse - Scribus Open Source - Simple Mind, Coggle
13	14. END TERM PROJECT – GROUP PROJECT Contd.		Softwares - Adobe Ilustrator Open Sourse - Inkscape, Svg- Edit Softwares - Adobe Photoshop Open Source - Gimp, Paint.net, Pixlr Balsmiq, SketchWare etc Softwares - Adobe Indesign Open Sourse - Scribus Open Source - Simple Mind, Coggle

*Please insert more rows if required

Assessment Plan

Type of Evaluation	% Contribution in Grade
1. Continuous Assessment of Assignments.	40% (20% before mid semester + 20% before end semester)
2. Mid Semester Exam & Jury	10%
3. Maintenance of a Journal	10% (5% before mid semester & 5% before end semester)
4. Attendance	10%
5. End Term Project	20%
6. End Semester Exam & Jury	10%

*Please insert more row for other type of Evaluation

Resource Material

Type	Title
Various Internet Resources	
Text Book	1. Balaram S, Thinking Design, Sage Publications India Pvt. Ltd, Haryan, India, 2011.
Text Book	2. Papanek, Victor, Design for the Real World: Human Ecology and Social Change, Academy Chicago Publishers, USA, (2003).
	1. Vyas, Kumar, Design and the Environment, National Institute of Design, Ahmedabad, India.
	2. Kumar, Vijay, 101 Design Methods : A Structured Approach for Driving Innovation in Your Organization, John Wiley & Sons, New Jersey, (2012).

	3. David Lauer, Design Basics, Wadsworth Publishing, (2007).
	4. John F. Pile, Dictionary of 20th-Century Design, Facts on File, (1990).
	5. Jones, Chris Jones, Design Methods, 2nd Edition, John Wiley & Sons, New Jersey (1992).
	6. Lidwell, William et al., Universal Principles of Design. USA: Rockport Publishers, (2003).
	7. Archer, Bruce, Systematic Methods for Designers, Design. 172, 174, 176, 179, 181, 185, 188. (1963/64).
	8. Archer, Bruce, Systematic Method For Designers, In Cross N (editor) Developments in Design Methodology. UK: John Wiley & Sons. pp 57-82, (1984).
	9. Archer, Bruce, Design as a Discipline, Design Studies 1.1: 17-20, (1979).
	10. Archer, Bruce, Design Awareness and Planned Creativity in Industry. Canada & UK: Design Council of Great Britain, (1974).
	11. Cross, Nigel, Designerly Ways of Knowing, Design studies 3.4: 221-227, (1982).
	12. Cross, Nigel, Design Thinking: Understanding how Designers Think and Work, Bloomsbury, London, New York, (2011).
	13. Brown, Tim, Change by Design: How design Thinking Transforms Organizations and Inspires Innovation, Harper Collins, New York, (2009).
	14. Norman, Donald, The Design of Everyday Things, Currency and Doubleday, New York, (2002).
	15. Norman, Donald, Emotional Design: Why We Love (Or Hate) Everyday Things, Basic Books, USA, (2003).
	16. Heskett, John, Toothpicks and Logos: Design in Everyday Life. UK: Oxford University Press, (2003).
	17. Roozenburg and Eekels, Product Design: Fundamentals and Methods, John Wiley & Sons Inc; New Ed edition.
	18. Schon, Donald A., The Reflective Practitioner: How Professionals Think In Action, Basic Books, (1984).
	19. Smith, Paul, You Can Find Inspiration in Everything, London, Thames& Hudson, (2003).
	20. Kolko, Jon, Exposing the Magic of Design: A Practitioner's Guide to the Methods and Theory of Synthesis, Oxford University Press, (2011).
	21. Bonsiepe, Gui, Interface: An Approach to Design; edited by Dawn Barrett; Maastricht: Jan van Eyck Akademie, (1999).
	22. Garrett, Jesse James, The Elements of User Experience, New Riders (2010).
	23. Moggridge, Bill, Designing for Interactions, MIT Press, (2007).
	24. Tidwell, Jenifer, Designing Interfaces, O'Reilly Media, USA, (2005).
	25. Buxton, Bill, Sketching User Experiences: Getting the Design Right and the Right Design (Interactive Technologies), Morgan Kaufmann, (2010).
	26. Lawson, Bryan and Dorst, Kees, Design Expertis, Taylor & Francis, (2009).
	27. Dorst, Kees, and Crabill, Phyllis, Under-Standing Design, Gingko Press, University of Michigan, (2006).
	28. Surowiecki, James, The Wisdom of Crowds, Anchor Books, New York, (2005).
	29. Ackerman, Diane, A Natural History of the Senses, Vintage, (1990).
	30. Khan, The Third Curve, Mansoor Khan Productions Pvt. Ltd. (2013).
	31. Thackara, John, How to Thrive in the Next Economy, Thames & Hudson Ltd, UK, (2015).
Other Resources	32. Oakley, Mark, Design Management: A Handbook of Issues and Methods (Part IV – The Nature of Design Process), Oxford, UK, Blackwell Publication, (1990).