



Shrimathi Devkunvar Nanalal Bhatt Vaishnav College For Women (Autonomous)

Owned and Managed by Cork Industries Charities Trust
Affiliated to University of Madras - Re-Accredited with 'A+' Grade by NAAC - 4th Cycle

COURSE DATA SHEET

SEMESTER	I	BATCH	2026
COURSE NAME	Fundamentals of Design for Developers	COURSE CODE	26UDAGE1001
COURSE UNITS	5	COURSE TYPE	Generic Elective(GE) - I
CONTACT HOURS (L-T-P)	2-0-2	CREDITS	4
OFFERED BY	B.Sc Data Science and Artificial Intelligence	SHIFT (I / II) Shift I - 8:15 am - 12:50 pm Shift II - 1:00 pm - 5:30 pm	Shift I - 8:15 am - 12:50 pm

COURSE OBJECTIVES

CO1	To introduce the fundamental concepts of User Interface (UI) and User Experience (UX) design and understand their role in the software development lifecycle.
CO2	To develop an understanding of design thinking principles and user-centered design approaches for creating effective digital experiences.
CO3	To provide knowledge of UI design principles including layout, typography, color theory, visual hierarchy, and responsive design practices.
CO4	To enable students to apply user research methods, user journey mapping, wireframing, and accessibility principles in the design process.
CO5	To familiarize students with modern prototyping tools and usability testing techniques for designing, evaluating, and improving interactive user interfaces.

COURSE OUTCOMES: On completion of the course the students will be able to...

	CO Statement	Cognitive Level
CO1	Explain the concepts of UI and UX design, their differences, and their	K2



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	importance in software development.	
CO2	Apply design thinking processes and user-centered design principles to create effective user experiences.	K3
CO3	Design responsive user interfaces using layout principles, typography, color theory, visual hierarchy, and UI components.	K3
CO4	Develop user personas, user journeys, wireframes, and prototypes using modern design tools such as Figma and Adobe XD.	K4
CO5	Evaluate user interfaces through usability testing, feedback analysis, and iterative design improvement techniques.	K5

SYLLABUS

UNIT	TOPICS	HOURS
1	Introduction to UI and UX What is UI and UX? Understanding their roles and differences - The importance of design in the software development lifecycle - Design thinking process: empathize, define, ideate, prototype, and test - Basics of user-centered design.	12
2	Design Principles Layout and grid systems: creating balanced and responsive designs - Typography, color theory, and visual hierarchy - Components of a good UI: buttons, icons, menus, and forms - Best practices for designing mobile-first and responsive interfaces.	12
3	Design Fundamentals User research methods: interviews, surveys, and personas - Designing user journeys and user flows - Wireframing tools and techniques - Accessibility standards and inclusive design	12
4	Prototyping and Design Tools Introduction to popular design tools: Figma, Adobe XD, Sketch - Creating high-fidelity prototypes and mockups - Interactive prototyping and linking screens - Design handoff for developers: using design systems and assets.	12
5	Usability Testing and Iteration	12



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	Conducting usability testing: techniques and tools - Analyzing user feedback to improve designs - A/B testing and metrics for design success - Case studies: good and bad UI/UX designs in real-world applications.	
Note (if any)		

TEXT/REFERENCE BOOKS/E - RESOURCES:

Text Books	1. Joel Marsh, UX for Beginners: A Crash Course in 100 Short Lessons, O'Reilly Media, 1st Edition, 2022. 2. Steve Krug, Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability, New Riders, 3rd Edition, 2014. 3. Jenifer Tidwell, Charles Brewer, and Aynne Valencia, Designing Interfaces: Patterns for Effective Interaction Design, O'Reilly Media, 3rd Edition, 2020. 4. Alan Cooper, Robert Reimann, David Cronin, and Christopher Noessel, About Face: The Essentials of Interaction Design, Wiley, 4th Edition, 2014. 5. Laws of UX: Using Psychology to Design Better Products & Services, Jon Yablonski, O'Reilly Media, 2nd Edition, 2024.
Books For Reference	1. Don Norman, The Design of Everyday Things, Basic Books, Revised and Expanded Edition, 2013. 2. Steve Krug, Rocket Surgery Made Easy: The Do-It-Yourself Guide to Finding and Fixing Usability Problems, New Riders, 1st Edition, 2009. 3. Jeff Johnson, Designing with the Mind in Mind, Morgan Kaufmann, 3rd Edition, 2020. 4. Russ Unger and Carolyn Chandler, A Project Guide to UX Design, New Riders, 3rd Edition, 2024. 5. Ben Shneiderman, Catherine Plaisant, Maxine Cohen, Steven Jacobs, Niklas Elmqvist, and Nicholas Diakopoulos, Designing the User Interface: Strategies for Effective Human-Computer Interaction, Pearson, 7th Edition, 2024.



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E-Learning Resources	1. https://help.figma.com 2. https://helpx.adobe.com/xd.html 3. Material Design 3 - Google's latest open source design system 4. UX/UI Design and AI Courses - Global Design Community IxDF 5. UX Collective

PEDAGOGY (TEACHING METHODOLOGY):

- Lectures
- Hands-on Practice
- Flipped Classroom
- Group Projects/Collaborative Learning
- Industry Interactions/Guest Lectures

CO-PO AND CO-PSO MAPPING:											
	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3	
CO1	3	2	3	2	2	1			3	2	2
CO2	3	3	2	2	3	1			3	3	2
CO3	3	3	3	3	2	2			3	3	3
CO4	3	2	3	3	3	2			3	3	2
CO5	2	3	2	3	2	1			3	3	3
Average (Use only filled in cells for calculation)	2.80	2.60	2.60	2.60	2.40	1.40			3.00	2.80	2.40

Correlation Level: 1-Low 2-Moderate 3-Strong

JUSTIFICATION OF CO-PO/PSO MAPPING			
CO	PO/PSO	Level of correlation	Justification



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CO1	PO1	3	Strong understanding of UI/UX concepts, software development lifecycle, and design principles forms the theoretical foundation for interface design.
	PO2	2	Requires analytical understanding of the roles and differences between UI and UX and their impact on user satisfaction.
	PO3	1	Limited application in implementing basic UI/UX concepts at the introductory stage.
	PO4	2	Encourages investigation of user-centered design approaches and design thinking methodologies.
	PO5	1	Basic awareness of modern UI/UX tools and digital design environments.
	PO6	2	Introduces ethical and inclusive considerations in designing user-centric digital experiences.
	PSO1	3	Develops strong foundation in user interface and user experience design principles.
	PSO2	2	Supports application of software engineering concepts through user-centered design practices.
	PSO3	1	Minimal system development relevance at the introductory level.
CO2	PO1	2	Requires understanding of design thinking methodologies and user-centered design concepts.
	PO2	3	Strong analytical skills required to identify user needs, define problems, and evaluate design alternatives.
	PO3	3	Applies design thinking principles to create user-centered interface solutions.
	PO4	2	Investigates user requirements through empathy, ideation, and iterative design processes.
	PO5	2	Uses collaborative design tools to support ideation and solution development.
	PO6	2	Considers accessibility, inclusivity, and ethical design while addressing user needs.
	PSO1	3	Strengthens practical UI/UX design and problem-solving competencies.
	PSO2	3	Enhances software solution design through user-centered methodologies.
	PSO3	2	Moderate relevance to digital product development and user experience optimization.
CO3	PO1	3	Requires knowledge of layout principles, typography, color theory, visual hierarchy, and responsive design concepts.
	PO2	2	Analyzes interface components and visual design principles to improve usability.



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	PO3	3	Designs responsive interfaces using established UI principles and reusable components.
	PO4	2	Evaluates design alternatives to enhance user interaction and visual consistency.
	PO5	2	Applies responsive design practices using modern UI design tools.
	PO6	2	Incorporates accessibility and inclusive design standards into interface development.
	PSO1	3	Builds competency in professional UI design and visual communication.
	PSO2	3	Strengthens front-end design and user interface development skills.
	PSO3	2	Supports practical implementation of responsive web and mobile interfaces.
CO4	PO1	2	Requires understanding of user research methods, wireframing, prototyping, and design systems.
	PO2	3	Analyzes user behavior through personas, user journeys, and research findings.
	PO3	3	Develops wireframes, interactive prototypes, and high-fidelity designs using Figma and Adobe XD.
	PO4	3	Investigates user workflows and validates design decisions through iterative prototyping.
	PO5	3	Effectively utilizes industry-standard prototyping and collaboration tools for design handoff.
	PO6	2	Promotes accessible and inclusive interface design during prototype development.
	PSO1	3	Develops practical UI/UX prototyping and interaction design expertise.
	PSO2	3	Enhances software development workflow through collaborative design practices.
	PSO3	3	Strong relevance to real-world digital product design and developer collaboration.
CO5	PO1	2	Requires understanding of usability principles, testing metrics, and evaluation methods.
	PO2	3	Strong analytical ability to interpret usability testing results and user feedback.
	PO3	2	Applies iterative improvements based on usability testing outcomes and A/B testing results.
	PO4	3	Investigates interface performance using usability metrics and continuous design refinement.



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	PO5	2	Uses usability testing tools and analytics platforms to evaluate interface effectiveness.
	PO6	3	Strong emphasis on ethical, accessible, and user-friendly interface design practices.
	PSO1	3	Develops competency in evaluating and improving user experiences.
	PSO2	2	Supports quality assurance and user-centered software development practices.
	PSO3	3	Strong relevance to industry-standard usability engineering and product optimization.

