



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Bachelor of Computer Applications

Level: UG

Course / Subject Code: BC04001061

Course / Subject Name: Introduction to UI/UX

w. e. f. Academic Year:	2025-26
Semester:	4
Category of the Course:	Ability Enhancement Courses

Prerequisite:	Basic knowledge of computer systems and web or mobile applications. No prior design experience is required. Familiarity with internet applications and software interfaces is desirable.
Rationale:	This course introduces students to the principles of User Interface (UI) and User Experience (UX) design. It emphasizes the process of creating effective, user-friendly, and visually appealing digital interfaces. Through theory and hands-on practice, students will learn to design and evaluate interfaces for web and mobile platforms using free or open-source design tools. The course aims to blend design thinking, usability, and human-centered design principles relevant to software professionals.

Course Outcome:

After completion of the course, student will able to:

No	Course Outcomes	RBT Level
01	Explain the fundamental principles of User Interface and User Experience Design.	U
02	Analyze user requirements and design user personas and scenarios.	AN
03	Apply usability and accessibility principles in interface design.	A
04	Design and prototype interactive interfaces using open-source tools.	C

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Tutorial / Practical		
				ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
1	0	2	2	70	30	20	30	150



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Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	Introduction to UI/UX – Definition, Importance, Difference between UI and UX, Human-Computer Interaction basics	1	6
2.	Design Thinking Process – Empathize, Define, Ideate, Prototype, Test	1	6
3.	User Research – Personas, Scenarios, Storyboards	1	6
4.	Information Architecture – Navigation design, hierarchy, wireframing basics	1	6
5.	Visual Design Principles – Layout, typography, color theory, balance, contrast, consistency	1	6
6.	Usability and Accessibility – Principles, Heuristics, WCAG overview	2	14
7.	Wireframing and Prototyping – Low-fidelity vs. high-fidelity prototypes	2	14
8.	Interaction Design – Gestures, transitions, micro-interactions	2	14
9.	Responsive Design – Designing for different devices and screen sizes	2	14
10.	Evaluation and Testing – Usability testing methods, feedback loops	2	14
	Total	15	100

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10%	30%	20%	20%	10%	10%

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:

(a) Books:

1. Ramesh Bangia – UI/UX Design: A Beginner's Guide, Firewall Media, Indian Edition.
2. Alan Dix et al. – Human-Computer Interaction, Pearson Education.
3. Don Norman – The Design of Everyday Things, Basic Books.
4. Ben Shneiderman et al. – Designing the User Interface: Strategies for Effective Human-Computer Interaction, Pearson Education.

(b) Open-source software and tools:

- Figma Education Plan (Free for Students)
- Penpot – Open-source UI Design Tool
- Balsamiq Wireframes (Free Trial / Academic License)
- GIMP and Inkscape for graphic design assets



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(c) Online Resources:

- NPTEL Course: Human–Computer Interaction (IIT Guwahati)
- Interaction Design Foundation – Free UX Courses
- Google UX Design Certificate (Coursera)
- Nielsen Norman Group Articles (<https://www.nngroup.com/articles/>)

Suggested Course Practical List:

Exp. No.	Title of Experiment / Activity	Objective / Learning Outcome	Tools / Platforms (Open Source / Free)
1	Introduction to UI/UX Tools and Workspace Setup	Explore Figma, Penpot, and Draw.io environments and understand their basic UI.	Figma (Free Education Plan) / Penpot
2	Observation of Good and Bad UI Designs	Analyze examples of interfaces to identify usability and aesthetic flaws.	Web screenshots, usability checklist
3	Empathy Mapping and Persona Creation	Develop user personas based on target audience and their goals.	Miro (free tier) / Draw.io / Figma FigJam
4	User Journey Mapping	Visualize a user's interaction with a product through a journey map.	Draw.io / Figma FigJam
5	Information Architecture & Sitemap Design	Organize content structure for a sample website or app.	Draw.io / Penpot
6	Sketching Low-Fidelity Wireframes	Create rough sketches of UI layouts for a given scenario.	Paper sketching / Figma low-fidelity wireframes
7	Digital Wireframing using Figma / Penpot	Convert sketches into structured wireframes.	Figma / Penpot
8	Layout and Grid Design	Apply layout principles, spacing, and alignment to create balanced screen designs.	Figma / Penpot
9	Color Theory and Typography Exercise	Experiment with color palettes and font pairings suitable for accessibility.	Figma / Colors.co / Google Fonts



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10	Iconography and Visual Consistency	Create or use consistent icon sets for a mock app or website.	Inkscape / Figma / Material Design Icons
11	Interactive Prototyping	Add navigation links, transitions, and basic interactions to your design.	Figma / Penpot
12	Responsive Design Implementation	Design layouts for mobile, tablet, and desktop views.	Figma Auto Layout / Penpot
13	Usability Testing and Feedback Collection	Conduct a simple usability test with 3–5 peers and gather improvement feedback.	Figma prototype / Google Form feedback
14	Accessibility Evaluation	Evaluate a designed interface using WCAG principles and contrast ratio tools.	Contrast Checker / Accessibility Insights
15	Mini Project: Design and Prototype of an Application	Develop a complete UI/UX design workflow for a simple mobile or web app (e.g., food delivery, library app).	Figma / Penpot / GIMP / Inkscape

List of Laboratory Learning Resources:

Tool Recommendations

- Figma (Education Plan) – Free for students; ideal for UI design and prototyping.
☞ <https://www.figma.com/education/>
- Penpot – 100% open-source UI/UX design and prototyping tool.
☞ <https://penpot.app>
- Draw.io (diagrams.net) – Open-source for journey maps, sitemaps, and flow diagrams.
☞ <https://app.diagrams.net>
- GIMP / Inkscape – Free raster/vector graphics editing tools for assets and icons.
☞ <https://www.gimp.org/> <https://inkscape.org>
- Colors – Free color palette generator.
☞ <https://colors.co>
- Accessibility Insights / WAVE – Free accessibility testing tools.
☞ <https://accessibilityinsights.io>



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Suggested Project List:

No.	Project Title	Description / Expected Outcome	Recommended Tools
1	Online Library App	Design an app interface for browsing, borrowing, and reviewing digital books.	Figma / Penpot / Draw.io
2	College Event Management System	Create UI for event registration, announcements, and feedback for college fests.	Figma / Penpot
3	Smart Canteen Ordering Interface	Design an app for ordering food from the campus canteen, including menu, cart, and payment screens.	Figma / GIMP
4	Bus Tracking Application	Prototype an app that shows live location of college buses and estimated arrival times.	Figma / Penpot
5	Fitness & Wellness Tracker	UI for an app that records workouts, diet logs, and shows progress visualization.	Figma / Inkscape
6	Digital Attendance System	Design web and mobile screens for marking, viewing, and analyzing student attendance.	Penpot / Figma
7	Online Grievance Redressal Portal	Create an interface for users to submit, track, and resolve grievances.	Figma / Draw.io
8	Tourism Information App (Gujarat Tourism)	Design an app that showcases tourist places, maps, and itineraries.	Figma / GIMP
9	E-Commerce Product Comparison Tool	Interface to compare products, view reviews, and manage wishlists.	Figma / Penpot
10	Blood Donation Connect	Prototype a mobile app to connect donors and recipients nearby.	Figma / Draw.io



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11	Campus Navigation App	Design an interactive map of the college with directions to labs, offices, and canteen.	Figma / Penpot
12	Online Examination Portal	UI for students to take tests, view results, and track performance.	Figma / Draw.io
13	Personal Finance Tracker	Design a dashboard for tracking expenses, savings, and budgets.	Figma / Penpot
14	Local Community Service App	Prototype an app to connect volunteers with social service opportunities.	Figma / Inkscape
15	Green Lifestyle App	Design an app encouraging users to reduce carbon footprint by tracking eco-friendly habits.	Figma / Penpot

Suggested Activities for Students: If any

CO- PO Mapping:

Semester 4	Course Name : Introduction to UI/UX										
	POs										
Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	2	1	2	2	2	-	2	2	1
CO2	2	3	3	2	2	1	2	1	2	2	2
CO3	2	2	3	2	3	2	2	2	3	3	2
CO4	1	2	3	2	3	2	2	2	3	3	3

Legend: '3' for high, '2' for medium, '1' for low and '-' for no correlation of each CO with PO.

Note: The CO-PO mapping is indicative; the institute/faculty member can change as required.
