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**UNIVERSITY**

Aegis: Charutar Vidya Mandal (Estd.1945)

## FACULTY OF ENGINEERING & TECHNOLOGY

Effective from Academic Batch: 2020-21

**Programme:** Bachelor of Engineering (Computer Engineering)

**Semester:** VII

**Course Code:** 102046715

**Course Title:** UI/UX Design

**Course Group:** Professional Elective Course - IV

**Course Objectives:** This course aims to cover various techniques of graphic design and UI/UX which are required to become a professional designer. This course provides exposure to the required tools to produce industry-standard designs for advertisements, websites, and mobile apps.

### Teaching & Examination Scheme:

Contact hours per week			Course Credits	Examination Marks (Maximum / Passing)				
Lecture	Tutorial	Practical		Theory		J/V/P*		Total
				Internal	External	Internal	External	
3	0	2	4	40/14	60/21	20/07	30/10	150/52

\* J: Jury; V: Viva; P: Practical

### Detailed Syllabus:

Sr.	Contents	Hours
1	<b>Computer Fundamentals &amp; Digital Illustration:</b> Introduction to Graphic Design and Its Uses, Raster & Vector Graphics, Drawing Vector Shapes and Illustrations, Art & Sketching, Drawing Techniques, Conceptual Thinking in Creativity, developing a Personal Illustration Style, Color Modes, Schemes, Design, Image Retouching and Color Balancing, Using Filters, Corporate Identity Design, Designing Brochures & Catalogues, Layouts for Newspapers, Designing Magazines, Visual Design Principles	04
2	<b>UI Design Fundamentals:</b> Evolution of user interfaces, Interaction with physical components, Flat design, Role of UI in UX, Laws of digital interface design, understand user experience, VIMM model, know your user, user research., Difference between design and art; emotional design; designing for mental models; Importance of presentation, content, interactions, screen elements, accessibility, and global standards.	05
3	<b>Typography:</b> Types of typefaces, Typography Terminology, Guidelines for proper type selection, Typography design, Analyzing Aesthetics as per laws of Design principles, Alignment, Spacing, Lighting & Shadows, Grids, Consistency.	06



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<b>4</b>	<b>Design Language &amp; Rapid Prototyping:</b> In-depth study of Design languages for different Google material platforms, Style guides and its importance, Apple Human centered Design guidelines measurements of UI components, Design for platforms: Mobile, Web, Tablet, Responsive, Smart Watch, Mood boards, UX design principles and laws, Introduction to Adobe XD, Creating low and high-fidelity prototypes.	<b>05</b>
<b>5</b>	<b>UX &amp; its Elements of Design:</b> What is User Interaction, what is Cognitive Model, what is Mental Model, UX design laws and its uses, Elements used in User Experience Design, how it works together, What is Big Picture, What is Persona in UX Design.	<b>05</b>
<b>6</b>	<b>UX Design Process:</b> What is Research in User Experience Design? (User centered design and analysis) Tools and Method used for Research: creating a design strategy, Profiles, and personas, understanding psychographic and demographics, Data gathering methods, Scenario, and task analysis, writing a user story, and designing as per that, Mind Maps, Information, architecture, wireframes., User Needs and its Goals, Know about Business Goals, How to deliver a research and its phases., Information Design and Data Visualization, Interaction Design Information, Architecture Wire framing & Storyboarding, Elements and Widgets, Screen Design and Layouts, UX Design Process, Design Testing Methods and Techniques., Usability Testing – Types and Process, Create plan for the Usability., What is Prototype and wire framing, Various Prototyping Tools and how to prepare Usability Tests?, How to understand & refine Usability Test Results?, Hands-on Assignments and Quiz, Empathy in UX, Understanding UX design trends., Defining the UX Design Process and its Methodology, Flow Chat, User Map.	<b>07</b>
<b>7</b>	<b>UX Improvement Process &amp; Delivery Process:</b> Understanding the Usability Test findings, Applying the Usability Test feedback in Improving the design, how to communicate with implementation/development teams, UX Deliverables and its process.	<b>04</b>
<b>8</b>	<b>UX Projects &amp; Usability Testing:</b> Web Projects, Interface and Product Design, Dashboard, Designing for IOS and Android, Importance of usability testing, Heuristic evaluation and its rules for optimal usability., Gathering insights and iterating, A/B testing, how to do a usability testing, how to do all usability testing, how to design a test, Low and High-Fidelity prototype testing, Analysis and reporting, remote testing.	<b>04</b>
<b>Total</b>		<b>40</b>

**List of Practicals / Tutorials:**

<b>1</b>	Design a Logo for an E-Commerce app.
<b>2</b>	Design an email that showcases a promotional offer of the e-commerce app
<b>3</b>	Design brochure that showcases different features of the e-commerce app.
<b>4</b>	Create User Personas, User Stories, and Use Case Diagrams to define a Problem Statement, Scope, and understand the problem.
<b>5</b>	User research: Document & Conduct user, market, product, and competitive research to find possible solutions.



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6	Ideation: Create sketches and low-fidelity wireframes of the scoped solution
7	Execution: Create High-Fidelity Mockups & Prototypes from the wireframes.
8	Figma basics: Creating basic responsive elements like buttons, input elements, etc. to understand frames, groups, layout, constraints, texts, vector, color palette, etc.
9	Basic Clickable Prototyping using figma.
10	Create a Design System for an e-commerce app using Grid and Spacing, Typography, Color System, and UI elements like icons, images, buttons, Inputs, Cards, Search Bar, Lists, etc.
11	Reusing the above Design System, compose the Homepage, Product Page, and Checkout Page of the e-commerce app

### Reference Books:

1	Weathers David. (2021). "UX/UI Design 2021 For Beginners: A Simple Approach to UX/UI Design for Intuitive Designers" (ISBN-13 : 979-8719605470)
2	Branson Steven (June 2020) "UX / UI Design: Introduction Guide To Intuitive Design And User-Friendly Experience" (ISBN-13 : 979-8653877315)
3	Anderson Gail. (2016). "The Typography Idea Book: Inspiration from 50 Masters" (ISBN10 : 1780678495, ISBN-13 : 978-1780678498)
4	Slade-Brooking Catharine (2016). "Creating a Brand Identity: A Guide for Designers:(Graphic Design Books, Logo Design, Marketing". (ISBN-10 : 1780675623, ISBN-13 :978-1780675626)

### Supplementary learning Material:

1	<a href="https://onlinecourses.nptel.ac.in/noc21_ar05/preview">https://onlinecourses.nptel.ac.in/noc21_ar05/preview</a>
2	<a href="https://www.coursera.org/learn/visual-elements-user-interface-design">https://www.coursera.org/learn/visual-elements-user-interface-design</a>

### Pedagogy:

- Direct classroom teaching
- Audio Visual presentations/demonstrations
- Assignments/Quiz
- Continuous assessment
- Interactive methods
- Seminar/Poster Presentation
- Industrial/ Field visits
- Course Projects

### Suggested Specification table with Marks (Theory) (Revised Bloom's Taxonomy):

Distribution of Theory Marks in %						R: Remembering; U: Understanding; A: Applying; N: Analyzing; E: Evaluating; C: Creating
R	U	A	N	E	C	
15%	25%	25%	15%	20%	---	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

### Course Outcomes (CO):

Sr.	Course Outcome Statements	%weightage
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<b>CO-1</b>	Understand how to approach UI design.	<b>16</b>
<b>CO-2</b>	Understand how user experience (UX) means and how it matters.	<b>26</b>
<b>CO-3</b>	Understand iterative user-centered design of graphical user interfaces.	<b>24</b>
<b>CO-4</b>	Apply the user Interfaces to different devices and requirements.	<b>20</b>
<b>CO-5</b>	Create high quality professional documents and artifacts related to the design process.	<b>14</b>

<b>Curriculum Revision:</b>	
Version:	1.0
Drafted on (Month-Year):	June-2020
Last Reviewed on (Month-Year):	-
Next Review on (Month-Year):	June-2025