SEMESTER 5

UI & UX Design

Course Code	PEAIT525	CIE Marks	40
Teaching Hours/Week (L:T:P: R)	3:0:0:0	ESE Marks	60
Credits	5/3	Exam Hours	2 Hrs 30 Min
Prerequisites (if any)	NA	Course Type	Theory

Course Objectives:

1. To introduce the fundamental concepts, principles and processes of UI and UX design.
2. To develop an understanding of user-centered design, design thinking and UX research methodologies.
3. To familiarize students with UI design principles, interaction patterns, branding and responsive interface design.
4. To provide hands-on experience in wireframing, prototyping, usability testing and iterative design using industry-standard tools.
5. To enable students to design intuitive and user-friendly digital interfaces by applying UI/UX design principles.

SYLLABUS

KTU SPECIAL

Module No.	Syllabus Description	Contact Hours
1	**FOUNDATIONS OF DESIGN** UI vs. UX Design - Principles of Good Design, Human-Centered Design, Core Stages of Design Thinking, Divergent and Convergent Thinking, Brainstorming and Gamestorming, Observational Empathy, Personas and User Journey Maps, Information Architecture.	9
2	**FOUNDATIONS OF UI DESIGN** Visual and UI Principles - Visual Design Principles, Typography, Color Theory and Accessibility, Icons and Imagery, UI Elements and Components, UI Patterns - Interaction Behaviors and Principles – Navigation Design, Responsive and Adaptive Design, Branding - Style Guides and Design System.	8
3	**FOUNDATIONS OF UX DESIGN** Introduction to User Experience - Why You Should Care about User Experience - Understanding User Experience - Defining the UX Design Process and its Methodology - Research in User Experience Design - Tools and Method used for Research - User Needs and its Goals - Know about Business Goals.	10

4	**WIREFRAMING, PROTOTYPING AND TESTING** Sketching Principles - Sketching Red Routes - Responsive Design – Wireframing - Creating Wireflows - Building a Prototype - Building High-Fidelity Mockups - Designing Efficiently with Tools - Interaction Patterns - Conducting Usability Tests - Other Evaluative User Research Methods - Synthesizing Test Findings - Prototype Iteration.	**10**

Suggested Lab Experiments for Practice

1. Designing a Responsive layout for a societal application.
2. Exploring various UI Interaction Patterns.
3. Developing an interface with proper UI Style Guides.
4. Developing Wireflow diagram for application using open source software.
5. Exploring various open source collaborative interface platforms.
6. Hands on Design Thinking Process for a new product.
7. Brainstorming feature for proposed product.
8. Defining the Look and Feel of the new Project.
9. Create a Sample Pattern Library for that product (Mood board, Fonts, Colors based on UI principles).
10. Identify a customer problem to solve.
11. Conduct end-to-end user research - User research, creating personas, Ideation process (User stories, Scenarios), Flow diagrams, Flow Mapping.
12. Sketch, design with popular tools and build a prototype and perform usability testing and identify improvements.

KTU SPECIAL

Course Assessment Method
(CIE: 40 marks, ESE: 60 marks)

Continuous Internal Evaluation Marks (CIE):

Attendance	*Internal Ex*	*Evaluate*	*Analyse*	*Total*
5	**15**	**10**	**10**	**40**

Criteria for Evaluation(Evaluate and Analyse): 20 marks

Assignment evaluation pattern:

1. Correctness and Accuracy (30%) - Correct Solution and Implementation.
2. Effectiveness and Efficiency (25%) - Algorithm Efficiency and Performance Metrics.
3. Analytical Depth (25%) - Problem Understanding and Solution Analysis.
4. Justification and Comparisons (20%) - Choice Justification and Comparative Analysis.

End Semester Examination Marks (ESE)

In Part A, all questions need to be answered and in Part B, each student can choose any one full question out of two questions

Part A	Part B	Total
• 2 Questions from each module. • Total of 8 Questions, each carrying 3 marks. **(8x3 =24 marks)**	2 questions will be given from each module, out of which 1 question should be answered. Each question can have a maximum of 3 subdivisions. Each question carries 9 marks. **(4x9 = 36 marks)**	**60**

Course Outcomes (COs)

At the end of the course students should be able to:

	Course Outcome	Bloom's Knowledge Level (KL)
CO1	Build UI for user Applications	K3
CO2	Evaluate UX design of any product or application	K4
CO3	Demonstrate UX Skills in product development	K3
CO4	Implement Sketching principles	K3
CO5	Describe Wireframe and Prototype	K2

Note: *K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create*

KTU SPECIAL

CO-PO Mapping Table (Mapping of Course Outcomes to Program Outcomes)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	3	-	-	-	-	-	-	-	-
CO2	2	3	2	3	2	-	-	-	2	2	-	2
CO3	2	3	3	2	2	-	-	-	-	-	-	2
CO4	2	2	3	-	-	-	-	-	-	-	-	-
CO5	2	2	3	-	-	-	-	-	-	-	-	-

Note: *1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), -: No Correlation*

Text Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	UX for Beginners	Joel Marsh,	O'Reilly ,	1/e, 2022
2	Laws of UX using Psychology to Design Better Product & Services	Jon Yablonski,	O'Reilly	2/e, 2021

Reference Books

Sl. No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
1	Designing Interface	Jenifer Tidwell, Charles Brewer, Aynne Valencia,	O'Reilly	3/e, 2020
2	Refactoring UI	Steve Schoger, Adam Wathan	Ebook	1/e, 2018
3	Don't Make Me Think, Revisited: A Commonsense Approach to Web & Mobile	Steve Krug	Ebook	3/e, 2015

Video Links (NPTEL, SWAYAM)	
Module No.	**Link ID**
1	https://nptel.ac.in/courses/124107008
2	https://www.youtube.com/@acciojob
3	https://www.youtube.com/@freecodecamp

KTU SPECIAL