Vivekanand Education Society's
Institute of Technology
Approved by AICTE & Affiliated to University of Mumbai

AI and Data Science Department

Syllabus

Year: 2023-24 (Odd)

Course Code : ADDO7021	**Year/ Semester : B.E.(AI and DS)/ Sem VII**
Name Of the Subject : User Experience Design with VR	

		Teaching Scheme (Contact Hours)		Credits Assigned		
Subject Code	**Subject Name**	**Theory**	**Pract. Tut.**	**Theory**	**Practical/ Oral**	**Total**
ADDO7021	Department Level Optional Course-4	3 hrs	2 hrs	3	1	04

Subject Code	**Subject Name**	**Examination Scheme**							
		Theory Marks				**Term Work (Mark)**	**Practical & Oral (Mark)**	**Oral (Mark)**	**Total (Mark)**
		Internal assessment		**End Sem. Exam**	**Exam. Duration (in Hrs)**				
		Mid Test	**CA***						
ADDO 7021	Department Level Optional Course-4	20	20	60	2	25	--	--	125

Course Plan:

Week	Contents to be covered
1	Introduction to interface design, Understanding and conceptualizing Interface, understanding user's conceptual cognition, Core Elements of User Experience, Working of UX elements
2	What is UX, Ubiquitous interaction, Emerging desire for usability, From usability to user experience, Emotional impact as part of the user experience, User experience needs a business case, Introduction, A UX process lifecycle template, Choosing a process instance for your project, The system complexity space, Meet the user interface team, Scope of UX presence within the team, More about UX lifecycles.
5	**Contextual Inquiry:** Introduction, The system concept statement, User work activity gathering, Look for emotional aspects of work practice, **Contextual Analysis**: Introduction, Organizing concepts: work roles and flow model, Creating and managing work activity notes, Constructing your work activity affinity diagram (WAAD). **Extracting Interaction Design Requirements**: Needs and requirements: first span of the bridge, Formal requirements extraction **Constructing Design Information Models:** Design-informing models: second span of the bridge, User models, Usage models, Work environment models **Design Thinking, Ideation, and Sketching:** Design paradigms, Design thinking, Design perspectives, User personas, Ideation, Sketching, **Mental Models and Conceptual Design:** Mental models, Conceptual design, Storyboards **Wireframe** **Prototyping:** Depth and breadth of a prototype, Fidelity of prototypes, Interactivity of prototypes, Paper prototypes
4	**UX Goals, Metrics and Targets:** UX goals, UX target tables, Work roles, user classes, and UX goals, UX measures, Measuring instruments, UX metrics, Baseline level, Target level, Observed results **UX Evaluation Techniques.-** Formative vs summative ,types of formative and informal summative evaluation methods, types of evaluation data, some data collection techniques: Critical Incidents, The Think-Aloud Technique, Questionnaires.

	Rapid Evaluation Methods: Design walkthroughs and reviews UX Inspection, Heuristic evaluation a UX inspection method, Quasi-empirical UX evaluation
5	**Introduction:** Defining Virtual Reality, The three I's of Virtual Reality, History, The five classic components of a VR system, **Input Devices: Trackers, Navigation and Gesture Interfaces:** Three Dimensional Position Trackers:Tracker Performance Parameters, Mechanical Tracker, Magnetic Tracker, Navigation and Manipulation Interfaces: Tracker-Based Navigation/ Manipulation Interfaces, Trackballs Gesture Interfaces: The Pinch Glove, The 5DT Data Glove **Output Devices: Graphics, Three dimensional sound and Haptic displays** Graphic Displays: The Human Visual System, Personal Graphics Displays Sound Displays: The Human Auditory System, The Convolvotron Haptic Feedback: The Human Haptic System
6	**Modeling:** Geometric modeling, Kinematics modeling, Physical Modeling, Behaviour modeling, **Human factor in VR:** Methodology and terminology, User performance studies. **Traditional VR Applications:** Medical Application, Education,Arts and Entertainment, Military VR Application **Emerging Applications of VR**: VR Application in Manufacturing, Information Visualization