



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Master of Engineering

Level: PG

Branch: Information Technology

Subject Code : ME02023071

Course / Subject Name : Human Computer Interface

WEF Academic Year :	A.Y 2024-25
Semester :	2
Category of the Course :	Professional Elective Course

Prerequisite :	Basics of computer and computing system
Rationale :	This course covers the subjects such as usability, user experience, user interface, and it requires interdisciplinary approaches to leverage existing and emerging technological interfaces. The learners will be able to carry on the research in the field of product design, instructional systems design, robotics, and gamification. General disciplines layered into HCI consist of psychology, behavioral interactions, ergonomics, engineering, forms of communication, and design.

Course Outcome :

After completion of the Course, Students will be able to:

No	Course Outcomes	RBT Level*
01	Understand the concepts of usability, user experience and user-centered design.	UN
02	Apply usability goals for designing an interactive product.	AP
03	Apply user experience goals for designing an interactive product.	AP
04	Analyze the different types of requirements from the users.	AN
05	Analyze the interface problems to recognize the suitable design approach and interaction styles.	AN

*RM: Remember, UN: Understand, AP: Apply, AN: Analyze, EL: Evaluate, CR: Create



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Teaching and Examination Scheme :

Teaching Scheme			Total Credits	Assessment Pattern and Marks				Total Marks
L	T	PR		Theory		Practical		
			ESE (E)	PA(M)	ESE (V)	PA (I)		
03	00	02	04	70	30	30	20	150

Course Content :

Unit	Course Content	No. of Hours	%
1	Foundations of Human Computer Interaction Input-output channels, Human memory, Thinking: reasoning and problem solving, Emotion, Text entry devices, Positioning, pointing and drawing, Display devices, Devices for virtual reality and 3D interaction, Models of interaction, Frameworks and HCI, Interaction styles, Interactivity, The context of the interaction, Paradigms of interaction	9	20%
2	Design Process The process of design, User focus, Navigation design, Iterative design and prototyping, Elements of windowing systems, Programming the application, Using toolkits, Evaluation through expert analysis, Universal design principles, Requirements of user support, Approaches to user support, Adaptive help systems	10	25%
3	Models and Theories Linguistic models, Physical and device models, Cognitive architecture, Face- to-face communication, Conversation, Text-based communication, Difference between task analysis and other techniques, Task decomposition, Sources of information and data collection, Uses of task analysis, Dialog design notations, Diagrammatic notations, Dialog analysis and design	9	20%



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4	Ubiquitous Computing and Augmented Realities Ubiquitous computing applications research, Virtual and augmented reality, Information and data visualization	9	20%
5	Recent Trends in the field of human computer interaction	8	15%
TOTAL		45	100

Reference Books :

1. Human-Computer Interaction by Alan Dix, Janet Finlay, Gregory D. Abowd and Russell Beale Latest Edition, Pearson Education.
2. Designing with the Mind in Mind by Jeff Johnson Morgan Kaufmann Publishers (Elsevier).
3. Human-Computer Interaction by I. Scott Mackenzie Morgan Kaufmann Publishers (Elsevier).

Suggested Course Practical List :

Minimum 10 practicals based on course content are to be performed.

List of Laboratory/Learning Resources Required :

1. List of Hardware
Computer systems with latest configuration and connected in a LAN
2. List of Software
Programming Language (C++ / Visual C++) and IDE
3. List of Useful websites/MOOCs
Learners are advised to opt for NPTEL and SWAYAM courses that are relevant to this course.
