

**PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY**  
(Autonomous)  
Kanuru, Vijayawada-520007

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)**

# Human Computer Interaction

<b>Course Code</b>	20DS4703C	<b>Year</b>	IV	<b>Semester</b>	I
<b>Course Category</b>	PEC	<b>Branch</b>	CSE (DATA SCIENCE)	<b>Course Type</b>	Theory
<b>Credits</b>	3	<b>L-T-P</b>	3-0-0	<b>Prerequisites</b>	SE, STM
<b>Continuous Internal Evaluation</b>	30	<b>Semester End Examination</b>	70	<b>Total Marks</b>	100

## Course Outcomes

**Upon successful completion of the course, the student will be able to**

CO1	Describe the fundamental concepts of human-computer interaction, design principles, interface frameworks, cognitive models, and emerging technologies to interpret user-centered system design.	L2
CO2	Apply design processes, prototyping, and evaluation methods to develop effective user interfaces.	L3
CO3	Use cognitive and communication models to analyze user requirements and design advanced interaction systems.	L3
CO4	Analyze user interface, cognitive and collaboration models, and emerging interaction technologies to evaluate and improve HCI systems.	L4

**Contribution of Course Outcomes towards achievement of Program Out comes & Strength of correlations(3: High,2: Medium, 1: Low)**

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Syllabus		
Unit No.	Contents	Mapped CO
I	<b>Foundations of HCI</b> <b>The Human:</b> Introduction to HCI, I/O channels, Human Memory, Reasoning and Problem solving <b>The computer:</b> Introduction, Text entry devices, Positioning, Pointing and Drawing, Memory, processing and networks. <b>The Interaction:</b> Models of Interaction, Frameworks and HCI, Interaction Styles	CO1
II	<b>Design Process</b> <b>Interaction design Basics:</b> Design Introduction, Process of Design, Scenarios, Navigation Design, Screen Design and Layout. <b>HCI in the software Process:</b> Software Life Cycle, Iterative Design and Prototyping. Design Rules, Design Rationale, Principles to Support Usability, Golden Rules and Heuristics,	CO1, CO2
III	<b>User Interface Layer</b> <b>UI Layer</b> and Its Execution Framework, Input and Output at the Low Level, Processing the Input and Generating Output. <b>Interactive System Development framework:</b> Model, View, and Controller (MVC), MVC Implementation with case studies. <b>User Interface Evaluation:</b> Evaluation Criteria, Evaluation Methods.	CO1, CO2, CO4
IV	<b>Models and Theories</b> <b>Cognitive models:</b> Introduction, Goal and Task Hierarchies, Socio-Organizational Issues and stakeholder Requirements Organizational Issues, Capturing Requirements. <b>Communication and Collaboration models:</b> Face-To-Face Communication, Conversation, Group Working.	CO1, CO3, CO4
V	<b>Future of HCI</b> Introduction, Multimodal Interfaces, Language Understanding, Gestures, Image Recognition and Understanding, Multimodal Interaction, Mobile and Handheld Interaction, High-End Cloud Service and Multimodal Client Interaction, Experiential Interaction, Mixed and Augmented Reality.	CO1, CO3, CO4

Learning Resources
<b>Text Books</b>
1. Human–Computer Interaction – Alan Dix, Janet Finlay, Gregory D. Abowd & Russell Beale, 3rd edition, 2003, Pearson (Prentice Hall) 2. Human–Computer Interaction: Fundamentals and Practice – Gerard Jounghyun Kim, 1st edition, 2015, CRC Press (Taylor & Francis Group)
<b>Reference Books</b>
1. Human-Computer Interaction by Alan Dix, Janet Finlay, Gregory Abowd, and Russell Beale, 3rd Edition, 2004, Pearson Education. 2. Designing the User Interface: Strategies for Effective Human-Computer Interaction by Ben Shneiderman, Catherine Plaisant, Maxine Cohen, and Steven Jacobs, 6th Edition, 2016, Pearson
<b>e-Resources</b>
1. <a href="https://onlinecourses.nptel.ac.in/noc25_cs38/preview">https://onlinecourses.nptel.ac.in/noc25_cs38/preview</a> . 2. <a href="https://www.youtube.com/watch?v=m3EzxNfpr0">https://www.youtube.com/watch?v=m3EzxNfpr0</a> . 3. <a href="https://www.geeksforgeeks.org/introduction-to-human-computer-interface-hci/">https://www.geeksforgeeks.org/introduction-to-human-computer-interface-hci/</a> .