GANPAT UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

Programme	Bachelor of Technology	Branch/Spec.	Computer Engineering/Information Technology
Semester	V	Version	2.0.0.0
Effective from Academic Year	2020-21	Effective for the batch Admitted in	July 2018
Subject code	2CEIT5PE6	Subject Name	Human Computer Interaction

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	1	-	4	Theory	40	60	100
Hours	3	0	2	-	5	Practical	30	20	50

Pre-requisites:

Basic understanding of programming, analysis and design.

Objectives of the course:

1. Understand the important aspects of implementation of human-computer interfaces.
2. Understand the theoretical dimensions of human factors involved in the acceptance of computer interfaces.
3. Identify the various tools and techniques for interface analysis, design, and evaluation.
4. Identify the impact of usable interfaces in the acceptance and performance utilization of information systems
5. Identify the importance of working in teams and the role of each member within an interface development phase.

Theory Syllabus

Unit	Content	Hrs
1	**Foundations of HCI:** The Human: I/O channels, Memory, Reasoning and problem solving; The computer: Devices, Memory, processing and networks; Interaction: Models, frameworks, Ergonomics, styles, elements, interactivity and paradigms.	9
2	**Models & Theories:** Cognitive models, Socio-Organizational issues and stake holder requirements, Communication and collaboration models, Hypertext, Multimedia and WWW.	9
3	**Interactive Design & Software Process:** Interactive Design basics: process, scenarios, navigation, screen design, Iteration and prototyping. HCI in software process: software life cycle, usability engineering, prototyping in practice, design rationale. Interaction Styles: Direct Manipulation and Virtual Environments, Menu Selection, Form Filling and Dialog Boxes, Command and Natural Languages. Design standards, guidelines, rules. Evaluation Techniques: Universal Design	10
4	**Mobile HCI and Web Interface Design:** Designing Web Interfaces: Drag & Drop, Direct Selection, Contextual Tools, Overlays, Inlays and Virtual Pages and Process Flow. Mobile HCI: Mobile Information Architecture, Mobile 2.0, Mobile Design: Elements of Mobile Design and Tools.	10
5	**Virtual and Augmented Reality & Ubiquitous Computing:** Virtual reality: pros and cons, Augmented reality: pros and cons, ubiquitous computing and ambient intelligence, Wearable devices and the miniaturization of computing platforms, Uses and benefits of these technologies, Disadvantages and problems	7

Practical Content

Experiments/Practicals/Simulations would be carried out based on syllabus

Text Books

1	Alan Dix, Janet Finlay, Gregory Abowd, Russell Beale, “Human Computer Interaction”, Pearson Education.
Reference Books	
1	Ben Shneiderman, “Designing the User Interface-Strategies for Effective Human Computer Interaction”, ISBN:9788131732557, Pearson Education.
2	Julie A. Jacko (Ed.), Human-Computer Interaction Handbook, CRC Press. ISBN 1-4398-2943-8.
3	Jonathan Lazar, Jinjuan Heidi Feng, & Harry Hochheiser Research Methods in Human-Computer Interaction, Wiley.
4	Usability Engineering: Scenario-Based Development of Human-Computer Interaction, by Rosson, M. and Carroll, J..
5	Bill Scott and Theresa Neil, “Designing Web Interfaces”, First Edition, O‟Reilly.
6	Brian Fling, “Mobile Design and Development”, First Edition , O‟Reilly Media Inc..
ICT/MOOCs Reference	
1	https://www.coursera.org/courses?query=human%20computer%20interaction
2	https://www.udacity.com/course/human-computer-interaction--ud400
3	http://www.edx.org/course/human-computer-interaction-i-fundamentals-design-p
4	https://online.stanford.edu/programs/human-computer-interaction-graduate-certificate
Course Outcomes:	

After successful completion of this course, student will be able to

1. Understand foundations of Human Computer Interaction.
2. Identify the impact of HCI, formulate and solve user interface issues.
3. Develop software prototype for interfaces with necessary interactive design standards and guidelines.
4. Design web and mobile interfaces with design concepts such as inlays, overlays and virtual concepts and various design tools.