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Estd.2007

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (CYBER SECURITY)

SYLLABUS:

HUMAN COMPUTER INTERACTION
(Professional Elective- VI)

B.Tech. IV Year II Semester								
Course Code	**Category**	**Hours / Week**			**Credits**	**Maximum Marks**		
CS4206PE	**Elective**	**L**	**T**	**P**	**C**	**CIA**	**SEE**	**Total**
		3	**0**	**0**	**3**	**30**	**70**	**100**
Contact classes: 60	**Tutorial Classes : NIL**	**Practical classes : NIL**				**Total Classes :60**		
Prerequisites: No Prerequisites								

Course Objectives : To gain an overview of Human-Computer Interaction (HCI), with an understanding of user interface design in general, and alternatives to traditional "keyboard and mouse" computing; become familiar with the vocabulary associated with sensory and cognitive systems as relevant to task performance by humans; be able to apply models from cognitive psychology to predicting user performance in various human-computer interaction tasks and recognize the limits of human performance as they apply to computer operation; appreciate the importance of a design and evaluation methodology that begins with and maintains a focus on the user; be familiar with a variety of both conventional and non-traditional user interface paradigms, the latter including virtual and augmented reality, mobile and wearable computing, and ubiquitous computing; and understand the social implications of technology and their ethical responsibilities as engineers in the design of technological systems. Finally, working in small groups on a product design from start to finish will provide you within valuable team-work experience.

Course Outcomes:

1. Ability to apply HCI and principles to interaction design.
2. Ability to design certain tools for blind or PH people.
3. Ability to create, edits, and manages text-based content, as well as understands and responds to system messages.
4. Analyze interface problems to recognize what design approach and interaction styles are required in the light of usability standards and guidelines.
5. Ability to design and develop an interface by using appropriate HCI techniques that are preferred by the user.

COURSE SYLLABUS

Unit - I

Introduction: Importance of user Interface – definition, importance of good design. Benefits of good design.A brief history of Screen design.
The graphical user interface – popularity of graphics, the concept of direct manipulation, graphical system, Characteristics, Webuser – Interface popularity, characteristics - Principles of user interface.

Unit- II

Design process – Human interaction with computers, importance of human characteristics human consideration, Human interaction speeds, understanding business junctions.
Screen Designing: Design goals–Screen planning and purpose, organizing screen elements, ordering of screen data and content – screen navigation and flow – Visually pleasing composition – amount of information – focus and emphasis – presentation information simply and meaningfully – information retrieval on web – statistical graphics– Technological consideration in interface design.

Unit- III

Windows–New and Navigation schemes selection of window, selection of devices based and screen-based controls. Components – text and messages, Icons and increases – Multimedia, colors, uses problems, choosing colors.

Unit- IV

HCI in the software process, The software life cycle Usability engineering Iterative design and prototyping Design Focus: Prototyping in practice Design rationale Design rules, Principles to support usability, Standards Gold rules and heuristics HCI patterns Evaluation techniques, Goals of evaluation, Evaluation through expert analysis, Evaluation through user participation, Choosing an evaluation method. Universal design, Universal design principles Multi - modal interaction

Unit- V

Cognitive models Goal and task hierarchies Design Focus: GOMS saves money Linguistic models The challenge of display-based systems Physical and device models Cognitive architectures Ubiquitous computing and augmented realities Ubiquitous computing applications research Design Focus: Ambient Wood – augmenting the physical Virtual and augmented reality Design Focus: Shared experience Design Focus: Applications of augmented reality Information and data visualization Design Focus: Getting the size right.

TEXT BOOKS:

1. The essential guide to user interface design,Wilbert O Galitz, Wiley Dream Tech.Units 1,2,3
2. Human – Computer Interaction. AlanDix, Janet Fincay, Gre Goryd, Abowd, Russell Bealg,Pearson Education Units4,5

REFERENCE BOOKS:

1. Designing the user interface. 3rd Edition Ben Shneidermann, Pearson Education Asia.
2. Interaction Design Prece,Rogers, Sharps.Wiley Dreamtech.
3. User Interface Design, Soren Lauesen, Pearson Education.
4. Human–Computer Interaction, D.R.Olsen,Cengage Learning.
5. Human– Computer Interaction, Smith- Atakan, Cengage Learning.