CSE4015	HUMAN COMPUTER INTERACTION	L	T	P	J	C
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Pre-requisite	**Nil**	**Syllabus version**				
Anti Requisite	**ITE1014**	1.0				

Course Objectives:

1. To provide the basic knowledge on the levels of interaction, design models, techniques and validations focusing on the different aspects of human-computer interface and interactions
2. To make the learners to think in design perspective and to evaluate interactive design
3. To use the concepts and principles of HCI to analyze and propose solution for real life applications
4. To become familiar with recent technology trends and challenges in HCI domain

Expected Course Outcome:

1. Enumerate the basic concepts of human, computer interactions
2. Create the processes of human computer interaction life cycle
3. Analyze and design the various interaction design models
4. Apply the interface design standards/guidelines for evaluating the developed interactions
5. Establish the different levels of communication across the application stakeholders
6. Apply product usability evaluations and testing methods
7. Demonstrate the principles of human computer interactions through the prototype modelling

Student Learning Outcomes (SLO):	**5, 8, 17**	
Module:1	**HCI FOUNDATIONS**	**6 hours**

Input–output channels, Human memory, Thinking: reasoning and problem solving, Emotion, Individual differences, Psychology and the design of interactive systems, Text entry devices, Positioning, pointing and drawing, Display devices, Devices for virtual reality and 3D interaction, Physical controls, sensors and special devices, Paper: printing and scanning

Module:2	**DESIGNING INTERACTION**	**6 hours**

Overview of Interaction Design Models, Discovery - Framework, Collection - Observation, Elicitation, Interpretation - Task Analysis, Storyboarding, Use Cases, Primary Stakeholder Profiles, Project Management Document

Module:3	**INTERACTION DESIGN MODELS**	**8 hours**

Model Human Processor - Working Memory, Long-Term Memory, Processor Timing, Keyboard Level Model - Operators, Encoding Methods, Heuristics for M Operator Placement, What the Keyboard Level Model Does Not Model, Application of the Keyboard Level Model, GOMS - CMN-GOMS Analysis, Modeling Structure, State Transition Networks - Three-State Model, Glimpse Model, Physical Models, Fitts' Law

Module:4	**GUIDE LINES IN HCI**	**6 hours**

Shneideman's eight golden rules, Norman's Sever principles, Norman's model of interaction, Nielsen's ten heuristics, Heuristic evaluation, contextual evaluation, Cognitive walk-through

Module:5	**COLLABORATION AND COMMUNICATION**	**5 hours**

Face-to-face Communication, Conversation, Text-based Communication, Group working, Dialog design notations, Diagrammatic notations, Textual dialog notations, Dialog semantics, Dialog analysis and design

Module:6	**HUMAN FACTORS AND SECURITY**	**6 hours**

Groupware, Meeting and decision support systems, Shared applications and artifacts, Frameworks for groupware Implementing synchronous groupware, Mixed, Augmented and Virtual Reality

Module:7	**VALIDATION AND ADVANCED CONCEPTS**	**6 hours**

Validations - Usability testing, Interface Testing, User Acceptance Testing Past and future of HCI: the past, present and future, perceptual interfaces, context-awareness and perception			
Module:8	**RECENT TRENDS**		**2 hours**
	Total Lecture hours:	**45 hours**	
Text Book(s)			
1.	A Dix, Janet Finlay, G D Abowd, R Beale., Human-Computer Interaction, 3rd Edition, Pearson Publishers,2008		
Reference Books			
1.	Shneiderman, Plaisant, Cohen and Jacobs, Designing the User Interface: Strategies for Effective Human Computer Interaction, 5th Edition, Pearson Publishers, 2010.		
2	Hans-Jorg Bullinger," Human-Computer Interaction", Lawrence Erlbaum Associates, Publishers		
3	Jakob Nielsen," Advances in Human-computer Interaction",Ablex Publishing Corporation		
4	Thomas S. Huang," Real-Time Vision for Human-Computer Interaction", Springer		
5	Preece et al, Human-Computer Interaction, Addison-Wesley, 1994		
Mode of Evaluation: CAT / Assignment / Quiz / FAT / Project / Seminar			
Recommended by Board of Studies	04-04-2014		
Approved by Academic Council	No. 37	Date	16-06-2015