Course Name: Human Computer interaction **Course Code: ITEC-321**

General Information						
Course Code	**ITEC-321**	**Level/Year**	**5/3**	**Required (R) / Selected Elective (SE)**		**R**
Credit Hours	**Theory**	**2**	**Lab**	**1**	**Total**	**3**
Prerequisites	**NIL**	**Course Coordinator**		**Dr. Jarina Begum**		
Corequisites	**NIL**	**Track Leader**		**Dr. Siva Malar**		

Course Description

This course provides a comprehensive, authoritative introduction to the dynamic field of human-computer interaction (HCI). Students will learn practical principles and guidelines needed to develop high quality interface designs–ones that users can understand, predict, and control. It covers theoretical foundations, and design processes such as expert reviews and usability testing. Numerous examples of direct manipulation, menu selection, and form fill-in give students an understanding of excellence in design. It also provides updates on current HCI topics with balanced emphasis on mobile devices, Web, and desktop platforms.

Course Objectives : On completion of the course, the student will be able to:

- Describe how the usability is obtained using various methods.
- Summarize the guidelines, principles & theories of interaction.
- Comprehend various interaction styles and their impact in computing environments.
- Utilize the emerging technologies of visual and auditory channels of interaction with virtual environments
- Evaluate various methods of collaboration & Social media interaction.
- Assess the quality of services and user productivity.
- Figure out the techniques of information visualization for effective information Assimilation.
- Study cases of usability problems in Human-Computer Interaction

Course Contents

List of Topics	**Weeks**
CH 1: *Usability and interactive systems:* Introduction to HCI, Usability Goals and Measures, Usability motivations, Universal usability	1
CH 2: *Guidelines, Principles and Theories:* Guidelines :Navigating the interface, accessibility guidelines, Organizing the display Principles: Determine Users' skill levels, Identify the task, Choose an interaction style, The eight golden rules of interface design Theory: Types of theories.	2,3
CH 3: *Direct Manipulation:* What is Direct Manipulation? , Examples of Direct Manipulation: Spatial data management, Video games, CAD, Principles of direct manipulation, 3D interfaces, Tele operation, Advantages and disadvantages of Direct manipulation	4,5
CH 4: *Virtual Environments:* Introduction to Virtual reality, Artificial reality, Telepresence, Augmented reality, Virtual environment technologies, Introduction to Virtual reality, Artificial reality, Telepresence	6,7,8
CH 5: *Interaction devices:* Characteristics, Display technology, Large displays, Hands-up & Head mounted displays, Mobile device displays, Hands-up & Head mounted displays, Mobile device displays	9,10,11
CH6: *Collaboration and Social Media Participation:* Goals of collaboration & participation, Time/space four-quadrant model, Asynchronous distributed	12,13

interfaces, Synchronous distributed interfaces, Face to face interfaces	
CH7: *Quality of Service & Information Visualization::* Introduction, Models of Response Time Impacts, Expectations and Attitudes, User Productivity, Frustrating Experiences, The seven Data types, The seven basic tasks, Challenges for information visualization	14,15

Textbook

- Ben Schneiderman, Catherine Plaisant, Maxine Cohen, Steven Jacobs, Designing the User Interface: Pearson New International Edition: Strategies for Effective Human-Computer Interaction, 6/E, Pearson, 2016

Reference Materials

- Yvonne Rogers, Helen Sharp and Jenny Preece, Interaction Design: Beyond Human-Computer Interaction, John Wiley & Sons, 5/e, 2019, ISBN-10: 0470665769
- Julie A Jacko, The Human-computer Handbook, Fundamentals, Evolving technologies, and Emerging technologies, 2012, Third Edition, CRC Press
- The Encyclopaedia of Human-Computer Interaction, 2/e, Online resource: http://www.interaction-design.org/books/hci.html

Course Learning Outcomes

CLO	Description	Mapped PI
CLO#01	**Analyse,** how usability is obtained using various methods.	PI 1.1
CLO#02	**Identify** the guidelines, principles & theories of interaction.	PI 1.3
CLO#03	**Compare** various interaction styles and their impact in computing environments.	PI 2.2
CLO#04	**Produce** various methods of collaboration & Social media interaction.	PI 3.1
CLO#05	**Evaluate** the quality of services & user productivity techniques and the information visualization for effective information assimilation	PI 2.4
CLO#06	**Compose** the cases of usability problems in Human-Computer Interaction.	PI 3.2

CLO-PI-SO Mapping

	SO-1	SO-2	SO-3	SO-4	SO-5	SO-6
CLO#01	PI1.1	-	-	-	-	-
CLO#02	PI1.3	-	-	-	-	-
CLO#03	-	PI2.2	-	-	-	-
CLO#04	-	-	PI3.1	-	-	-
CLO#05	-	PI2.4	-	-	-	-
CLO#06	-	-	PI3.2	-	-	-