

## Human Computer Interaction User Interface Design (IT-8001)

Course Code	<b>IT-8001</b>	Credits-4	L – 3, T- 1, P-0
Name of the Course	<b>Human Computer Interaction User Interface Design</b>		
Lectures to be Delivered	52 (1 Hr Each) (L= 39, T = 13 for each semester)		
Semester End Examination	<i>Max. Marks: 100</i>	<i>Min. Pass Marks: 40</i>	Maximum Time:3hrs
Continuous Assessment (based on sessional tests (2) 50%, Tutorials/Assignments 30%, Quiz/Seminar 10%, Attendance 10%)			<i>Max. Marks: 50</i>

### Instructions

- For Paper Setters:** The question paper will consist of five sections A, B, C, D, and E. Section E will be Compulsory, it will consist of a single question with 10-20 subparts of short answer type, which will cover the entire syllabus and will carry 40% of the total marks of the semester end examination for the course. Section A, B, C and D will have two questions from the respective sections of the syllabus and each section will carry 15% of the total marks of the semester end examination for the course.
- For Candidates:** Candidates are required to attempt five questions in all selecting one question from each of the sections A, B, C and D of the question paper and all the subparts of the questions in section E. Use of non-programmable calculators is allowed.

#### Section – A

**Developments in technology:** Workstation environment e.g., Screens, keyboards, pointing devices, other I/O devices (e.g. speech), related processing and storage requirements.

**Developments in HCI:** Virtual machines, command line input (command sets), menu selection and the methods of selection, graphical interfaces, speech, screen design for intensive data entry, intelligent HCIs, virtual personas (engaging with the computer within a virtual reality), concept of “look and feel”.

#### Section – B

**Development in the Concept of ‘the user’:** Range of users (e.g. hypertext, event driven systems, use of multimedia), modeling techniques, implication of new developments on user interfaces, implications of development on hardware (storage, processing requirements etc.)

**Applications:** Range of applications, selection of HCLs for specific applications.

**Psychological Considerations:** Memory (long and short-term), reasoning, perception, cognition and use of metaphors and the consequences on the design of HCI.

#### Section – C

**Health & Safety considerations:** Ergonomics and the surrounding environment e.g., lighting, seating, RSI, legal implications.

**Information considerations:** Necessity for information –rich environment, examples of systems (e.g. share trading rooms or combat environments).

**HCIO Support for less common environments:** Identification of applications (e.g. Remote interaction using virtual environments, real time simulations (fight simulators), high – speed interactive interfaces (games), special needs (implications for colour blind partially sighted, blind. Physically incapacitated, slow learners), analysis of implication of an HCI selection.

**Modeling the Interface:** Mapping the system functionality to the conceptual model, grouping of the tasks into logical sets.

#### Section – D

**Analysis:** Task analysis e.g., storyboarding, user needs analysis, evaluation of HCI complexity.

**Design:** Rules and heuristics for good HCI design, review of proprietary examples, context sensitive help, online help/documentation design tools.

**Production:** Selection of tools, production of prototype

**Measuring the functionality of an HCI:** Keystroke effort per task, ability to navigate within the system, time to perform a task, ability to configure the HCI user satisfaction.

**Books:**

1. Human Computer Interaction in the New Millennium; John M. Carrol, Editor, Addison Wesley
2. Human Computer Interaction: Issues and Challenges; Qiyang Chen, Montclair State University, USA; Idea Group Publishing