Human Computer Interface Introduction

Human Computer Interface (HCI) was previously known as the man-machine studies or man-machine interaction. It deals with the design, execution and assessment of computer systems and related phenomenon that are for human use.

HCI can be used in all disciplines wherever there is a possibility of computer installation.

Some of the areas where HCI can be implemented with distinctive importance are mentioned below −

- **Computer Science −** For application design and engineering.

- **Psychology −** For application of theories and analytical purpose.

- **Sociology −** For interaction between technology and organization.

- **Industrial Design −** For interactive products like mobile phones, microwave oven, etc.

Objective

The intention of this subject is to learn the ways of designing user-friendly interfaces or interactions. Considering which, we will learn the following −

- Ways to design and assess interactive systems.

- Ways to reduce design time through cognitive system and task models.

- Procedures and *heuristics* for interactive system design.

Historical Evolution

From the initial computers performing batch processing to the user-centric design, there were several milestones which are mentioned below −

- **Early computer (e.g. ENIAC, 1946) −** Improvement in the H/W technology brought massive increase in computing power. People started thinking on innovative ideas.

- **Visual Display Unit (1950s) −** SAGE (semi-automatic ground environment), an air defense system of the USA used the earliest version of VDU.

- **Development of the Sketchpad (1962) −** Ivan Sutherland developed Sketchpad and proved that computer can be used for more than data processing.

- **Douglas Engelbart introduced the idea of programming toolkits (1963) −** Smaller systems created larger systems and components.

- **Introduction of Word Processor, Mouse (1968) −** Design of NLS (oNLine System).

- **Introduction of personal computer Dynabook (1970s) −** Developed *smalltalk* at Xerox PARC.

- **Windows and WIMP interfaces −** Simultaneous jobs at one desktop, switching between work and screens, sequential interaction.

- **The idea of metaphor −** Xerox star and alto were the first systems to use the concept of metaphors, which led to spontaneity of the interface.

- **Direct Manipulation introduced by Ben Shneiderman (1982) −** First used in Apple Mac PC (1984) that reduced the chances for syntactic errors.

- **Vannevar Bush introduced Hypertext (1945) −** To denote the non-linear structure of text.

- **Computer Supported Cooperative Work (1990s) –** Computer mediated communication.

- **WWW (1989) –** The first graphical browser (Mosaic) came in 1993.

- **Ubiquitous Computing –** Currently the most active research area in HCI. Sensor based/context aware computing also known as pervasive computing.