**Title of Subject : Human Computer Interaction (SW-317)**

**Discipline :** Software Engineering (5th Semester)

**Effective :** 17 Batch & onwards

**Pre-requisite :** None

**Assessment :** Theory**:** 20% Sessional, 80% Written Semester Examination

## (20% Mid, 60% Final)

**Credit Hours :** 03 + 0 **Marks:** 100

**Minimum Contact Hours:** 45

# Specific Objectives of course:

* Demonstrate design technology based on an understanding of users' needs and ensure that the products design meet those needs.

**COURSE LEARNING OUTCOMES:**

Upon successful completion of the course, the student will be able to:

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| --- | --- | --- | --- |
| **CLOs** | **Description** | **Taxonomy level** | **PLO** |
| 1 | Identify various interaction mechanisms and purpose of a variety of interfaces along with their application areas. | C2 | 1 |
| 2 | Understand modules that cover the entire user-centered design and evaluation process - from understanding user needs, to designing interactive systems that meet those needs. | C3 | 2 |
| 3 | Evaluating the usability of those (and existing systems) through user research. | C3 | 3 |

**PROGRAM LEARNING OUTCOMES (PLOs):**

The course is designed so that students will achieve the following PLOs:

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| 1 | Engineering Knowledge: | ☑ | 7 | Environment and Sustainability: | ☐ |
| 2 | Problem Analysis: | ☑ | 8 | Ethics: | ☐ |
| 3 | Design/Development of Solutions: | ☑ | 9 | Individual and Team Work: | ☐ |
| 4 | Investigation: | ☐ | 10 | Communication: | ☐ |
| 5 | Modern Tool Usage: | ☐ | 11 | Project Management: | ☐ |
| 6 | The Engineer and Society: | ☐ | 12 | Lifelong Learning: | ☐ |

**Course outline:**

* **INTRODUCTION**

The Human vision, Human Memory, reasoning and problem solving. Interaction models, frameworks and interaction styles, Contexts for HCI, Psychology of usable things, Processes for User-Centered Design, Metrics and Measures for Evaluation, Usability heuristics and principles of Usability testing, Physical capabilities, Cognitive and social models for interaction design,

* **PARADIGMS FOR INTERACTION**

Using design rules, Principles of good interaction design, Accessibility, Principles of GUI, Visual design elements, Data gathering, Task analysis, Prototyping, Help and user documentation, Internationalization.

* **USABILITY**

Usability inspection methods, Usability testing methods, New Interaction Technologies, Usability in practice, Visual Design and Typography, Icon Design, Ubiquitous, Augmented and Virtual Reality.

* **EVALUATION TECHNIQUES AND SOCIAL ISSUES**

Styles of evaluation, Evaluating the design and implementation, designing user support systems. Non-speech Sound, Handwriting Recognition Gesture recognition, Computer vision and Ubiquitous computing applications research.

# Recommended Books:

1. Designing the User Interface: Strategies for Effective Human-Computer Interaction, Ben Shneiderman and Catherine Plaisant, 6th Ed, Pearson Inc, Latest Edition.
2. HUMAN-COMPUTER INTERACTION, Latest Edition Dix, Finlay, Abowd and Beale.
3. User Interface Design and Evaluation Amazon by Debbie Stone, Caroline Jarret, Mark Woodroffe, and Shailey Minocha, Latest Edition.
4. Designing Interfaces: Patterns for Effective Interaction design By Jennifer Tidwell, Latest Edition.

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| **Approval:** |  | |
| **Board of Studies:** | **Resolution No. 02** | **Dated: 29-08-2019** |
| **Board of Faculty:** | **Resolution No. 01** | **Dated: 07-10-2019** |
| **Academic Council:** | **Resolution No. 96.10** | **Dated: 07-10-2019** |