

Ergonomics and Human-Computer Interaction

COURSE CONTENT:

Unit 1: Introduction – Theoretical Foundations

- Historical overview
- Components of the field
- Theoretical foundations
- Cognitive models

Unit 2: Interactive Systems Design

- Interaction technologies
- Fitts' Law
- Principles of interactive systems design
- Design guidelines
- Methodologies for interactive systems design
- Errors

Unit 3: Evaluation of Interactive Systems

- Categories of evaluation methods
- Case studies
- Usability testing
- Cognitive walkthrough
- Heuristic evaluation
- Other techniques

Detailed Description of Units:

In **Unit 1**, the basic principles of ergonomics and human-computer interaction are introduced, covering the components of the field, related scientific areas, and fundamental principles of usability in computational systems. Cognitive models, the human processor model, and the user-system interaction model by Norman are presented, along with issues of visual stimulus organization, attention, memory, and focus.

Unit 2 introduces human-computer interaction technologies, including input devices, text entry devices, pointing devices, menu selection, form filling, natural language interaction, and direct manipulation. Key design guidelines are discussed, with examples of interface errors, icon design, user-centered design, requirement analysis, and usability specifications.

Unit 3 focuses on evaluating interactive systems. Evaluation method categories, case studies, usability testing techniques, and usability inspection methods are presented, such as field studies, cognitive walkthroughs, heuristic evaluations, and other techniques (questionnaires, logging, eye tracking).