Department Of Computer Science and Engineering
Kathmandu University
Dhulikhel, Kavre

Subject: Human Computer Interaction **Course: COMP 341**
Level: B.E/B.Sc 3rd Year/2nd Semester **Credit Hours: 3**

Objectives:

Human Computer Interaction (HCI) is concerned with designing, evaluating and deploying usable, effective and enjoyable technologies in a range of contexts - be it home, work, school, cyberspace or other domain. The aim of this course is to give an introduction to the key areas, approaches and developments in the field of user interface design. So the main objective of this course is to get you to think constructively and analytically about how to design and evaluate interactive technologies.

Chapter 1: Introduction

Introduction to the course
Why HCI?
Usability Goals
Design Principles
Usability Requirements
Usability Measures
Usability Motivations
Universal Usability
Physical Variation
Cognitive and Perceptual Variations
Personality
Cultural and International Diversity
Users with Disabilities
Elderly
Children
Accommodating Hardware and Software Diversity
HCI Goals

Chapter 2: Good & Bad Design

- Visibility
- Affordance
- Constraints
- Mapping
- Consistency
- Feedback

Chapter 3: Capabilities of Human Beings

- Four stage model of information processing
- Sensory Memory and Perception
- Gestalt psychology
- Memory
- Mental Models
- Metaphors
- Design Guidelines for the Web

Chapter 4: Guidelines, Principles and Theories

- Guidelines
- Principles
- Theories

Chapter 5: Managing Design Process

- Organizational Design to Support Usability
- Four Pillars of Design
- Development Methodology
- Ethnographic Observation
- Participatory Design
- Scenario Development
- Social Impact Statements
- Legal Issues

Chapter 6: Evaluating Interface Designs

Experts Reviews
Usability Testing and Laboratories
Survey Instruments
Acceptance Test
Evaluation During Active Use
Controlled Psychologically Oriented Experiments

Chapter 7: Direct Manipulation and Virtual Environments

Introduction
Examples of Direct Manipulation
Discussion of Direct Manipulation
3D Interfaces
Teleoperation
Virtual and Augmented Reality

Chapter 8: Command and Natural Languages

Introduction
Command-Organization Functionality, Strategies, and Structure
Naming Abbreviations
Natural Language in Computing

Chapter 9: Menu Selection, Form Filling and Dialog Boxes

Benefit of Menu
Task-Related Organization
Menu Types
Data Entry with Menus
Audio Menus and Menus for Small Displays

Chapter 10: Interaction Devices

Interaction Devices
Keyboard Layouts
Pointing Devices
Fitts's Law

Novel Devices
Speech and Auditory Interfaces
Displays

Chapter 11: User Documentation and Online Help

Introduction
Paper vs Online Manuals
Reading from Paper vs Displays
Online Tutorial
Online Help
Online Manuals
Online Demonstrations and Guides
Online Communities for User Assistance
Development Process

Text book:

Designing t h e User Interface, Ben Schneiderman, McGraw Hill Edition, 3rd edition.

Reference:

Human-Computer Interaction, Alan Dix, Janet Finlay, Gregory D. Abowd, Russell Beale, 5 th edition.

Lecture type:
Lectures will be delivered through slides presentation. All the lectures will be highly interactive with active participation of students and demonstration of real life examples.

Note: Reading materials will be provided throughout the semester for further readings. It includes research papers, case studies, reports and articles.