Week 1

Introduction to HCI (HCI 3.1, DUI 1)

HCI Applications in Industry

Job outlook in Pakistan in Pakistan and beyond

HCI professional societies

Social and Crowd Computing

Human sensation (HCI 1)

Human perception (HCI 1)

Human cognition (HCI 1)

Philosophy of mind (HCI 1.4)

Week 2

Design Tools Overview (Balsamiq, Figma, AdobeXD, Sketch, Axure RP, MockFlow, InVision, Lucidchart, Justinmind, SketchFlow (Microsoft Expression Blend))

Details of Figma

Week 3

Users as information processing systems (HCI 1.7)

Information processing in human memory (sensory, long-term, short-term) (HCI 1.3)

recall and recognition in Human Memory (HCI Chapter 1)

Interaction Models (HCI 3.2, HCI 3.5)

Dialog Styles, menus

form-filling (HCI 3.2, HCI 5.6, HCI 5.7)

GUI

Week 4

Usability Principles (DUI4 2.3)

Jacob Nielsen’s Heuristics (Neilsen 1993)

Common errors and mistakes (Neilsen 1993)

Design process (Designer Bias, User requirements gathering techniques, personas and storyboards) (DUI 3, HCI 7.1, HCI 7.4)

Navigations, Screen Designs & Layouts, device constraints (e.g. mobile screens) (HCI 2.4, HCI 12.5)

Cognitive Models (i.e. cognitive load, sensory processing, Dunns Model) (ID 3.2, ID 3.3, HCI 12)

Week 5

Design prototyping types (HCI 5.8)

User Interface Technologies (Web Applications, Desktop Application, Mobile Application)

Multimodal Input using standard devices (Smartphones and Tablets, Smart Speakers and Voice Assistants, Gaming Consoles, Laptops and Computers, Wearable Devices, Interactive Displays, Automotive Interfaces, Virtual Reality (VR) and Augmented Reality (AR) Devices, Health and Fitness Gadgets, Collaborative Whiteboard Tools, Haptics, 3d Printing, Drones, etc.)

(HCI 10.1, HCI 10.3, HCI 10.4, DUI4 Chapter 9)

Week 6

Design evaluation (experimental and empirical methods), Hypothesis tests, sample size, data analysis, experiment design (HCI 9, ID 13,14,15)

Week 7 onwards

UI Testing

Testing tools (Selenium, Cypress, TestCafe, Playwright, Protractor, Robot Framework, Appium, Katalon Studio, Ranorex, Postman, SikuliX, TestComplete)

Details of Selenium (Basic Browser handling)

UI Testing Checklists

UX Testing (User session statistics, heat maps)

UX Testing tools (UsabilityHub, Hotjar, Adobe XD)

UX Testing checklists

AgileUX, Design Patterns (ID 12)

Universal Design (UD) (HCI 10.1, HCI 10.2)

Multimodal Designs (HCI 10.3)

Visual Design principles (HCI 10.2)

Quantifying Visual preferences

UD principles (HCI 10.2)

Fitt’s law (HCI 1.2.4, HCI 12.5)

Human audition and auditory displays (sensation, perception, cognition, hearing physiology, text to speech, speech to text, 3D spatialized sound)

Human touch and tactual displays, touch subsystem types (cutaneous, kinesthetic, haptic), mechanoreceptors, hand movement patterns

Smart phone interfaces, output displays and problems, smartphone information input and its processing, Smartphone Usability considerations