

**FIRST SEMESTER 2023-2024**

# Course Handout Part II

Date: 11-08-2023

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

*Course No.* : **BITS F364**

## Course Title : **Human Computer Interaction**

## Instructor-in-Charge : Dipanjan Chakraborty (CS&IS) (dipanjan@hyderabad.bits-pilani.ac.in)

**Scope:** This course is an introductory course to introduce students to the theories, practices and thumb rules of Human Factors in Computing. The course will introduce design, computing and research methods in the domain. In this semester we will be putting focus on designing for accessibility as a core theme of this course

**Objectives:**

* The course will introduce students to the importance of keeping the users at the centre of the design process, including the capabilities and aspirations of the users, and managing other stakeholders.
* Within each medium we will discuss on how to design, prototype and evaluate interfaces, with focus on usability.
* We will also cover additional topics like ethical concerns when dealing with human subjects.
* We will focus on accessibility as one of the core themes in this semester

**Textbooks:**

1. Human Computer Interaction - Alan Dix et al. 3rd Edition, Pearson, 2005.
2. The Design of Everyday Things - Don Norman. Basic Books. 2013

**Reference books**

# Design Justice: Community-Led Practices to Build the Worlds We Need – Sasha Costanza-Chock. MIT Press. 2020.

1. Research Methods in Human-Computer Interaction - Jonathan Lazar. Wiley. 2nd Edition. 2017
2. Interaction Design: Beyond Human Computer Interaction - Sharp, Preece Rogers. Wiley. 5th Edition. 2019
3. Social Research Methods – Alan Bryman. 5th Edition. 2015

# Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation – Tim Brown. Harper Business. 2012

1. Emotional Design. Don Norman. Basic Books. 2005
2. Additional reading materials to be circulated during the course of the semester

**Course Plan:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Lecture No.** | **Learning objectives** | **Topics to be covered** | **Chapter in the Text Book** |
| 1 | To gain an overview of the course | * Overview and motivation for the course * Expectations of the students from the course * Expectations of the instructor from the course | - |
| 2 | To learn the history of HCI | Evolution of the field over time | R3 ch1 |
| 3-5 | To learn about design of everyday objects | Psychopathology of Everyday Things | T2 ch1 |
| 6-8 | To learn about Human Centred Design | Design Thinking, Double Diamond Model, Human Centred Design | T2 ch6 |
| 9-10 | Peer learning | Class presentation on project proposals | - |
| 11-13 | To learn about the psychology behind human actions | * Psychology of Everyday Actions * Knowledge in the Head and Knowledge in the World | T2 ch 2, 3 |
| 14-15 | To Learn about Constraints, Discoverability and Feedback | * Knowing What to Do: Constraints, Discoverability, and Feedback | T2 ch 4 |
| 16-19 | To learn about user research methods | * Quantitative Research * Qualitative Research * Mixed Methods Research | R4 parts 2 and 3 |
| 20-22 | To learn about prototyping and usability Testing | * Prototyping * Usability testing techniques * NASA TLX * SUS Scale | External readings |
| 23-25 | To learn how to design for marginalised communities and universal design | We will look into several case studies | Research papers and articles, R1 |
| 26-28 | To learn about different kinds of errors | * Human errors and types * Designing for errors | T2 ch5 |
| 29-30 | Peer learning | Mid-semester projects class presentations | - |
| 31-32 | To learning about typography | Theories and thumb rules on typography | T1 ch 5 |
| 33-34 | To learn about colours | Theories of colour usage | T1 ch 5 |
| 35-36 | To learn about Bias and Ethics in HCI | * Demographic differences between the designer and the users * Different biases * Countering biases * Ethical concerns | External readings |
| 37-40 | To learn about AR, VR, ER systems | Augmented Reality, Virtual Reality, Mixed Reality, Extended Reality | External readings |
| 41-42 | Peer learning | Final presentation of projects | - |

**Evaluation Scheme:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Component** | **Duration** | **Weightage (%)** | **Date & Time** | **Nature of Component** |
| Mid Semester Examination | 90 minutes | 20% | 11/10 - 11.30 - 1.00PM | Closed Book |
| Course Project  (5% for mid-sem grading) | - | 20% | TBA | Open |
| Assignments  Design Assignment  Programming Assignment  In-Class Assignments  (10% for mid-semester grading) | - | 15% | TBA | Open |
| Research Practice  (5% for mid-sem grading) | - | 10% | TBA | Open |
| Comprehensive examination | 180 minutes | 35% | 12/12 AN | Closed Book |

***Note: 40% of evaluations will be completed at the time of mid-semester grading.***

**Chamber Consultation Hour:** To be announced in class

**Notices:** Announcements will be made in class and/or put up on CMS and/or Piazza

**Make-up Policy:**

* Institute rules apply for makeup of mid-semester and comprehensive examinations, however the decision of the I/C is final.
* No make up for missing assignments, project evaluations or research practice submissions

**Academic Honesty and Integrity Policy:**

Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.

**INSTRUCTOR-IN-CHARGE**