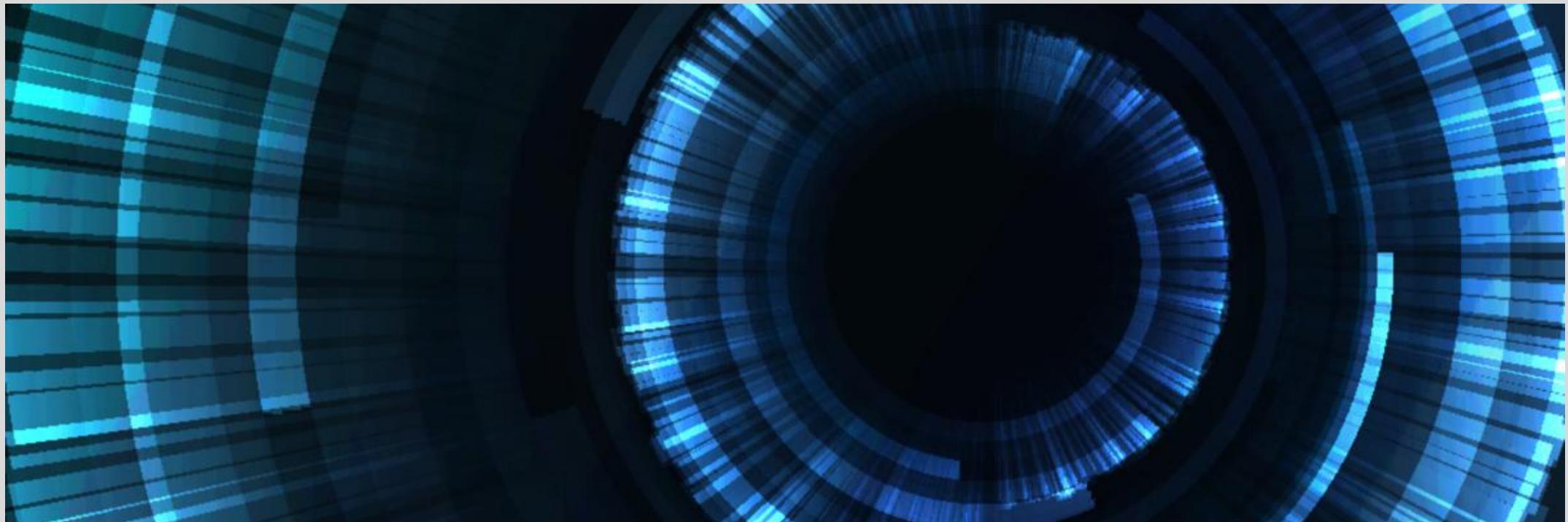


Human Computer Interaction



Original PPT: Dr Grace Eden
grace@iiitd.ac.in

Presented by Dr Indrani De Parker
indrani@iiitd.ac.in



<https://hcd.iiitd.ac.in>

Who's teaching this class?



Indrani De Parker PhD

PhD, IDC, IIT Bombay
UG, Visual Communication, NID

RESEARCH

FOUNDATION DESIGN EDUCATION

COURSES

DESIGN DRAWING & VISUALISATION
VISUAL DESIGN & COMMUNICATION
DESIGN PROCESSES & PERSPECTIVES
NARRATIVES IN VISUAL COMMUNICATION
BASIC TYPOGRAPHY & ADVANCE TYPOGRAPHY

PROFESSIONAL WORK

VISUAL IDENTITY & BRAND IDENTITY,
PUBLICATION DESIGN & PACKAGE DESIGN,
PROMOTIONAL DESIGN, EXHIBITION DESIGN
CONSOLIDATED COMMUNICATION DESIGN PROJECTS

Full Time Visiting Faculty, IIITD
Room No 411, R&D Block, IIITD
indrani@iiitd.ac.in
indranideparker@gmail.com

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- | | |
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Course Overview

This course will provide a **general overview of Human-Computer Interaction (HCI)**

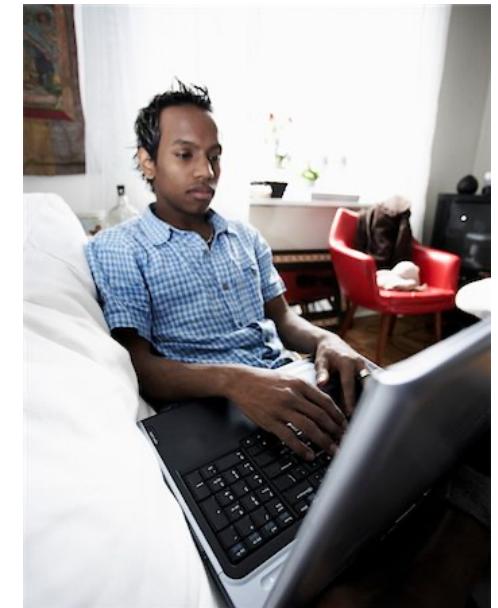
Including the concepts, methods, and practices of:

- User Experience
- User-Centered Design
- Information Design
- Requirements Gathering
- Prototyping
- Evaluation

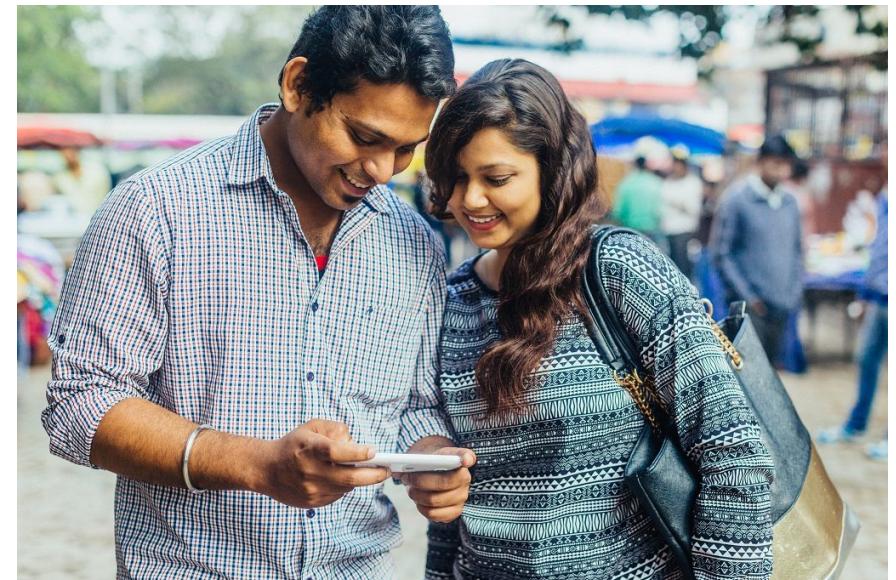
Course Overview

Why is Human-Computer Interaction important?

Examples: Computer Keyboards



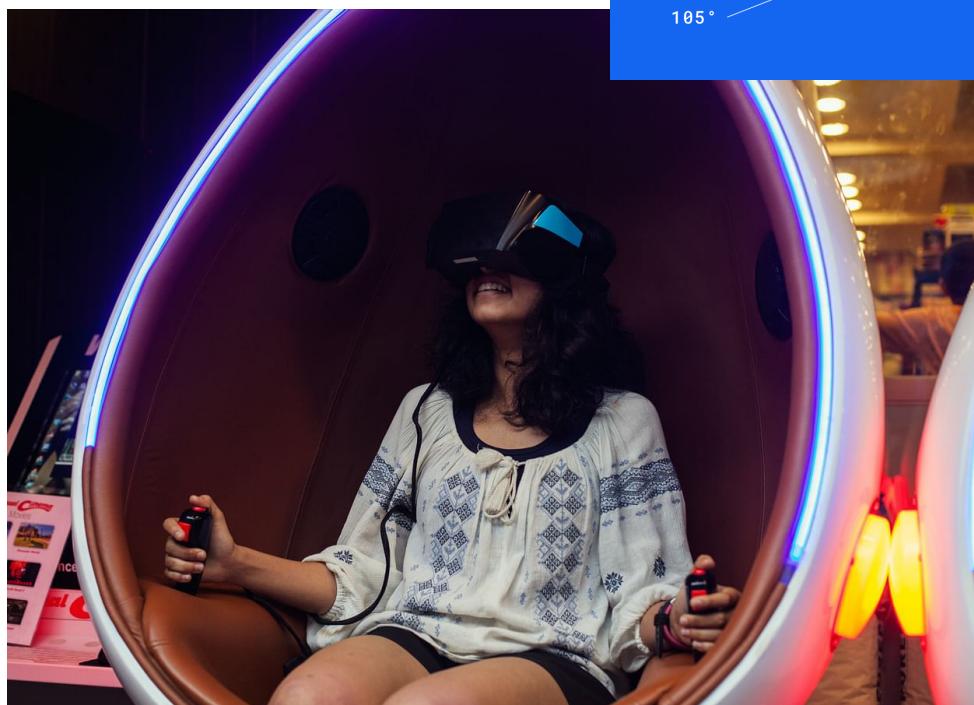
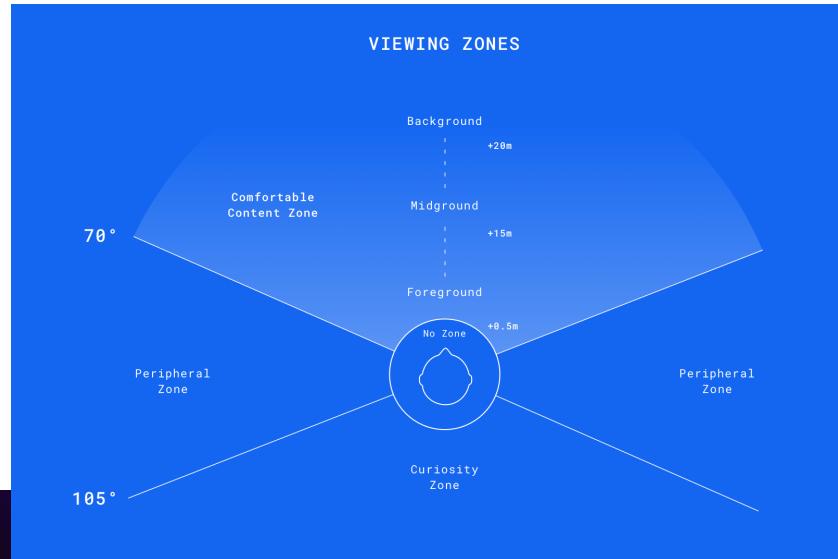
Examples: Phones



Examples: Gaming



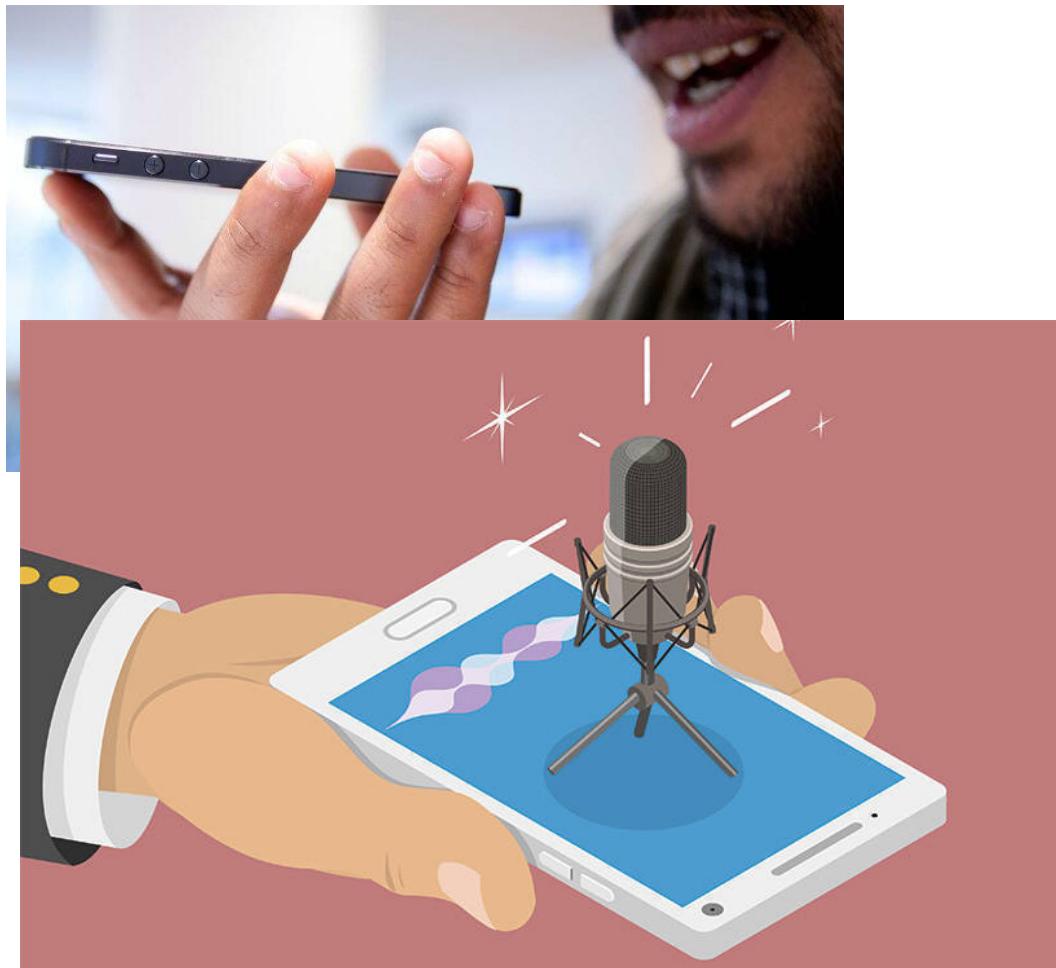
Examples: Virtual Reality



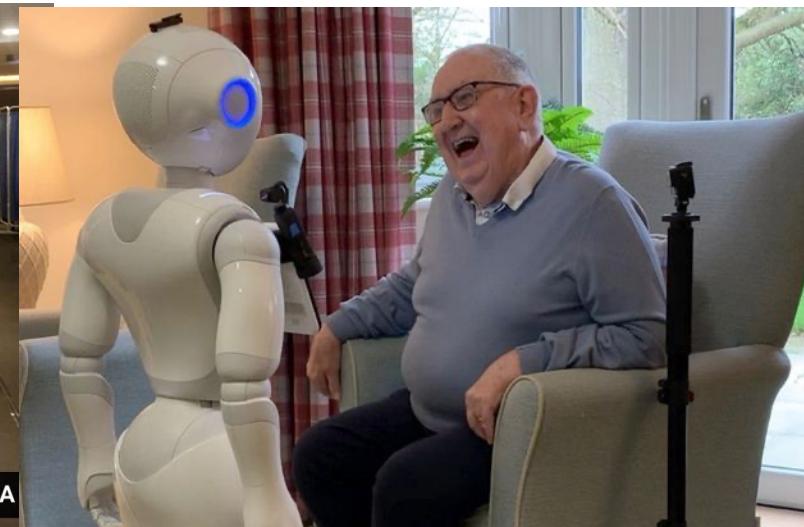
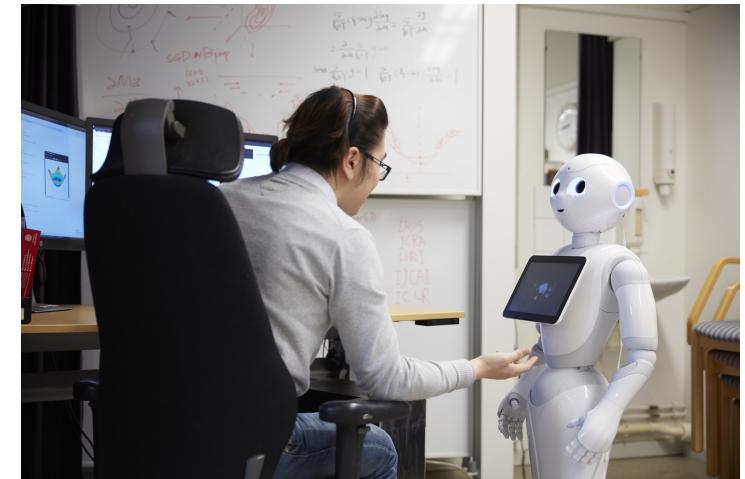
Examples: Smart Gloves



Examples: Voice Assistants



Examples: Human Robot Interaction



Why is Human-Computer Interaction important?

- 1) Focuses on computer design *and user experience*
- 2) Create better interactions *between users and machines*
- 3) Shapes the *future*: new types of relationships between humans and machine
- 4) Design more *useful and usable* products and services

Comics



Course Structure

4 credit course

Core course

First year undergraduate students

Organization

First half of the semester

Individual exercises

Second half of the semester

Group exercises

Assignments

Term time

Five Quizzes: Multiple Choice Questions

Final project

Group prototype, evaluation and redesign

Class times and location

Location:

Zoom

Lecture:

Monday: 10:00-11:30

Wednesday: 10:00-11:30

Tutorial:

Tuesday: Group 1 --- 3:00-4:00
Group 2 --- 5:00-6:00

Office hours:

Organise with your TA

Course website

Google Classroom

Includes:

- Weekly topics (Lecture slides)
- Assignments (with due dates)
- Quizzes
- Readings and Resources

Topics covered

Week	Topic
1.	Introduction to Course
2-3.	What is Design?
4-5	What is an Interface?
6-7	What is Interaction?
8.	Mid-Term Exam
9.	Mid-Recess Break
10.	What is the User Perspective?
11-14	Design Studio

Assessment

Type of Evaluation	% Contribution to Grade	
Quizzes	40	Multiple Choice Questions (each quiz worth 5 points each)
Mid-Semester Exam	25	Multiple Choice Questions
End-Semester Exam	25	Multiple Choice Questions
Project	10	Prototype and Reflections on the Design Process
Subject to Change		

Plagiarism

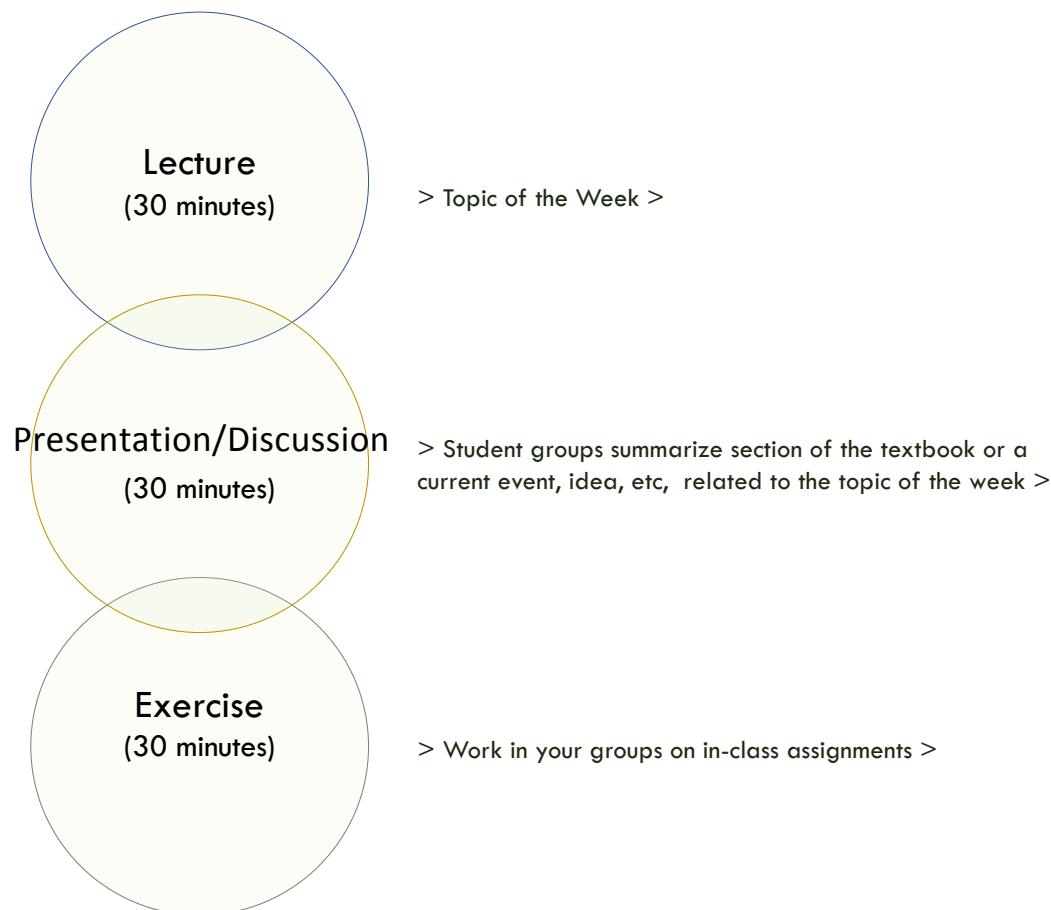
You are encouraged to refer to external resources including but not limited to ones provided below.

However, any use of written text/source code/media/any other intellectual property in your submissions and presentations should be **properly documented along with citations**.

When in doubt please follow the guidelines provided by the Institute:

<https://www.iiitd.ac.in/academics/resources/academic-dishonesty>

Class Structure



What you will learn

Basic concepts and techniques of Human-Computer Interaction (HCI)

Focus on HCI practice – practical tools and techniques

Apply and use these tools and techniques in individual and group work

Succeed in the class

You only get out what you put into it, so make an effort to:

- Study the readings and resources
- Arrive to class on time and pay attention
- Put effort into the assignments

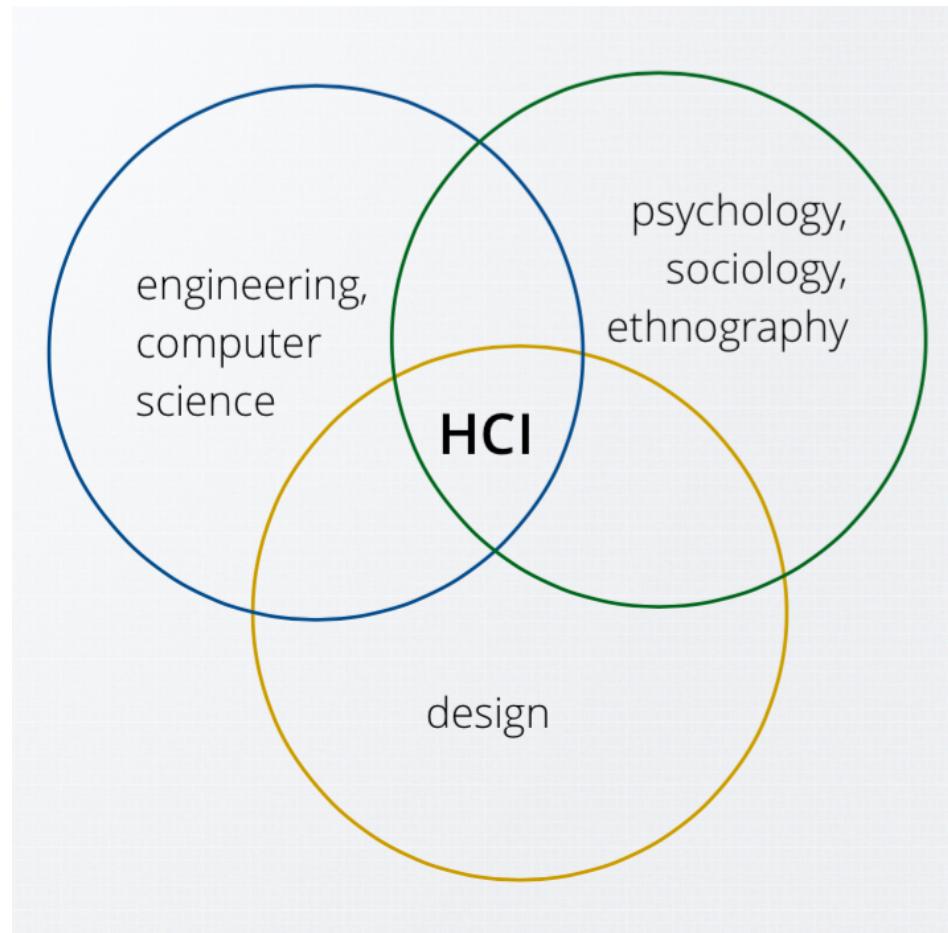
What you will learn

You will NOT learn to be an expert designer or researcher in a few weeks



Part II

What is HCI?



Multidisciplinary Aims

Computer science

- provide knowledge about the capability of the technology and idea about how this potential can be harnessed

Psychology and cognitive science

- understanding human behaviour and the mental processes that underlie it (information processing)
- understanding the nature and causes of human behaviour in the social context

Sociology and anthropology

- interactions between technology, work, and organization
- understanding the nature and causes of human behaviour in the social context
 - Sociology is the study of social life, social change, and the social causes and consequences of human behavior. Sociologists investigate the structure of groups, organizations, and societies, and how people interact within these contexts.
 - Anthropology is the scientific study of humanity, concerned with human behavior, human biology, cultures, societies, and linguistics, in both the present and past, including past human species. ... Linguistic anthropology studies how language influences social life.

Industrial design

- interactive products

Ergonomics

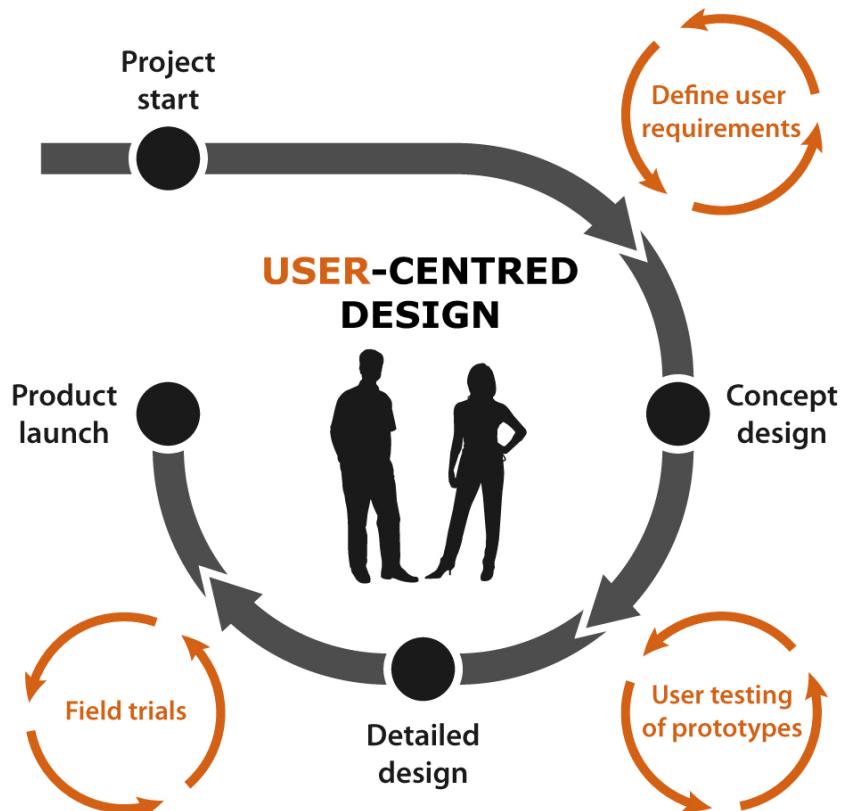
- understand the user's physical capabilities

HCI is a process

Good design is a process that requires time and effort.

You have to learn the process and follow it every time you design (or re-design) something!

We will teach this process and give you opportunities to practice it.



Human-Computer Interaction (HCI)

the study of how people interact with computers and to what extent computers are or are not developed for successful interaction with human beings.

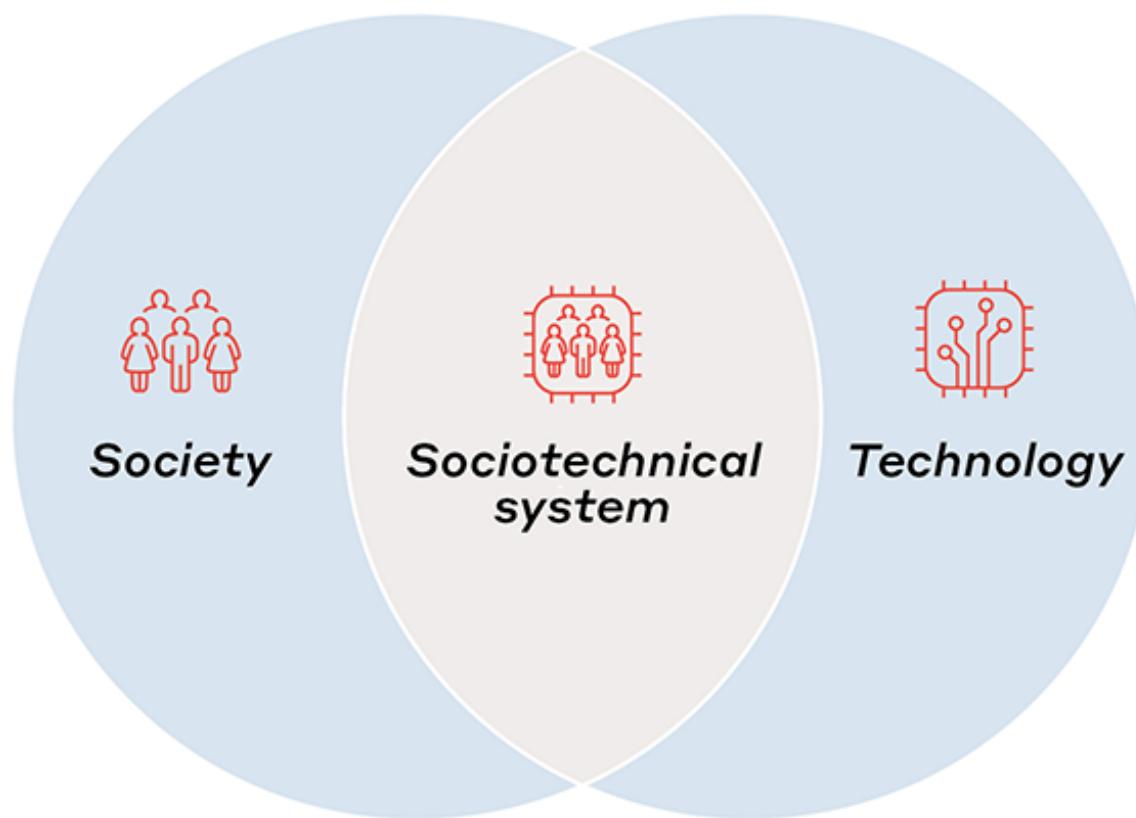
- User - individual person, a group of people
- Computer - technology (any device)
- Interaction - gaining access to information or achieving an activity

HCI Goals

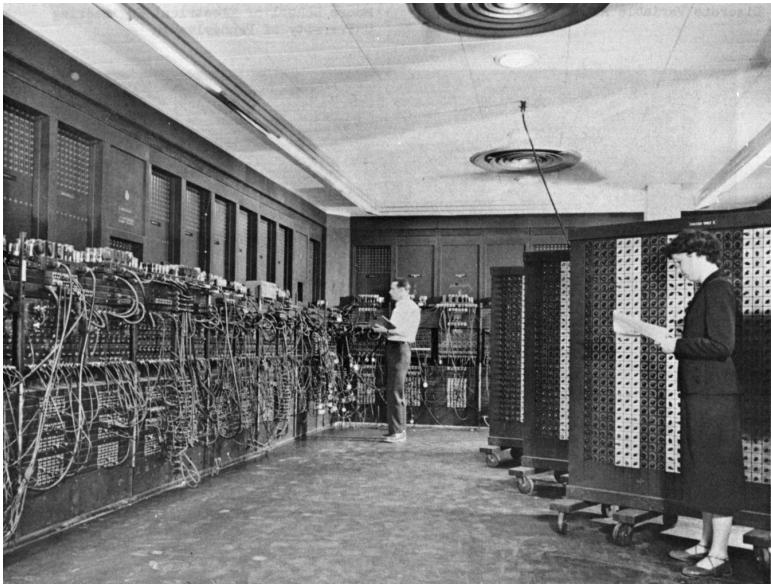
design useful and usable systems that are relevant to people.

- understand how people use technology
- develop tools and techniques to build suitable systems
- achieve efficient, effective, and safe interaction
- put people first

Sociotechnical systems



A little history



ENIAC (Electronic Numerical Integrator and Computer)
ENIAC was the first programmable, electronic, general-purpose digital computer made in 1945.

IBM 610

The IBM 610 Auto-Point Computer is one of the first personal computers, in the sense of a computer to be used by one person whose previous experience with computing might only have been with desk calculators. It was controlled interactively by a keyboard.



A little history



Apple II

The Apple II is an 8-bit home computer and one of the world's first highly successful mass-produced microcomputer products in 1977.

IBM PC



The IBM Personal Computer is the first computer released in the IBM PC model line in 1981.



Special Interest Group on
Computer-Human Interaction (SIGCHI)

A little history

- Hardware**
- Software**
- User Interface**
- User + Work Environment**

THE COMPUTER REACHES OUT: THE HISTORICAL CONTINUITY OF INTERFACE DESIGN

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ABSTRACT

This paper examines the evolution of the focus of user interface research and development from the first production of commercial computer systems in the 1950s through the present. The term "user interface" was not needed in the beginning, when most users were engineers and programmers; it may again become inappropriate when more applications are written for groups than for individuals. But there is a continuity to the outward movement of the computer's interface to its external environment, from hardware to software to increasingly higher-level cognitive capabilities and finally to social processes. As the focus shifts, the approaches to design and the skills required of practitioners changes. In this paper five foci or levels of development are identified. Most development today is positioned in the third level and considerable research is directed at the fourth. Some attention is now being given to the fifth: repositioning the interface in the work group or organization itself. Work at the different levels is not entirely independent, so establishing a comprehensive framework may enable us to position existing research and development efforts and plan future work more effectively.

INTRODUCTION

Ironically, "user interface" is a technology-centered term: the computer is assumed, the user must be specified.¹ And indeed, consideration of the history of that interface goes more smoothly if we position ourselves at a distance and think of the "computer interface" to the user and the world. This perspective afford us a single view that takes in the period before the term "user interface" was used and extends more gracefully into the future, when the computer will reach beyond individual users to understand and support groups and organizations.

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When we consider only those interface techniques that are already in widespread use, the number of unresolved design questions is daunting. Unless one clones an existing product, designing even one aspect of an interface -- menu navigation, window operations, command names, function key assignments, mouse button syntax, icon design, etc. -- gives rise to a potentially endless series of decisions. The methods for arriving at informed choices are often too time-consuming and imprecise. Many more studies are needed if we are to develop an engineering base of appreciable utility. At the same time, user interface design is in a period of tremendous change. Color, graphics, sound, video, and animation are only beginning to be explored or widely applied. More sophisticated system foundations -- distributed, object-oriented, knowledge-based -- are just starting to find substantial markets. Other technologies are sure to appear. The field faces a major challenge in deciding where to invest its effort. This paper sets out a historical framework for understanding the options.

The principal focus of activity in computer development has moved gradually from hardware to software and is now shifting toward the user interface. Corresponding shifts are present within the domain of user interface research and development itself. We can plot the trajectory of work in human-computer interaction: the location of the "user interface" has been pushed farther and farther out from the computer itself, deeper into the user and the work environment. This in turn has led to new approaches to design and evaluation. And so it shall continue. We can extrapolate that new approaches, responding to the user interface's move into the workplace, will require new skills, supplementing current approaches. They may not graft easily -- or at all -- onto existing development practices. Already, accepted methods for developing good interfaces clash with efforts to standardize the development process; the approaches of the future will greatly amplify these problems.

Poor design



Poor design



Poor design



Poor design



Poor design



Poor design



Reading

Read chapter one:

Pages 1-15

Interaction Design: beyond human-computer interaction (5th edition)

Course book

Assignment 1: Thinking about design

Upload a PDF file or Google Slide with a **PHOTO** and **DESCRIPTION** of something you use that you think has a great design

It can be any object, hardware, software, or anything else.

Tell us the name of the object and explain why you think it has a good design - why do you like the design?

Be sure to include your name and student roll number at the top of the file.

Thinking about design: Example

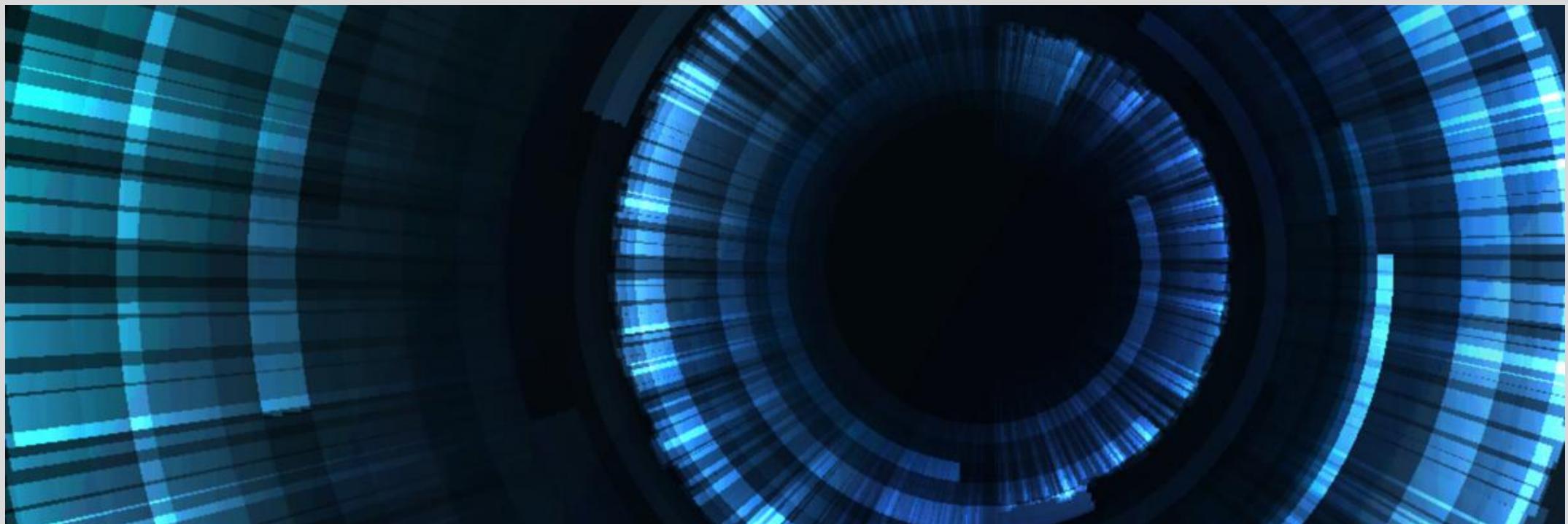


GOOGLE CLASSROOM:

jfrb6th

<https://classroom.google.com/u/0/r/NDUwNDM4NDAyMDc3/sort-first-name>

Human Computer Interaction



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<https://hcd.iiitd.ac.in>