

# Lecture 1 Introduction

## Marking Scheme

Lecture (preference?)	2 hrs. per week
Discussion / Tutorials	1 hrs. per week
Total 100%	
Assignment	30%
Final examination	70% សម្រាប់

## Outline of Introduction lecture

- Understand about HCI.  
កិច្ចការងារ
- Why is it important?  
អ្នកគិតជាជីវិត
- Some bad design sample  
ផ្លូវការណ៍ដែលបានរាយ
- Understand the word usability, user interface and accessibility  
និរន័យ
- Evolution of user interfaces  
របាយការណ៍

## Book in use

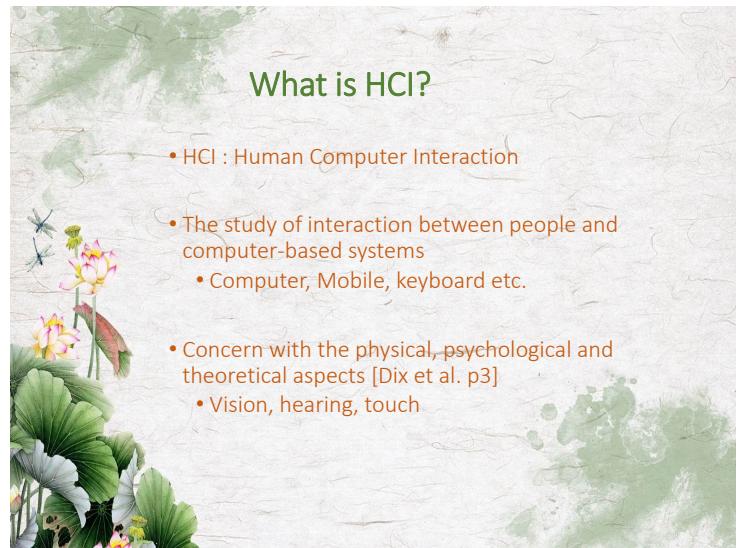


## What is this course about?

- Human issues កិច្ចការងារ
- Computer issues កម្មសាន្តរការ
- Interaction between human and computer និងការងារ
- Specifying interaction ផែកផាកទេសការងារ
- Choosing a suitable style of interaction ធ្វើក្រុមបែបទំនាក់ទំនង
- Designing a system for the interaction ការងារក្នុងការងារ
- Testing a system is effective in interaction or not កត់សន្យាទៀតរួមបានការងារនៃមនុសា

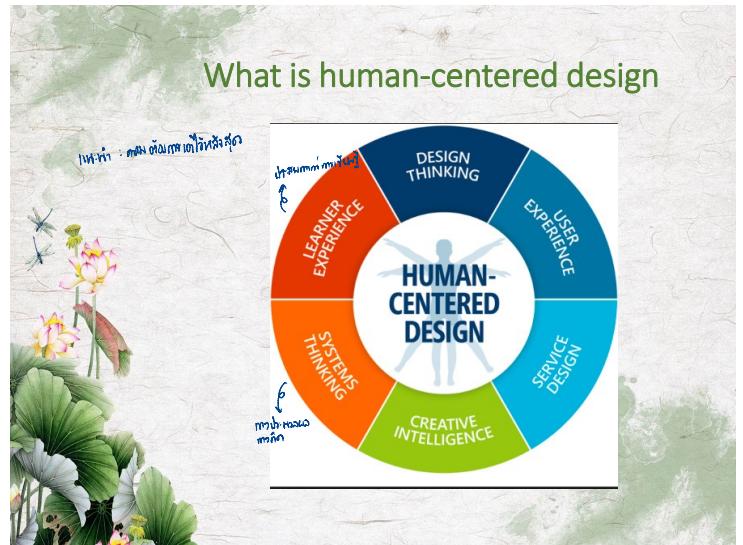
## How to study this course

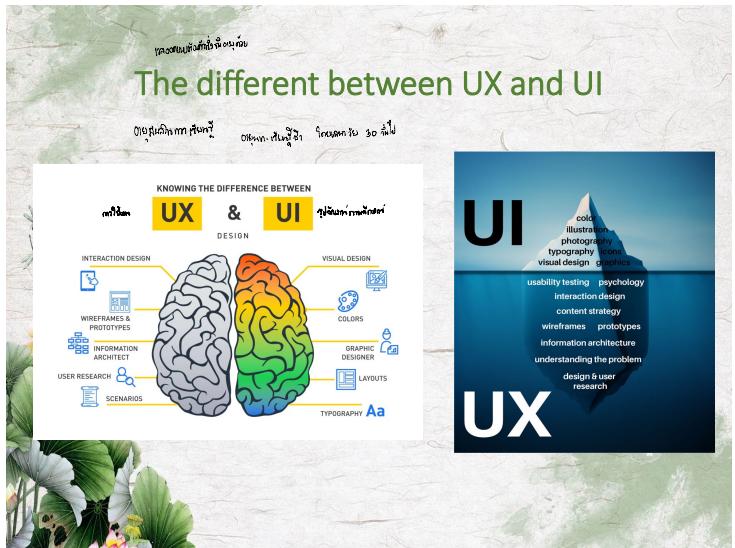
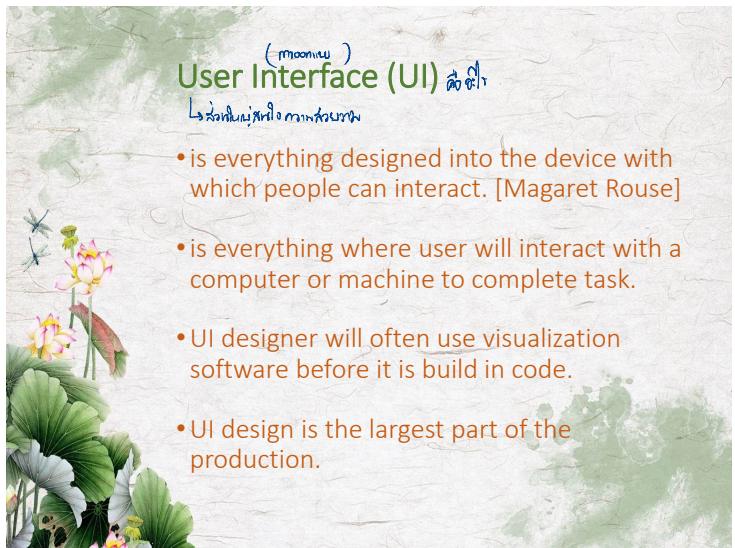
- Quite some reading to do
- Lecture notes are NOT enough
- Discussions among students are useful
- Case study exchanges are important



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- Why do HCI important?**
- To enable us to design interactive products to support people in their everyday and working lives. [Rogers et al, preface, V]
  - There is a lot of devices/processing design that can cause problems for users such as ATM process.
  - Good design involves understanding how users interact with computers, and enabling them to do so effectively
  - The designer can develop usable products (Goal of HCIs)

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- Goals of HCI**
- Allow users to carry out tasks smoothly
  - Understanding
  - Safely to use (both users and data)
  - Effectiveness (easy to find and uses services)
  - Efficiency (how quickly users can work)
  - Usability - Easy to learn (Timeless to use and understand) and no training
  - Enjoyable experience (how well user like the interface)
  - Accessibility (as many people as possible)
  - Focus on users (human centered design)





#from android access. ແກ້ໄຂ ສຳເນົາ  
ກ່າວ ເພີ້ມ ດັບຕິດ

## What is Accessibility?

- Access for all, usable by as many people as possible.
- Including elderly and people with disabilities.
- Disabilities is the group of people who has visual, hearing, cognitive and motor impairment. [www.adobe.com]

## Accessibility Is Not Enough

A strict focus on accessibility as a scorecard item doesn't help users with disabilities. To help these users accomplish critical tasks, *you must adopt a usability perspective*.

nnngroup.com  
NN/g

ການອຳນວຍ ອັນດີ

## What is USABILITY?

- Usability means making products and systems easier to use and learnability, and closely to user needs and requirements
- Describes the effectiveness, efficiency and satisfaction with which users achieve their goals.
  - It is important because:
    - Good interface design makes people more productive
    - Bad interface design can lead to disaster

## How to improve Usability?

### User Testing ແນວນອຸປະກອນ

1. ລັບໂອຸປະກອນ ສູນມີຄວາມສັງເກດ
  2. ໂັນ
  3. ຖໍມາ
- Ask the users to perform representative tasks with the design.
  - Observe what the users do, where they succeed, and where they have difficulties with the user interface. Shut up and let the users do the talking.
  - It's important to test users individually and let them solve any problems on their own.
  - Let the users do talking

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## USABILITY components



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## When to work on Usability?

- Before starting the new design, check on the old design and test
- Check on your competitors design
- Conduct a field study to see how users behave
- Make paper prototypes of one or more new design ideas
- Test all the new design
- Refine the design ideas
- Implement the final design

Neilsen Norman Group [[www.nngroup.com](http://www.nngroup.com)]

## Design of Beauty

## Design of Usability



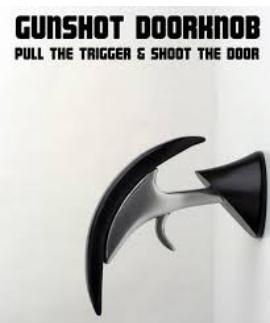


ມີກຳນົດກຳນົດ ຖໍ່ສາມາດຫຼັບໄດ້ ທີ່ມີລົງທຶນກຳນົດ = error  
error ພົມໃຫຍ່ 20%.



ມີກຳນົດກຳນົດໄດ້ ແລ້ວ ຫຼື ຖໍ່ມີລົງທຶນກຳນົດ (ຈະບິນ)

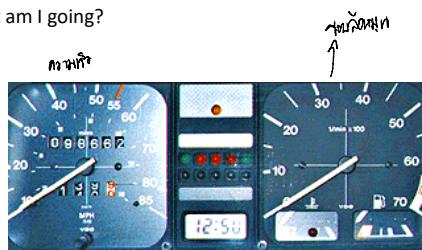






## Some problematic designs

- How fast am I going?



[www.baddesigns.co]

## Some problematic designs

- How Do I get out of this lift?



[www.baddesigns.com]  
[http://uxdesign.cc]



อะไรมีการออกแบบที่พิเศษของหน้าเกมส์นี้



นึกถึงถ้าเราต้องการกดเงินที่ตู้ ATM จำนวนเงิน 500 บาท

- จดอธิบายขั้นตอนการกดเงินอย่างละเอียด
- คิดว่าการออกแบบขั้นตอนการกดเงินนั้น คืออะไรไม่ดี อย่างไร ถ้าคืนแล้ว ข้อดีคืออะไร ถ้าไม่ดี ข้อเสียคืออะไร

มีความหมาย ฝ่าย เครื่อง เครื่อง  
อธิบาย 3 สิ่งที่เห็นนี้ คืออะไร อธิบายการใช้งาน

ข้อที่ 3 ก็จะเป็นมาตรฐานสูงสุด

อะไรมีปัญหาของภาพที่เห็นในข้อนี้

Evolution of User Interface

### Evolution of User Interface

#### • Early days (Up to 1960s)

- Isolated computer centres with mainframe computers
- Punched card input
- line-printer output
- Batch processing (even the command)



[http://www-03.ibm.com/ibm/history/exhibits/mainframe/mainframe\\_album.html](http://www-03.ibm.com/ibm/history/exhibits/mainframe/mainframe_album.html)

## Evolution of User Interface

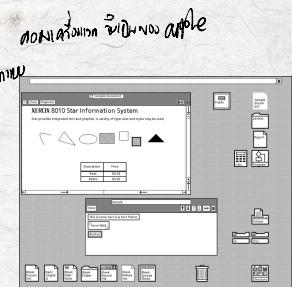
- Start of interaction (Mid 1960s - early 1980s)
  - Mechanical or 'glass' teletype alphanumeric displays
  - Users interact via command line or menu-driven interfaces through terminal stations



[http://www-03.ibm.com/ibm/history/exhibits/mainframe/mainframe\\_album.html](http://www-03.ibm.com/ibm/history/exhibits/mainframe/mainframe_album.html)

## Evolution of User Interface

- Age of Personal Computers (Early 1980s - mid 1990s)
  - A lot of interaction required
  - Graphical user interfaces (GUI) based on windows, icons, menus and pointing devices (WIMP)
  - Users manipulate graphical representations of objects directly on the screen



<http://images.appleinsider.com/leopard-preview-desktop-3.jpg>

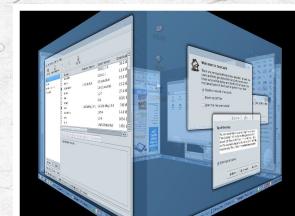
## Evolution of User Interface

- Use of Graphics (Mid 1990s - early 2000s)
  - Multimedia machines with animation, sound, moving image and voice input
  - Interaction still limited
  - GUI improvement with rich colour and realistic icons and desktop
  - Start of adaptive interface

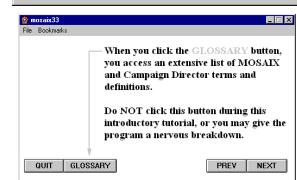
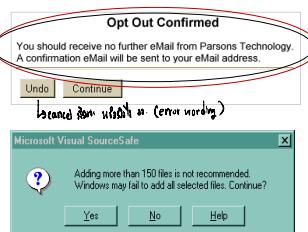


## Evolution of User Interface

- Next Generation
  - Multimodal interfaces will exploit different user senses and different types of human interaction
  - Virtual reality?
  - Full range of user interaction will be opened up



## When Things Go Wrong: Error Messages



## When Things Go Wrong: Iran Air 655

3 July 1988: IR655 shot down, 290 passengers including 66 children dead

U.S. government claimed the aircraft was mistakenly identified as an attacking F-14.



[http://en.wikipedia.org/wiki/Iran\\_Air\\_Flight\\_655](http://en.wikipedia.org/wiki/Iran_Air_Flight_655)

## Summary

Define the basic concepts of:

- User interface
- Human-computer interaction (HCI)
- Usability
- Accessibility

Explain why they are important and give examples of:

- The benefits of good design
- The risks of bad design

Further reading and revision:

- Dix et al, Introduction, pp. 1- 8

## Un-answered Questions:

- What human factors should be thought about?
- Does the human mental model works in the same way as computer's (check this when learning programming)?
- Are devices design with a human consideration? What devices are suitable for what circumstances?
- How do we describe formally the human-machine dialogue before an interface is designed?
- What interaction style are there, and which to use?
- How tasks are decomposed, and how to shared them effectively between the human and the machine?
- What are interface design guidelines? What are the use for these guidelines in practice?
- How do we evaluate usability of something?

## Prepare for Next week

### Human

- Memory
- Vision
- Eyes
- Fingers

### Senses

- Sight
- Hearing
- Touch