

Interaction Design

Opening & Overview

Tek-Jin Nam
ID.KAIST 2009

Week 01 of 2009 Fall
(2nd of September 2009)

Who am I?

30 Sec Into

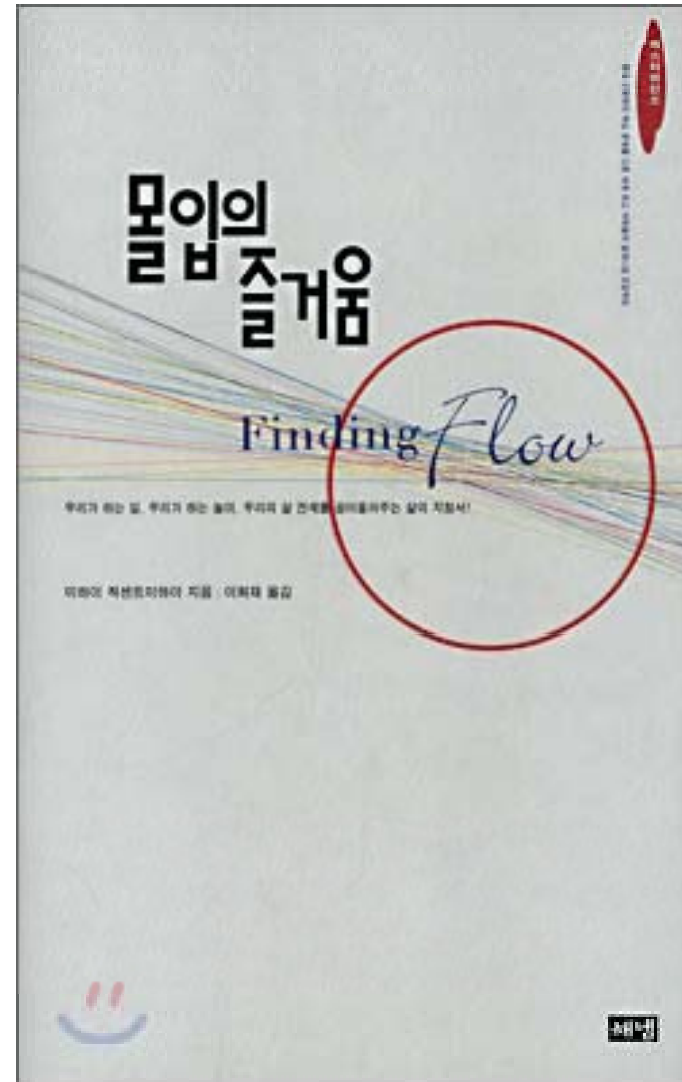
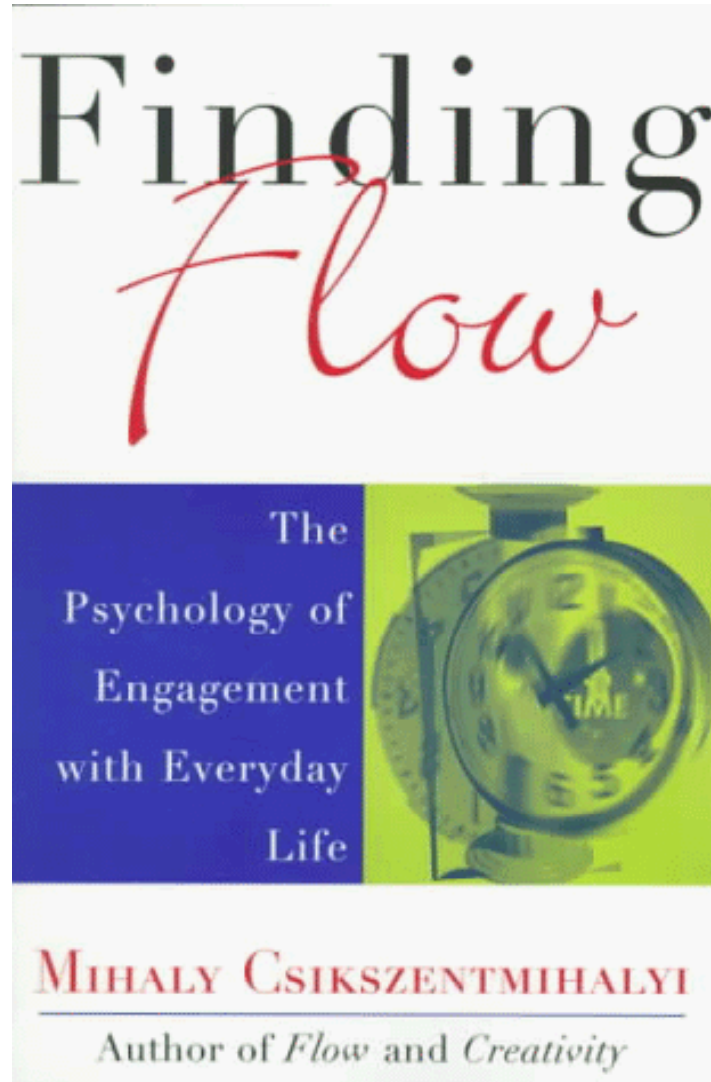
- 1. Year and Major**
- 2. Academic Interests related to Design**
- 3. Other Interests**
- 4. Name**

Zoom Out

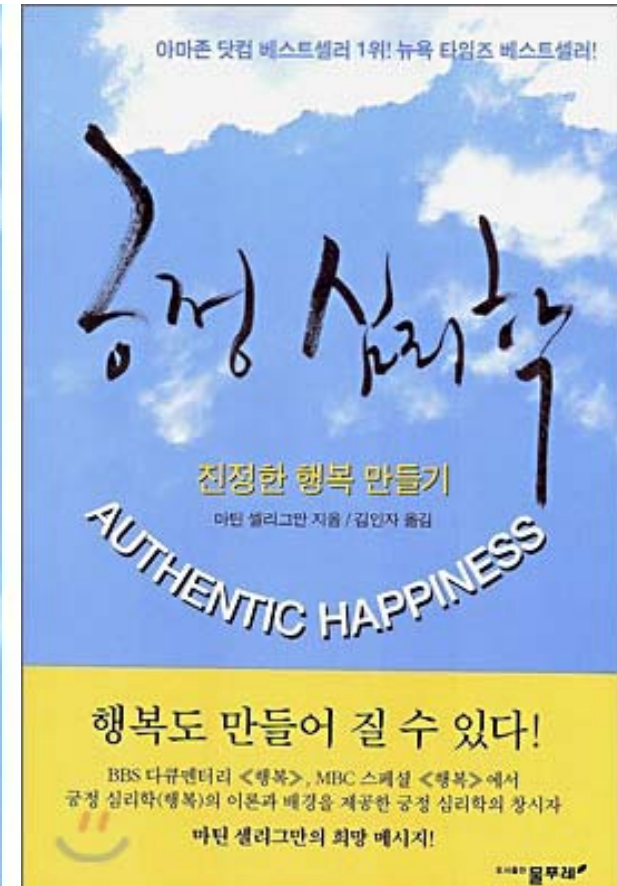
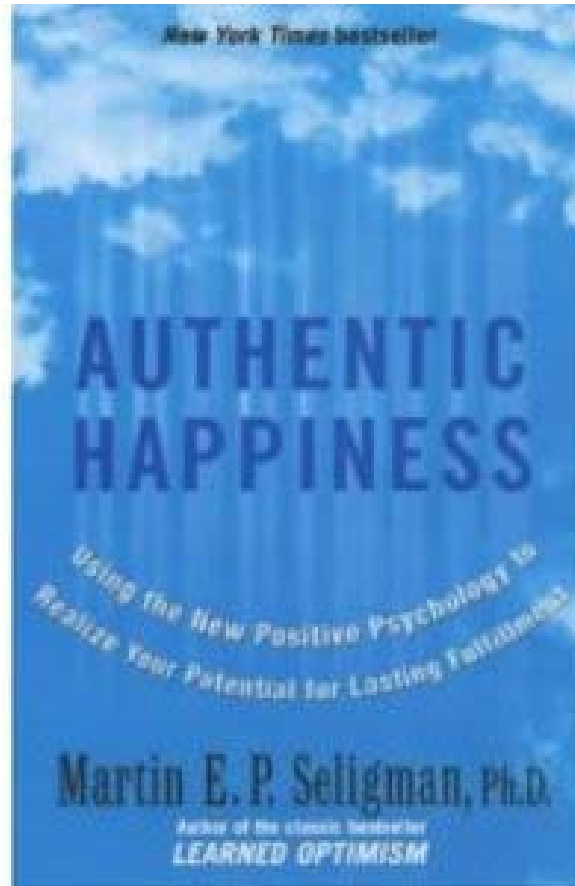
Authentic Happiness

**Positive Psychology is about
ways to make people happy.**

Positive Psychology



Positive Psychology



**What makes people truly happy?
(Authentic Happiness)**

**Positive Psychology is about
ways to make people happy.**

Happy Life (Seligman, 2004)

The Pleasant Life (PA)

The Good Life (Engaging)

The Meaningful Life

Authentic Happiness

- **Positive Emotion**
- **Eudemonan Flow : Timeless moment**
- **Use your strength for something larger than you (e.g. Philanthropy)**

Impact on Life Satisfaction

- **LS = PA + Engagement + Meaning**

**Pleasurable Life (marginal) < Good
Life < Meaningful Life**

Eudemonian Flow through Studying Design ?

Eudemonian Flow through Studying Design ?

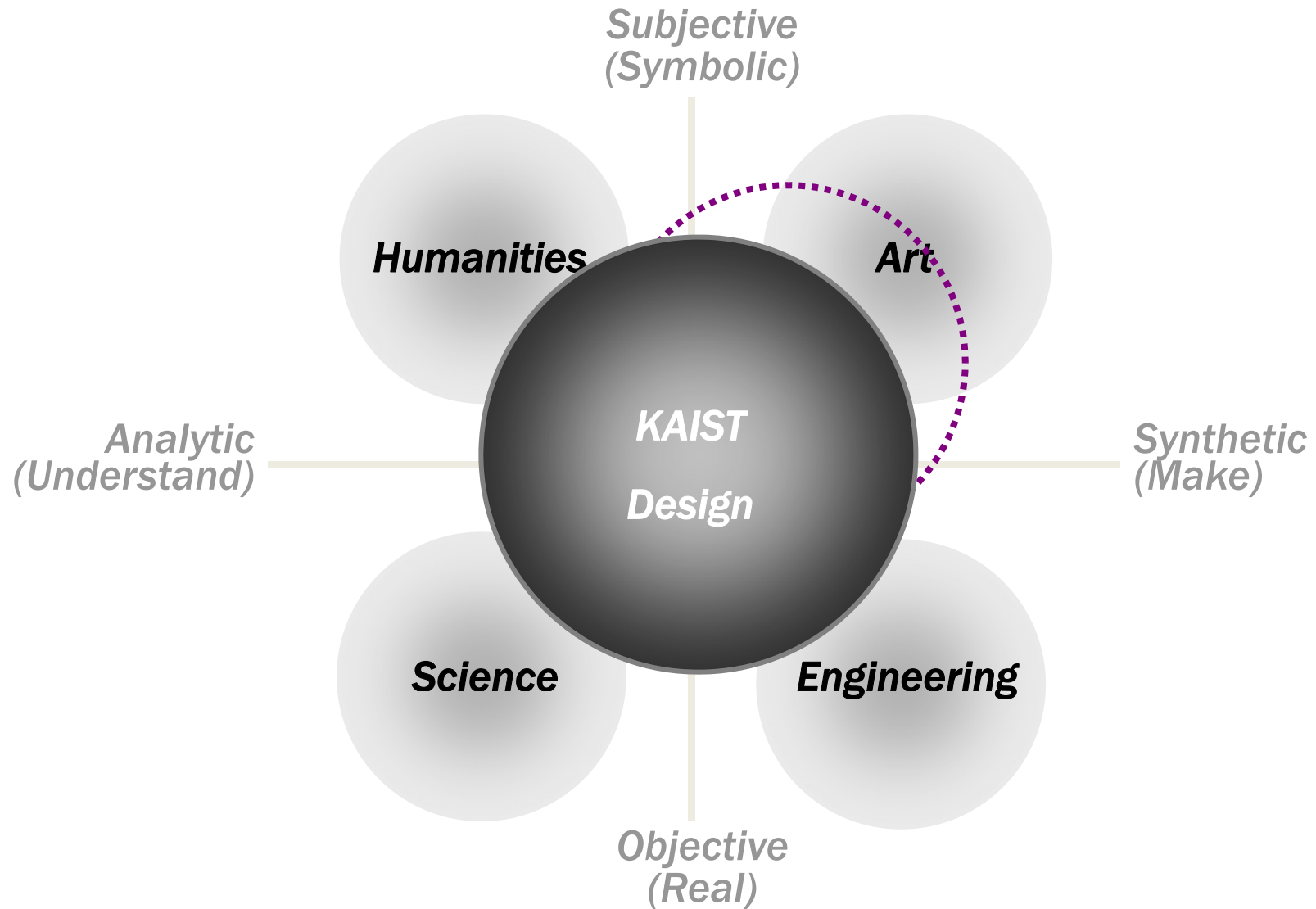
Interaction

Who are we?

Goal Statement

- To train world class leading design professionals who understand the cutting edge technology and engineering and are able to identify user needs, and initiate business innovation.
- Worldwide leading research-oriented design education for creating new user experiences in the digital society

idKAIST Positioning - 1



KAIST Design Education - Contents

$$(D+F+V)*F$$

Awareness of **Desirability** / Human Centered Design Strand

Skills to understand users' cognitive, emotional, cultural and social needs

Awareness of **Feasibility** / New Technology Fusion Strand

Skills to understand the cutting edge technology and engineering and to develop new applications

Awareness of **Viability** / Business Innovation Stand

Skills to plan and develop new business strategies from design perspective.

*

Fundamental Design Techniques

Basic design skills (Visual Language)

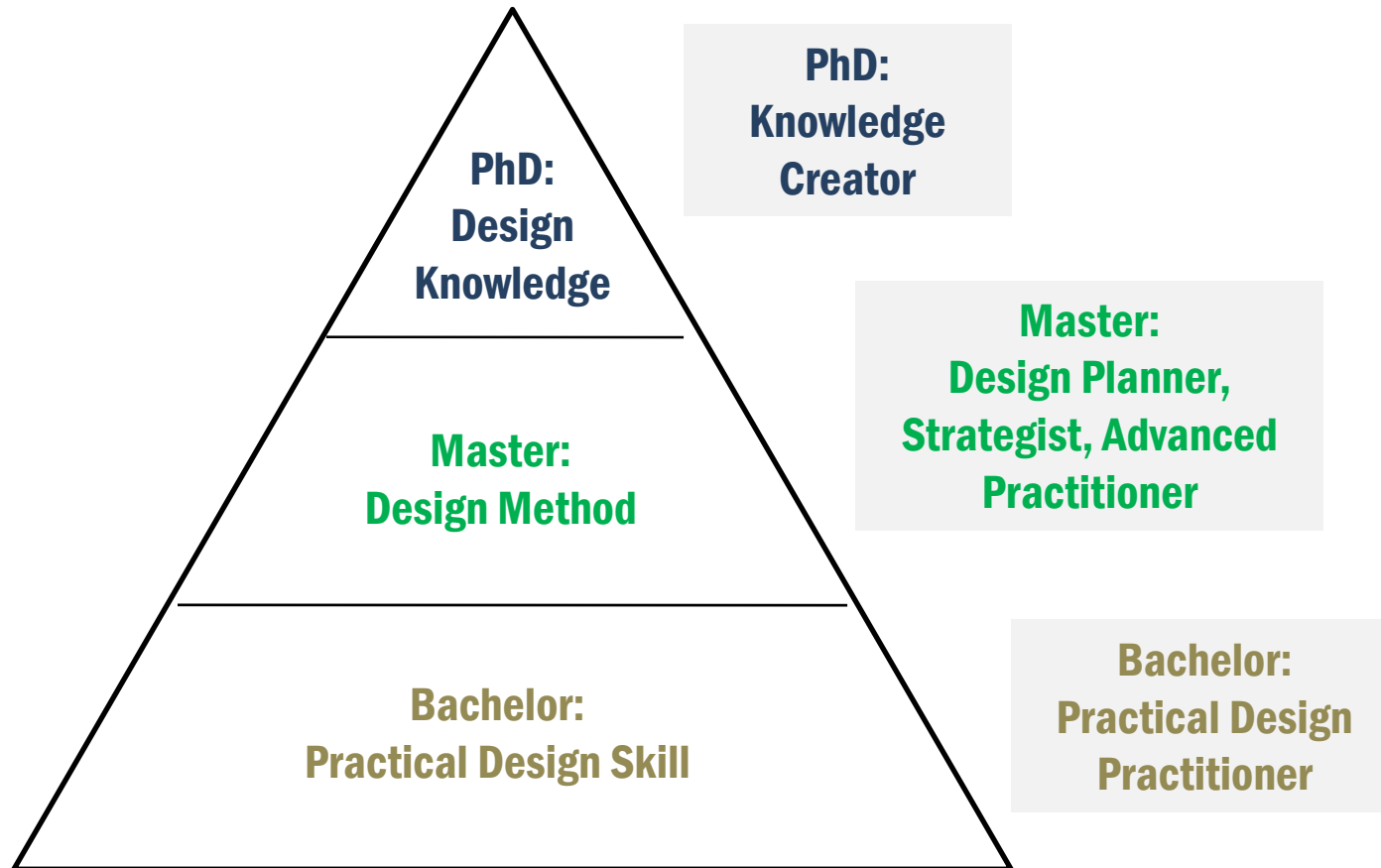
Familiarity of Design Tools and Methods

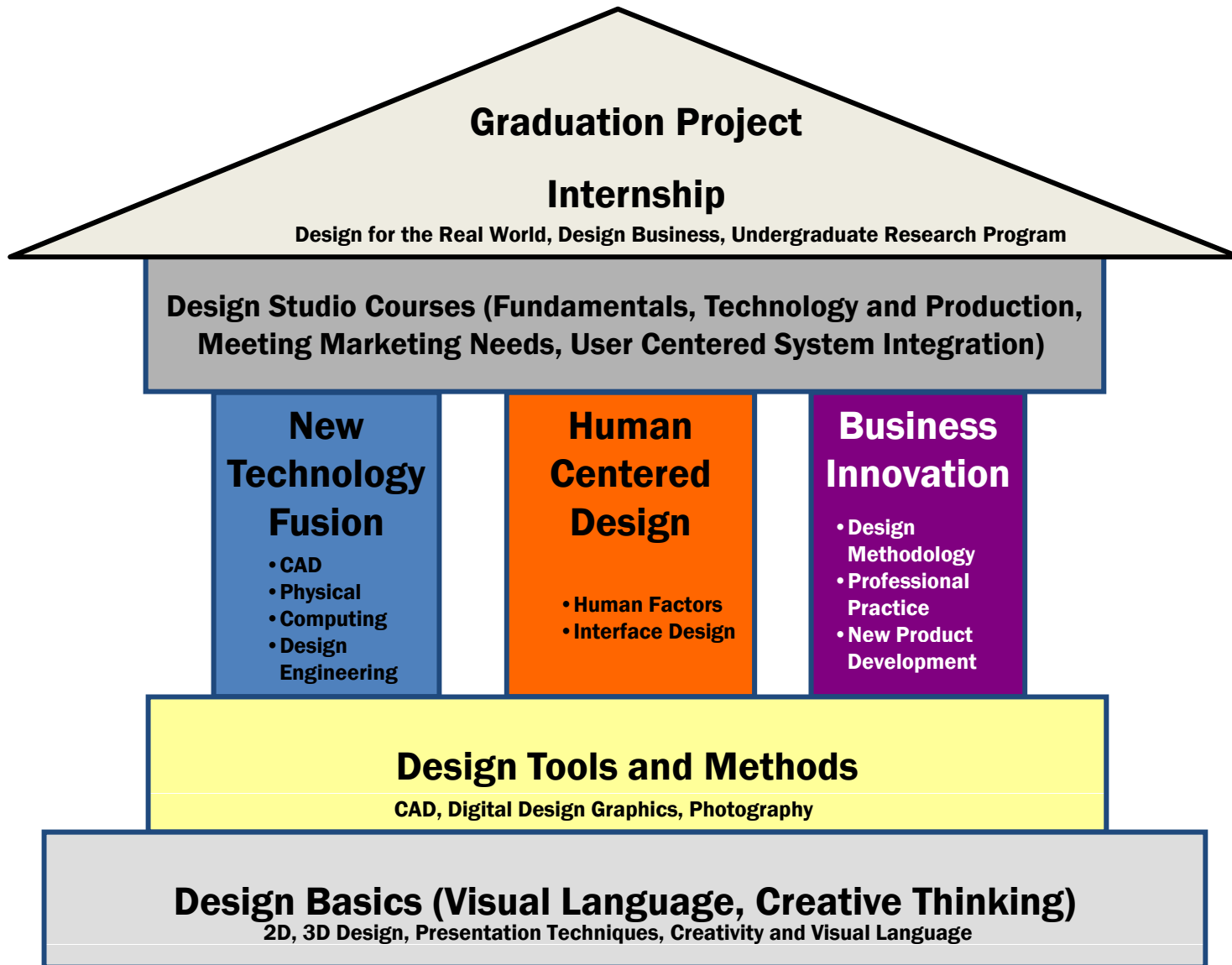
User Centered Design

Prototyping

Iterative Design

KAIST Design Education – by Level





Undergraduate Curriculum Structure

Courses

ID KAIST Courses		Undergraduate				Graduate		Ph.D
		1st year	2nd year	3rd year	4th year	1st year	2nd year	
Spring Semester	Classification							
	Electives				Design Communication		Theory of Design Management	
			Presentation Techniques	CAD & 3D Modeling	Integrated Design	Media Interaction Design	Theory of Emotional Design	
		Design & Living	Introduction to Industrial Design	Design Human Factors	New-Product Development	Design Issues	Design Project III	
	Essential		2-Dimensional Design					
		3-Dimensional Design	Product Design Factors	Product Design System	Design Project I		Design Studio	
Fall Semester	Essential		Product Design Fundamentals	Product Design Program	Design professional Practice	Research Methodology		Design Research Issues
			Digital Design Graphics					
	Electives	Creativity & Visualization	Product Design Engineering	Space Design	Interactive Space	Design Project II	Design Project IV	
				Interaction Design	Design Critic	User Centered Design Methodology		
				Interface Design				
				Undergraduate Thesis		Thesis & Seminar	Thesis & Seminar	

About the Course

- **ID: ID308**
- **Type: Elective Course**
- **Tutor: Tek-Jin Nam**
- **Duration: 16 weeks**
- **Language: English**
- **Level: Year 3, Undergraduate, ID KAIST**
- **Class Hours: Wednesday 14:00 – 18:00**
- **Office Hours: 1 hour before or after the class. For other times, upon email appointment.**
- **Teaching Assistant: Juwhan Kim, Changwon Kim**

Broader Definition of Interaction Design

- Designing interactive products to support people in their everyday and working lives (Preece et al., 2002)
- More and more products become interactive.
 - Ubiquitous computing environment, Intelligent space, mobile devices
 - These became our main design targets.
- The goal is
 - To make interactive products to be easy to learn, effective and enjoyable to use.
 - To create innovative interactive products to improve the quality of human experience.

Interaction Design at IDKAIST

- **Understanding Technology : Electric & Electronics, Programming**
- **Concept Realization: Working prototype**
- **Focus on the ways to bridge between virtual (digital) and real (analogue) World. (Physical Interaction Design, Physical Computing, Tangible Media)**

- **Creative thinking**
- **User Centered Design Approaches**

Interaction Design and Other Related Courses in KAIST(ID and Other Dept.)

- **Interface Design(y3) : Usability Engineering, Cognitive Ergonomics**
- **Digital Design Graphics(y2) & Information Design(y3): Graphic Communication for Product Design, Information Visualization**
- **Product Design Program**

- **Interactive Media Art and Installation (CT)**
- **Media Interaction Design (Master Course)**
- **Interactive Space (4th Year)**

- **Human Computer Interaction (Computer Science, year 4)**
- **Interactive Media Courses at GSCT**

Objectives

- To understand the underlying **theories and methods of interaction design** for the design of hardware and software of interactive products and systems.
- To learn **the essential techniques for prototyping interactive products or systems**. (realization of listening, thinking and speaking)

At the end of the semester...

Students will gain the skills to implement fully or semi working (standalone, computer connected or networked) prototypes for your studio design projects (e.g. Graduate Design Project).

Tools and skills to be covered

- Microcontroller Programming (e.g. Arduino)
- Arduino is an open-source **electronics prototyping platform** based on flexible, easy-to-use hardware and software. It's intended for artists, designers, hobbyists, and anyone interested in **creating interactive objects or environments**.



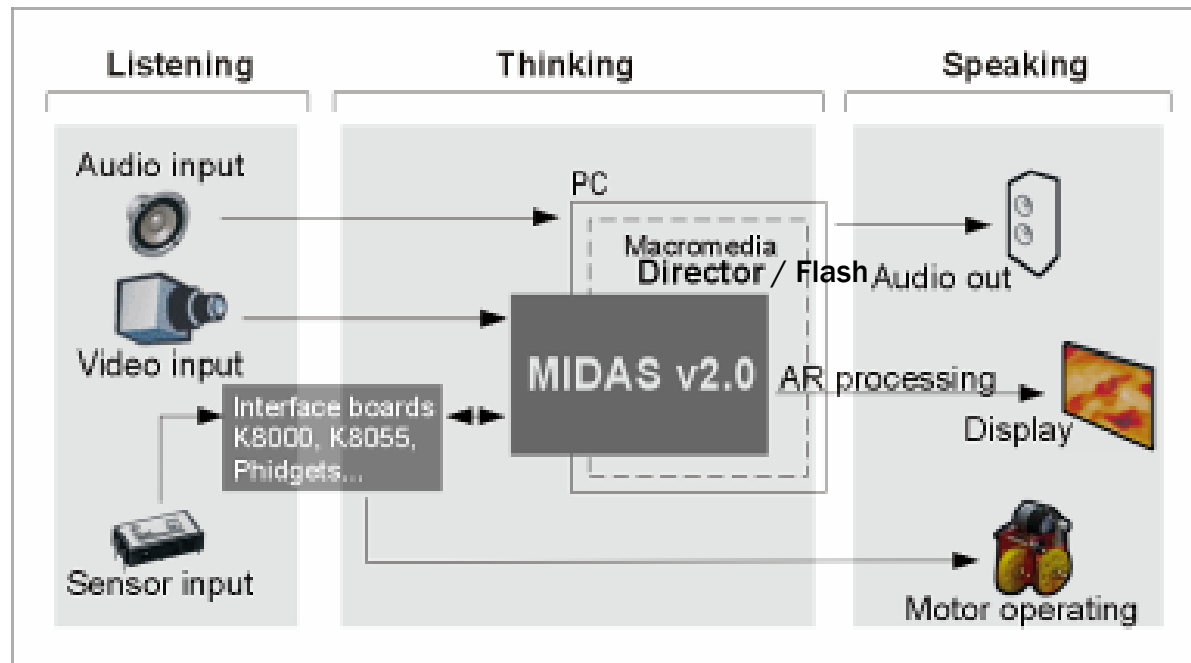
Arduino Hardware



Arduino Software

Tools and skills to be covered

- Flash and Action Script Programming
- MIDAS (Media Interaction Design Authoring System) of idKAIST



Tools and skills to be covered

- **Basic Electric and Electronic Engineering Knowledge (Building Electronic Circuits with microcontroller, sensors and motors)**
- **Basic design skills**
 - **2D and 3D Visualization (Graphics, CAD and Rapid Prototyping)**
 - **Physical and Cognitive Ergonomics**

Interaction Design Schedule



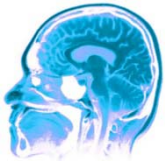
Handy Period

1- 6 week : **Step by Step Practice and Exercises**



Body Period

7 – 11 week : **Group Work Integrating Exercises**



Heady Period

11 – 14 week: **Main Project Tutorial**



Mouthy Period

15 – 16 Week: **Final Presentation and Hand-In**

Interaction Design Schedule (1)

(subject to occasional amendment)

Week	Topics	Demo and Assignment	Remarks
1(9.2)	Opening and Outline	Shopping Arduino	
2(9.9)	Electronics Basics Arduino. Hello World	<ul style="list-style-type: none"> • Application of blinking LEDs 	Assignment 1 (Individual work)
3(9.16)	Review of Assignment 1 Microprocessor Basics, Digital Input Output	<ul style="list-style-type: none"> • Application Digital Input, Output, & Serial Communication 	Assignment 2 (pair work)
4(9.23)	Analogue Input with Transducers (Sensors),		
5(9.30)	Assignment 2 Presentation and Critique Digital Output II Flash Actionscript Tutorial 1	<ul style="list-style-type: none"> • Completing Digital Output II Class Exercise • Application of Flash Tutorial 1 	Assignment 3 (pair work)
6(10.7)	Assignment 3 Presentation and Critique Analogue Output (PWM), Servo DC Motor Flash Actionscript Tutorial 2	<ul style="list-style-type: none"> • Completing Analogue Output Class Exercise • Application of Flash Tutorial 2 	Hello Flash
7(10.14)	Communication between Flash and Arduino : Integrating Physical and Virtual Worlds	<ul style="list-style-type: none"> • Communication between virtual and real worlds 	Assignment 4 (mid-term project; 3 person Group Work)
8(10.21)	Midterm Break		

Interaction Design Schedule (1)

(subject to occasional amendment)

Week	Topics	Demo and Assignment	Remarks
9(10.28)	Video Tracking Movement control (Stepper Motor)	Completion of Class Exercises Application of Computer Vision and Movement Control Announcement of Main Project (Interactive Product Design)	
10(11.4)	Assignment 4 Presentation and Critique	Main Project Tutorial Preparation (Ideation)	Main Project: Individual Work
11(11.11)	Final Project Tutorial 1	Main Project Tutorial Preparation (Tech Research)	8-10 People Group Tutorial
12(11.18)	Related Works Review 1 Final Project Tutorial 2	Main Project Tutorial Preparation (Idea Consolidtion)	8-10 People Group Tutorial
13(11.25)	Related Works Review 2 Final Project Tutorial 3	Main Project Tutorial Preparation (1 st Partial Prototype)	8-10 People Group Tutorial
14(12.2)	How can we go further? Final Project Tutorial 4	Main Project Tutorial Preparation (2 st Full Prototype)	8-10 People Group Tutorial
15(12.9)	Final Presentation of Main Project & Conclusion		
16(12.16)	Submission		

References:

- Weekly Lecture Notes
- O'Sullivan, D. and Igoe, T. *Physical Computing*, Thomson Course Technology, 2004
(서동수 역, 피지컬 컴퓨팅, 지구문화사, 2008)
- Chris Crawford, *The Art of Interactive Design*, ©2002 No Starch Press
- Igoe, T. *Making Things Talk*, O'Reilly, 2007

Other Reference Sites:

- MIDAS . <http://cidr.kaist.ac.kr/mediawiki/index.php/MIDAS>
- Arduino <http://www.arduino.cc/>
- Plug House : <http://www.plughouse.co.kr>
- x sis electronics : <http://www.xsis.co.kr>

Examples

- **Maestro**
- **Mood Ballon**
- **Monitor Palpus**

Assessment

Attendance: 10 %

Fail if more than 4 classes missed

3 times late will be counted as 1 absence

Class Activities: 10 % (Tutorial and Discussion)

Assignments: 80%

- **Assignments of prototyping techniques (50%): Exercises and Assignment 1,2,3**
- **Main Project (30%): Fully working prototype of the interactive product concept required.**

Assignment Regulation:

- **Late submission: less than B+**
- **More than 1 week late: No mark**

Assignment

- **Shopping (Arduino Starter-kit) - Contact the company for group purchase and student discount. (expecting about 63,000 won)**
- **www.plughouse.co.kr**
- **Bring Notebook if you have.**