KAIST
General Introduction

Chang D. Yoo | Associate Vice President
Office of Special Projects and
Institutional Relations

KAIST

*Geographical Location_*
(Daejeon: 5th largest Metropolis, 540km^2)
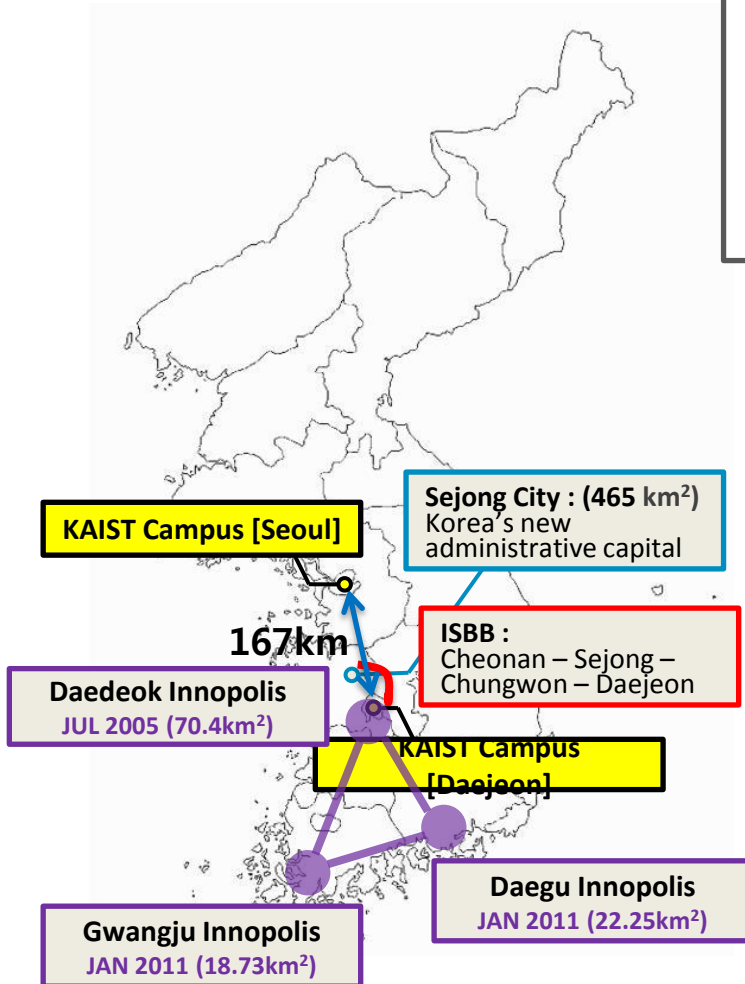
SIZE

- 🔴 **Science Town (27.8km^2)**
- 🔵 **Techno-Valley (4.3km^2)**
- 🟠 **Industrial Area (3.2km^2)**
- 🟢 **Green Zone (31.2km^2)**
- 🟣 **Defense R&D (3.9km^2)**

Total (70.4km^2)

KAIST Campus [Seoul]

Sejong City : (465 km^2)
Korea's new
administrative capital

167km

ISBB :
Cheonan – Sejong –
Chungwon – Daejeon

Daedeok Innopolis
JUL 2005 (70.4km^2)

KAIST Campus [Daejeon]

Daegu Innopolis
JAN 2011 (22.25km^2)

Gwangju Innopolis
JAN 2011 (18.73km^2)

KAIST
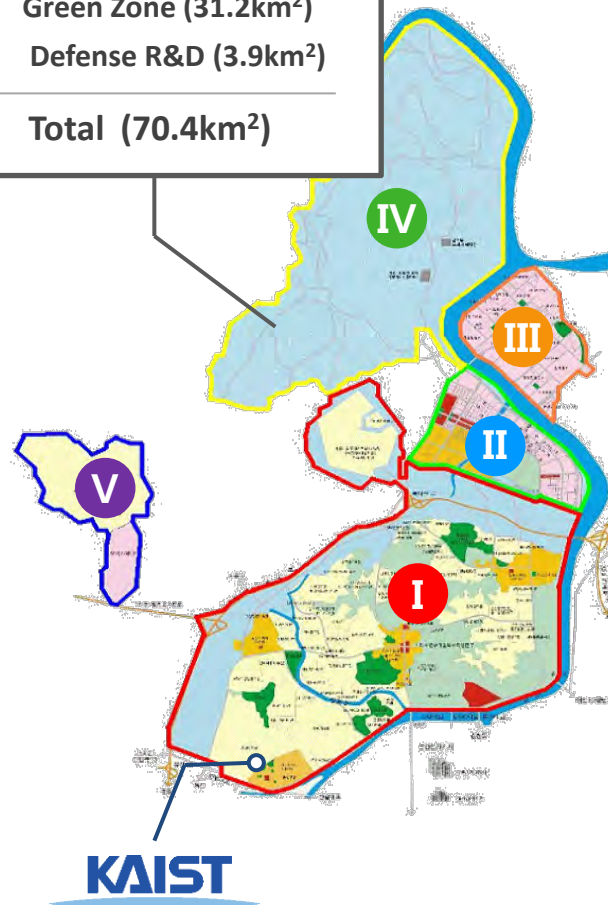
KRIBB **Korea Research Institute of Bioscience & Biotechnology**
Korea Research Institute of Bioscience and Biotechnology

ETRI 한국전자통신연구원
Electronics and Telecommunications Research Institute

KARI
Korea Aerospace Research Institute

KIGAM Korea Institute of Geoscience and Mineral Resources
Korea Institute of Geoscience and Mineral Resources

국방과학연구소
Agency for Defense Development
Agency for Defense Development

S-ENERGY
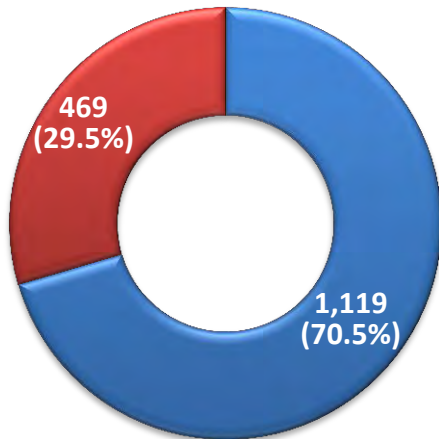
GOLFZON
New Experience

Air Science, Inc.

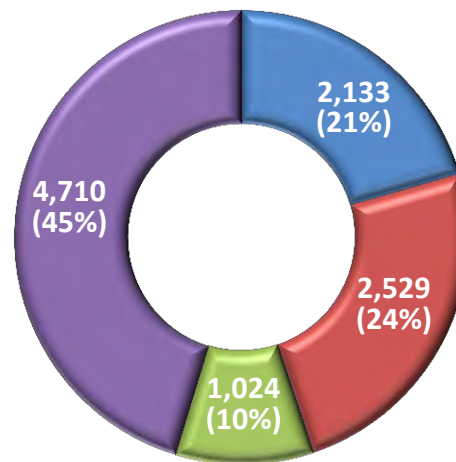**terasto** It Links

Introduction to KAIST

- Est. in 1971 as the national's first graduate school specializing in science and eng. education
- Merged with KIT and main campus moved to Daejeon in 1989
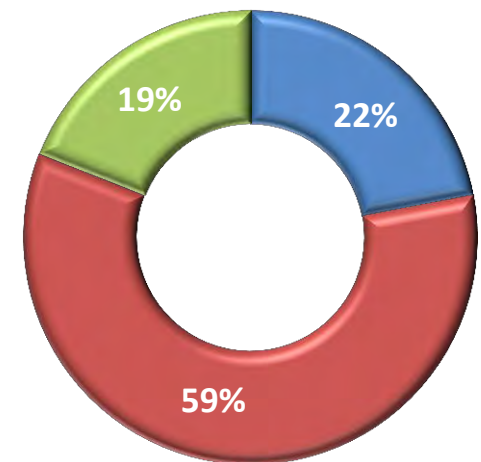- Bilingual Campus

Faculty & Staff (1,588)

- 469 (29.5%)
- 1,119 (70.5%)
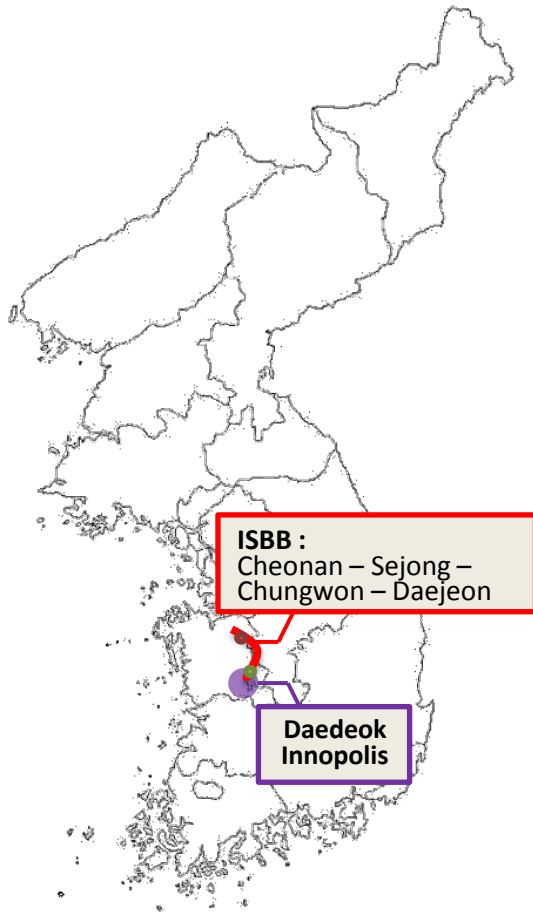
Faculty
Staff

Students (9,746)

- 2,133 (21%)
- 4,710 (45%)
- 2,529 (24%)
- 1,024 (10%)

BS   MS   Ph.D.
M.S. –Ph.D. Integrated degree program

Budget (751 Million USD)

- 19%
- 22%
- 59%

Government Subsidy
Research Grants
Donation & other income

- **Daedeok Innopolis : R&D Special Zone_**

15% National R&D spending, 11% of Ph.D-level Researcher
Korea's Silicon Valley

Status (2011)

30	**5**	**48,057**	**24,434**	**1,179**	**15.5**
GRIs	Universities	Patents	Researchers	Companies	Total Sales
		(Accumulated 39,052 Domestic, 9,005 Int'l)	**(9,005 Ph.Ds)**		**(Billion USD)**

※ GRI : Government Research Institute

- **International Science - Business Belt (ISBB)_**

World top class Science-business cluster
(Cheonan – Sejong – Chungwon - Daejeon)

| OBJECTIVE	Making base for the development world class innovation cluster based on science
PROJECT PERIOD /TOTAL BUDGET	1st stage : 2012-2017(6 yrs*), USD 4.5billion *Before the end of the stage 1 of the project, next stage will be planned.
PROJECT DETAILS	1) Establish a world-class Basic Science Institute 2) Install a heavy ion accelerator 3) Lay the business foundation for the sustainable and urban growth

ISBB :
Cheonan – Sejong – Chungwon – Daejeon
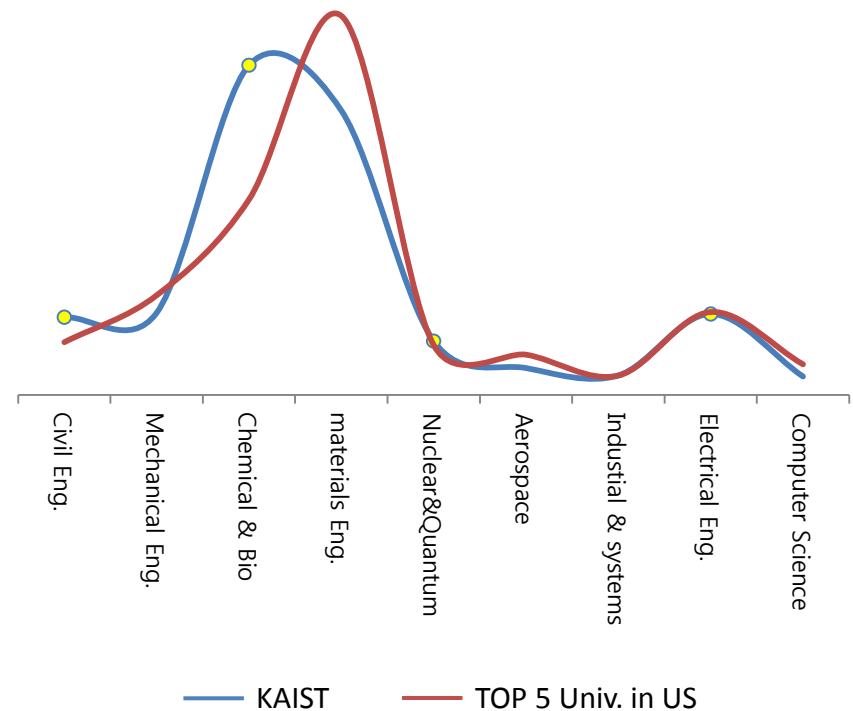
Daedeok Innopolis

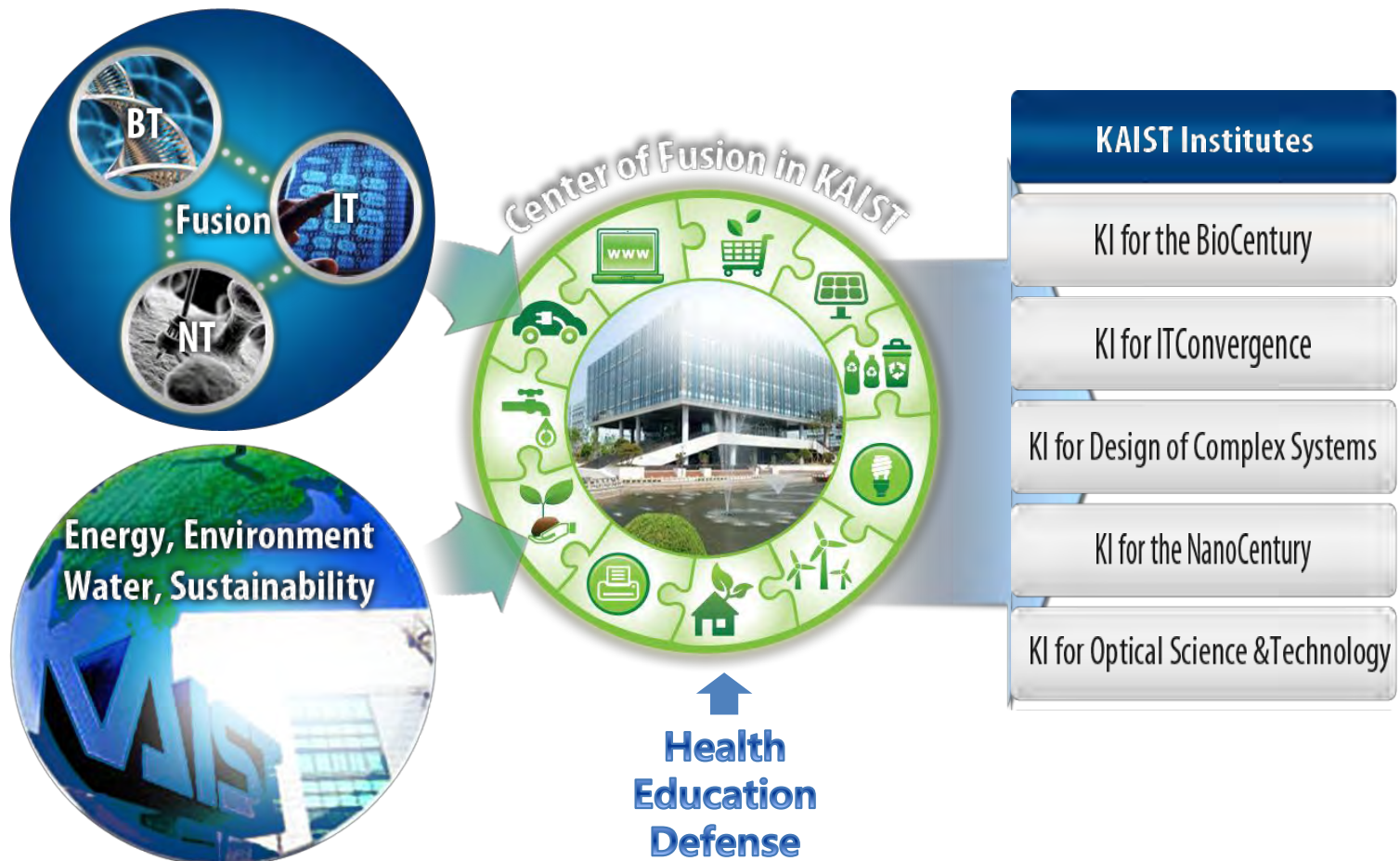*KAIST Research : HRHR_*

World Rank 4 Univ. of PCT in 2011
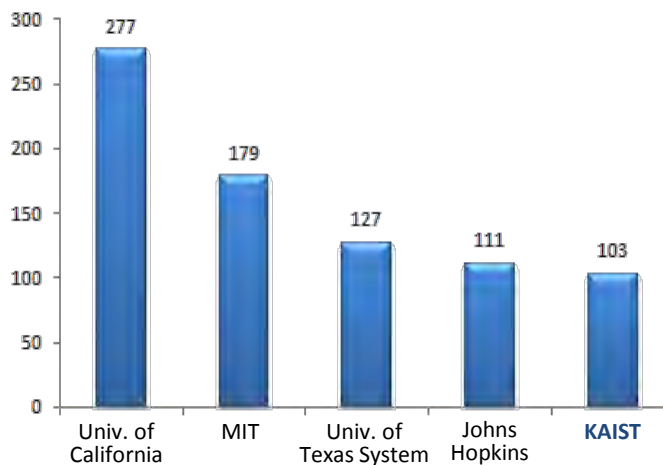
* PCT(Patent Cooperation Treaty) Yearly Review :
  The International Patent System in 2011

Comparison of JIF(Journal Impact Factor) in 2011

*KAIST Institutes (KI)_*

BT
IT
Fusion
NT

Energy, Environment
Water, Sustainability

Center of Fusion in KAIST

**Health
Education
Defense**

KAIST Institutes

KI for the BioCentury

KI for ITConvergence

KI for Design of Complex Systems

KI for the NanoCentury
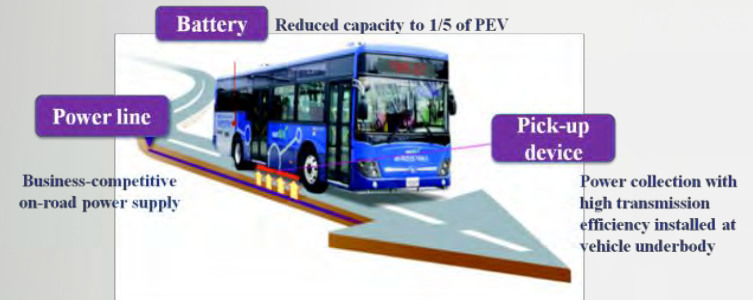
KI for Optical Science &Technology

/ Online Electric Vehicle Project (OLEV)

OLEV has pick-up devices under vehicle

to collect the magnetic field generated by power under the road and convert the electric energy.

Breakthrough Research for Battery & Charging Problems in existing Electric Car

Main Achievements

Patents : total 178 (International 63)

International Pilot Projects

- Park City in Utah, US in August 2010
- Kuala Lumpur Airport in Malaysia in June 2010
- Logan Airport, Boston in January 2011

/ Mobile Harbor (MH)

Novel maritime container transport system

That can go out to a ship anchored in the deep water and load/unload containers on sea

➡ *Very challenging and never tried before*

Robot arm automated docking system
Maintain relative position between ships by using an automated robot arm & winch

Mobile Harbor

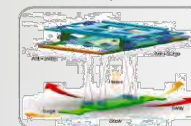**Stabilized crane**
Keep the crane stabilized at any sea conditions by applying position, swing-free, tilting and heave control
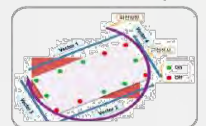
Multistage trolley
Control trolley's motion in local x and y axis for swing-free and position compensation

Cable control system
Control tensioners and hoist drum for the vertical and tilting motions of a spreader in response to ship motions

Auto positioning spreader
Secure a proper position for a spreader on top of a container even with the deviation from the target container

Main Achievements
- Patents : total 178 (International 27)
- Papers : total 92 (International 36)

Industry Cooperation
- POSCO (2010 - 2011, 351 Thousand USD)
- USA Navy ONR (2011, 100 Thousand USD)

Saudi ARAMCO-KAIST CO2 Management Center

- KAIST and ARAMCO, the national oil company of Saudi Arabia had a opening ceremony of the Saudi Aramco-KAIST CO2 Management Center on Feb. 20th, 2013.

- The CO_2 Management Center will be responsible for CO_2 application research, converting CO_2 into the energy source of the future.

KAIST has been selected as 2012 Thomson Reuters Top 100 Global Innovators.

There are only two universities in the world that was selected by
Thomson Reuters Top 100 Global Innovators.

Exchange Programs at KAIST

- **Student Exchange Program**

  - Student exchange agreements: 94 in 31 countries
  - Diverse races: 54% from Europe, 24% from Asia, 18% from America, and others
  - English Lectures: Most of major courses
  - TKT Campus Asia Consortium: Tokyo Institute of Tech., KAIST, Tsinghua University
  - Scholarships
      - Global Korea Scholarship(GKS) Program: Korean government
      - Science without Borders Program: Brazilian government
      - Scholarship students from Saudi Arabia: Saudi Arabian government
  - NASA Ames Research Program for KAIST Post-graduate students
 - *More Information: http://irt.kaist.ac.kr

- **2013 KAIST International Summer School (2013 KISS)**

  - Period: July 1st to 26th (4 weeks)
  - Tuition fee: USD 400 per credit (Avg. USD 2000) / Dormitory Fee: USD 150/ Cultural Activity Fee: USD 150
    * Tuition fee may be waived for students from partner universities
  - 'Global Entrepreneurship', 'Vector Calculus', 'Introduction to Programming', 'Idea and Expression', 'Vision, Brain and Arts'
  - Korean language courses, cultural programs, industrial tours and others
  *More Information: http://summer.kaist.ac.kr/
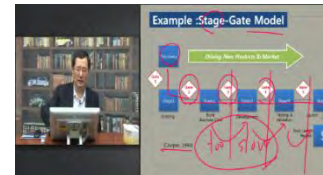
Interactive Class

No Lecturing
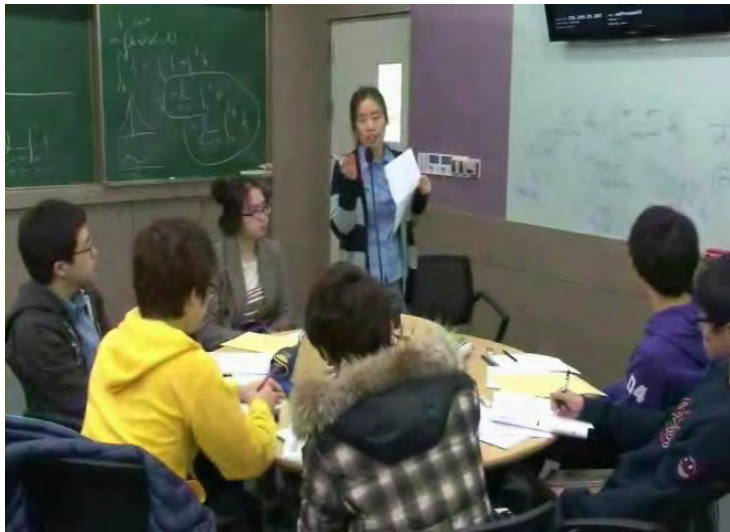
Interaction in Class

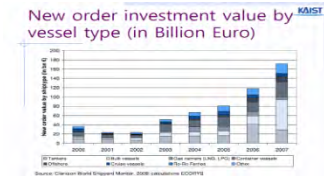| Q&A	Discussion	Team Learning/ Task	Interactive Exercise	Evaluation	Presentation	Labs

Team Learning + TA Support

Online Self-Learning

Lecture Video

Lecture Slides

New order investment value by vessel type (in Billion Euro)

Textbook
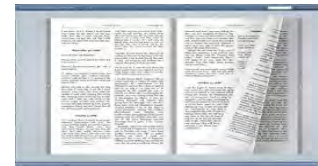
Quiz & HW

Virtual Lab

Online Interaction

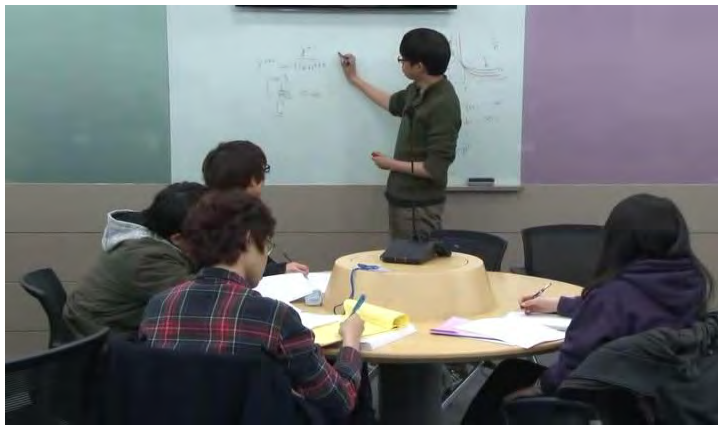| Quiery Search	Interactive Watching	Q&A	Inform. Sharing	Discussion	Authentification	Evaluation

2 Classrooms Now ➜ 1 Classroom at Each Building, Hybrid Model for Conventional Lecturing & Interactive Class

2012 International Presidential Forum on Global Research Universities(IPFGRU)

Theme | Effective Education and Innovative Learning   http://forum.kaist.ac.kr

- **Date** | October 16, 2012
- **Venue** | Westin Chosun Hotel
- **Participants** | 37 institutions in 20 countries / 16 presidents 23 VPs, Deans

2013 IPFGRU

- **Theme** ǀ **The Role and Responsibilities of Research Universities: Knowledge Creation, Technology Transfer, and Entrepreneurship**
- **Date** ǀ **October 15, 2013**

Startup Venture Business

2010 KOSDAQ Alumni Corporates

neowiz

N—N

INFRAWARE

partron

S&S TECH

HANDYSOFT

CORECROSS

BIOSPACE

$4 Billion
Gross Sales

BiONEER

LUMENS

LIVEPLEX

Medytox

PSTEC

Leenos

vieworks

Successful student startup companies

TICKET MONSTER

- Co-founder of Ticketmonster Co.
- Ranking 1st Domestic Social Commerce
- Achieve 20 million dollars in cumulative sales through 7 months since established

- Established Humotion co. in 2008
- Award KOREA President Prize, Talent
- Achieve 7 million dollars in cumulative sales since established

HUMOTION
Solution
www.humotion.co.k

- Development of Virtual finger Idea
- Royalty income 6.5 hundred thousands
- 60 applications & 15 registrations of Intellectual property rights through 2 years

THANK YOU!