Making the Impossible Possible

POSTECH

March 7, 2014
Pohang is a local city in Korea

A small-sized, Private university

Is it Possible for this university to achieve world-class status in just over 2 decades?
POSTECH’s answer is...

Yes!
Where is POSTECH?

First, Ranked 1st in the top 100 universities under 50 years old (Times Higher Education)

Second, Selected as one of the Top 100 Global Innovators in the world by Thomson Reuters (2012)

Third, Described as a World-Class Research University on the periphery. (The World Bank)
“At the top for the second year in a row: South Korea’s Pohang University of Science and Technology, which is just 27 years old. Known as POSTECH, the school has gotten substantial financial support from POSCO.”

– Forbes (June 19, 2013)

“POSTECH was selected as the university with the most potential in the world.”

– China Times (June 20, 2013)
How did POSTECH make it?

Founder’s visionary leadership

Unprecedented large-scale financial support from POSCO

Creative managerial strategies that attracted talented scientists
Contents

I. Establishment and Its Process

“You can import coal and machines, but you cannot import talent.”

II. 28 Years of Development and Achievements

“Pursuit of Excellence”
"You can import coal and machines, but you cannot import talent."
– POSCO Founder Tae-Joon Park

“If I accept your invitation to the position of POSTECH’s President, POSTECH will eventually be leading POSCO rather than POSTECH being supported by POSCO.”
– 1st President of POSTECH Dr. Hogil Kim
Establishment

Background

- Rapid industrialization and modernization in 1980s brought the need for increased self-reliance in science and technology in Korea
- First research-oriented university model in Korea with centralized collaboration of Academia (POSTECH), Research Institute (RIST), and Industry (POSCO) was planned

Founding Tenets

- The two visionaries’ leadership made the establishment possible and laid strong founding tenets

1. to produce well-educated and trained future global leaders
2. to perform pioneering fundamental and applied research in science and technology
3. to translate our research through collaboration with industry to enrich the lives of the people of the world
4. to serve the nation and the mankind
Road to Establishment

How can a small and private institution in a rural area in a non-English speaking country become a world-class university?

1. **Full financial and facilities support from POSCO**
   - Building & Equipments from POSCO (‘85-’94) : 146M USD
   - Endowment to POSTECH & Foundation: 1,264M USD

2. **Inviting world-renowned professors**
   - Presentations of POSTECH’s establishment plans were held abroad (92% of professors received their Ph.D degrees from overseas)

3. **Recruiting excellent students**
   - Only the top 1% of Korea’s high school graduates were accepted, which brought out great success despite its risk factors

4. **Management**
   - Complete autonomy over university management
Official Opening of POSTECH on December 3, 1986
After 27 years
Land: 1,627,252m²
Building: 442,672m²
Contents

I. Establishment and Its Process

“You can import coal and machines, but you cannot import talent.”

II. 28 Years of Development and Achievements

“Pursuit of Excellence”
POSTECH’s Vision

Vision

- Become a great place for learning
  - Inspired students can learn from inspiring professors

- Be recognized as an outstanding research institution
  - Faculty, students, and graduates pioneer and lead the science & technology fields and discover solutions to the world’s grand challenges through innovation and collaboration

Strategies

- Small in size but excellence in quality
- Low student to faculty ratio
- Largest educational investment in Korea
- Lodging provided for all academic members
- Outstanding faculty
- Strong academy-industry cooperation
- Bilingual Campus

Future Scientist of Korea
Overview

- Faculty: 411 (Tenured & Tenure Track: 269) International: 15.1%
  All faculty members earned a Ph.D

- Students: 3,430
  1,306 (undergraduate)
  2,124 (graduate)
  International: 3.8%

- 320 freshmen per year representing top < 1% of high school graduates

- Undergraduate students/faculty: 3.2 to 1

- Researchers: 788
  International: 14.3%

- Staff: 250

- Operating Budget: USD $323M (2014)
# Academic Programs

- **11 Departments: 4 in Science, 7 in Engineering**

- **23 Graduate Programs**

## Undergraduate Program
- Mathematics
- Physics
- Chemistry
- Life Sciences
- Materials Science & Engineering
- Mechanical Engineering
- Industrial & Management Engineering
- Electrical Engineering
- Computer Science & Engineering
- Chemical Engineering
- Creative IT Engineering
- *(Division of Humanities & Social Sciences)*

## Graduate Program
- **Department of**
  Mathematics / Physics / Chemistry / Life Sciences / Materials Sci. & Eng./ Mechanical Eng. / Industrial and Management Eng. / Electrical Eng. / Computer Sci. and Eng. / Chemical Eng. / Creative IT Eng. (CiTE)

- **Division of**
  Advanced Materials Science (AMS)
  Integrative Biosciences and Biotechnology (IBB)
  IT Convergence Engineering (ITCE)
  Advanced Nuclear Engineering (ANE)

- **School of Environmental Science and Engineering**
  Interdisciplinary Bioscience and Bioengineering Technology Innovation & Management (TIM)
**Pohang Accelerator Laboratory**

**PLS-II and PAL-XFEL**

- **PAL-XFEL** (The 4th Generation Light Source)
- **PLS-II** (The 3rd Generation Light Source)

**■ PLS-II**
- Total site: 651,048 m²
- Linac Accelerator: 170 m (3.0 GeV)
- Storage Ring: Diameter 88 m
  Circumference 280 m
- 32 beamlines in operation
- 5th in the world, 1st in Korea

**■ PAL-XFEL**
- Project period: 2011 ~ 2015
- Total budget: 400M$
- Total length: 1.1 Km

<table>
<thead>
<tr>
<th>Mission</th>
<th>Advance science and technology in both fundamental and applied areas by using Pohang Light Source as public research facility in Korea</th>
</tr>
</thead>
</table>
| Application | - Nanotechnology  
- Catalyst Development  
- Biomedical Research  
- Advanced Research for Materials |
Graduate Institute of Ferrous Technology (GIFT)

- The world’s only fully credited institute of higher learning offering graduate education in the field of steel science and technology

- Mission

to develop in its students a spirit of scientific inquiry and technological innovation coupled to scholarly excellence

1. to contribute to the national and international economic and human development through cooperation with industries associated with the production and application of advanced iron and steel technologies

2. to grow into a world leader in education and research specializing in advanced iron and steel technology
POSTECH Biotech Center (PBC)

- Founded in 2000

- Goals
  1. to incubate disruptive technologies in biotechnology areas including immunology, pharmaceuticals, and nanobiotechnology
  2. to develop key technologies that form solid platforms for POSCO’s future health care business

- Contributions
  - to supply high trained man power to explore molecular level understanding of life science

- Core Research Fields
  - Molecular Medicine
  - Plant Biotechnology
  - Nano Biotechnology
Korea Institute of Robot and Convergence (KIRO)

Korea’s first and only independent robotics research institute

A differentiated research strategy for commercialization

Various platform development knowhow through

Focusing professional service, underwater, and medical field

Assistant Robot

Underwater Robot

Medical Robot
Global Campus

- **Globalization Programs for Students**
  - International Exchange Program
  - Study Visit Program to Global Industries
  - Overseas Summer Session Program

- **Research**
  - Joint Research with Global Industries
    - Exxon Mobil, Samsung, Max Planck, POSCO, etc.

- **Distinguished Lectures by Nobel Laureates, Fields Medalists, etc.**

- **Government Programs**
  - WCU (World Class University) Programs
  - IBS (Institutes for Basic Science) Campus Site Labs
  - Inviting world-renowned professors with government support
Global Campus

- Developed partnerships with renowned universities worldwide
  87 universities from 24 countries

Europe
- U of Birmingham, Max Planck Institute, Ecole Polytechnique, RWTH Aachen, TU Berlin, Bordeaux Institute of Technology, NTNU

North America
- UC Berkeley, UIUC, U of Washington, UC Davis, U of Minnesota, U of Wisconsin-Madison, U of Waterloo

South America
- Education training program: Brazil and Chile

Africa
- Education support: Ethiopia, Tanzania

Asia & Australia
- RIKEN Spring 8, Chulalongkorn University, Nanyang Technological University, National University of Singapore, U of Tokyo, Peking U, Tsinghua U, U of Melbourne, UNSW
Global Campus

Bilingual Campus

- Declared Bilingual Campus in 2010
- Helps international members of POSTECH engage in research, teaching and learning without language barriers
- All activities and official documents are carried out in both English and Korean
- Junior, senior, and graduate courses taught in English

International Student and Scholar Services (ISSS)

- Provides virtuous circle for internationalization
- Assists international students and scholars in successfully accomplishing their academic and research goals that brought them to POSTECH
Global Collaboration with ASTU-Ethiopia

POSTECH & ASTU (Adama Science and Technology University)

- Project Period: 2012.4.1 – 2016.3.31 (4 years)

- Objective: to reinforce capability of university in a developing country by founding a world-class department of materials engineering

- Direction
  • Establishing curriculum (undergraduate) & POSTECH professors’ lectures in ASTU
  • Building undergraduate-level basic laboratory
  • Providing ASTU students with field education in Korea
  • Recruiting and retraining Ethiopian faculty

- Total Budget: 2.2m USD (Govt. 1.42m, POSCO 0.35 m, POSTECH 0.32m & BNUE 0.11m)

Overseas Volunteering at Ethiopia

- Education Volunteering & Community development
Open to New Partnership with the World

- Student, Faculty, Researcher Exchange
- Collaborative Research
- Joint Educational Program
- Co-operative activities for mutual interest
- Discover Solutions to the world’s grand challenges
Thank you for your interest POSTECH, a university which has made impossible Possible

Vice President of External Relations

하용이