Introduction to KIST School
Contents

1. KIST at a Glance
2. KIST School and its Program
CHAPTER 1

KIST at a Glance
R&D History

From Catch-up To Innovation

KIST Progressed Fast To Claim Technology Leadership

2000~
Research innovative, cutting-edge technologies

1990~
Conducted original research in advanced technologies

1980~
 Adopted and modified imported advanced technologies

1966~
Developed key industrial technologies
The Leading Contributor in Science and Technology in Korea
Total Staff including Temporary Staff [as of September, 2020]

2,613

Regular Staff 963

Researchers 601

Specialist & Technician 134

Admin Staff 226

Temporary Staff Including Post-doc. & Interns 701

Student Researcher 949
R&D Budget

Budget Raising By Year  [Unit: Million USD / as of 2020]

228.0  227.1  237.7  252.2  260.7  267  321  276


13  12.4  11.8  12.7  15  17  29  29

97.7  94.5  104  111.5  115.4  106  110  116

117.2  120.2  121.9  128  130.4  144  182  156

Private programs  Government programs  Institutional program
Research Institute and Divisions

- Brain Science Institute
- Clean Energy Institute
- Post-Silicon Semiconductor Institute
- Robotics And AI Institute
- Biomedical Research Division
- Advanced Material Research Division
- National Agenda Research Division
Notable Research Papers

**NSC 4, Others 74 (2016 – 2020)**

**Nature**

[Dr. Lee So Young, Vol. 532, 2016.4]
Nanocrack-regulated self-humidifying membranes

**Science**

[Dr. Koo Chong Min, Vol. 369, 2020.7]
Anomalous absorption of electromagnetic waves by 2D transition metal carbonitride Ti3CNTx (MXene)

**Science**

[Dr. Kim Soo Min, Vol. 362, 2018. 11]
Wafer-scale single-crystal hexagonal boron nitride film via self-collimated grain formation

**Science**

Formyl-methionine as an N-degron of a eukaryotic N-end rule pathway

**Ratio of JCR 20%**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>565</td>
<td>639</td>
<td>687</td>
<td>712</td>
<td>816</td>
<td>715</td>
<td>713</td>
</tr>
</tbody>
</table>
Ranked 6\textsuperscript{th} among the World’s Most Innovative Research Institutions

\textbf{REUTERS Top 25 Global Innovators 2017 - Government}

<table>
<thead>
<tr>
<th>2016 Rankings</th>
<th>2017 Rankings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Alternative Energies and Atomic Energy Commission</td>
<td><strong>1.</strong> Heath &amp; Human Services Laboratories</td>
</tr>
<tr>
<td><strong>2.</strong> Fraunhofer Society</td>
<td><strong>2.</strong> Alternative Energies and Atomic Energy Commission</td>
</tr>
<tr>
<td><strong>3.</strong> Japan Science &amp; Technology Agency</td>
<td><strong>3.</strong> Fraunhofer Society</td>
</tr>
<tr>
<td><strong>4.</strong> U.S. Department of Health &amp; Human Services</td>
<td><strong>4.</strong> Japan Science &amp; Technology Agency</td>
</tr>
<tr>
<td><strong>5.</strong> National Center for Scientific Research</td>
<td><strong>5.</strong> National Center for Scientific Research</td>
</tr>
<tr>
<td><strong>6.</strong> Korea Institute of Science &amp; Technology</td>
<td><strong>6.</strong> Korea Institute of Science &amp; Technology</td>
</tr>
<tr>
<td><strong>7.</strong> National Institute of Advanced Industrial Science &amp; Technology</td>
<td><strong>7.</strong> Medical Research Council</td>
</tr>
<tr>
<td><strong>8.</strong> U.S. Department of Energy</td>
<td><strong>8.</strong> National Center for Scientific Research</td>
</tr>
</tbody>
</table>

(2016\&2017, Thomson Reuters)

\[ \#6 \text{ Korea Institute of Science & Technology } \]
CHAPTER 2

KIST School & Its Program
**History**

- **2017.3**
  Making a new leap forward as KIST School

- **2011**
  10th Anniversary International Conference

- **2003**
  University of Science and Technology

- **2001-**
  KIST-International Research and Development Academy

---

**Mission**

- **To educate globalized leaders in S&T research**
- **To train R&D human resource for industries**
- **To build advanced education system, improve teaching competency and strengthen student abilities**

---

**KIST School**

- **Participating in National R&D Projects**
  Over 90% of KIST R&D budget is from government program and institutional program $267 million (December, 2018)

- **Excellent faculty**
  Selected professors among 800 Ph.D researchers in KIST

- **Utilization of National Research Institute Infrastructure**
  Knowledge/Technology accumulated over 50 years
  Cutting-edge research equipment/facilities
# Current Status

## By Major

<table>
<thead>
<tr>
<th>Major</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio-Medical Science &amp; Technology</td>
<td>151</td>
</tr>
<tr>
<td>Energy &amp; Environment Technology</td>
<td>77</td>
</tr>
<tr>
<td>Nano &amp; Information Technology</td>
<td>73</td>
</tr>
</tbody>
</table>

**Total**: 301

## By Nationality (30 Countries)

<table>
<thead>
<tr>
<th>Country</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>151</td>
</tr>
<tr>
<td>Vietnam</td>
<td>20</td>
</tr>
<tr>
<td>Ukraine</td>
<td>18</td>
</tr>
<tr>
<td>Indonesia</td>
<td>16</td>
</tr>
<tr>
<td>Pakistan</td>
<td>14</td>
</tr>
<tr>
<td>Belarus</td>
<td>12</td>
</tr>
<tr>
<td>Mongolia, Turkey</td>
<td>8 each (16)</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>7</td>
</tr>
<tr>
<td>India, Kazakhstan</td>
<td>6 each (12)</td>
</tr>
<tr>
<td>Egypt, Ethiopia</td>
<td>4 each (8)</td>
</tr>
<tr>
<td>China, Iran, Kenya</td>
<td>3 each (9)</td>
</tr>
<tr>
<td>Myanmar, Philippines, USA, Uzbekistan</td>
<td>2 each (8)</td>
</tr>
<tr>
<td>Benin, Brazil, Canada, Netherlands, Romania, Rwanda, Singapore, Spain, Tanzania, Uganda</td>
<td>1 each (10)</td>
</tr>
</tbody>
</table>

**Total**: 179

---

**as of March, 2021**
Division of Bio-Medical Science & Technology

Major

Concentration

- Biomedical Engineering
- Biological Chemistry
- Neuroscience

Division of Energy & Environment Technology

Concentration

- Energy Engineering
- Environment Engineering

Division of Nano & Information Technology

Concentration

- Nanomaterials Science & Engineering
- HCI & Robotics
Division of Bio-Medical Science & Technology

**Concentration**

- Biomedical Engineering
- Biological Chemistry
- Neuroscience

**Main Issue**

- Proteomics-based identification and validation of novel plasma biomarkers phospholipid transfer protein and mannan-binding lectin serine protease-1 in age-related macular degeneration (Scientific Report 2017)

- Timely regulated sorting from early to late endosomes is required to maintain cerebellar long-term depression (Nature Communication 2017)

- An injectable hydrogel enhances tissue repair after spinal cord injury by promoting extracellular matrix remodeling (Nature Communication 2017)
Division of Energy & Environment Technology

Concentration

Energy Engineering  Environment Engineering

Main Issue


- Insight into Electrochemical CO2 Reduction on Surface-Molecule Mediated Ag Nanoparticles (ACS Catalysis, 2017)
Division of Nano & Information Technology

Concentration

Nanomaterials Science & Engineering  
HCI & Robotics

Main Issue

- BMixed-Dimensional 1D ZnO–2D WSe2 van der Waals Heterojunction Device for Photosensor(Advanced Functional Materials 2017)
- Demonstrating the potential of yttrium-doped barium zirconate electrolyte for high-performance fuel cells(Nature Communications 2017)
Programs of KIST school

Internship Program

**Internship Program for UST applicants**

- Bachelor’s Student
- Master’s Student

UST Degree Program

**KIST School Degree Program**

- Master’s Degree
- Ph. D Degree
- Integrative Course

Dual Degree Program

**Student Training Program**

- Master’s Student
- Ph. D Student
Internship Program

Pre-KIST School Program
6-month-long Internship participation in research in the lab with Korean language course

Eligibility
- Current student of the university
- An official recommendation from the government agency in MoU with the KIST is required

Period
- Runs two times a year, begins in January and July (Starting date can be delayed due to COVID19 quarantine)

Partners

Belarus
National Academy of Science of Belarus(NSB)

Ukraine
Ministry of Education and Science of Ukraine

Mongolia
Mongolian Academy of Science(MAS)

Turkey
Scientific and Technological Research Council of Turkey(TUBITAK)

Croatia
Ministry of Science and Education
UST Degree Program

To nurture S&T professionals creating future values with Gov. funded research institutes

Eligibility

- Doctoral Program: Must have a master’s degree, or be expected to receive one
- Integrative Program & M.S. Program: Must have a bachelor’s degree, or be expected to receive one
- Required English score: Students who have a TOEFL score of iBT 79 or higher, or other equivalent scores such as IELTS will be considered qualified

Period

- Spring Semester: Begins in March
- Fall Semester: Begins in September

Application

- Application at http://apply.ust.ac.kr Select KIST School

All aspects of the admission process will be dealt through the application system

UST Headquarter

KOREA UNIVERSITY SCIENCE & TECHNOLOGY

The Korea University of Science and Technology (UST), established in 2003, is the only university associated with national research institutes, including KIST, that foster top S&T talents in national strategic sectors.
Dual Degree Program

Providing real research and development experience through intensive graduate Level education

Eligibility

- Applicants who have fulfilled their coursework requirements from Partner University will be entitled to enroll in the equivalent M.S. or Ph.D degree program at KIST School

Period

- Spring Semester begins in March, fall Semester begins in September

Partner Institution

Bulgarian Academy of Sciences
NTUU Igor Sikorsky Kyiv Polytechnic Institute/
NTU Kharkiv Polytechnic Institute/

- From each Institution, 2~5 Master/Ph.D. students per semester

KIST-PASE(TPartnership for Skills in Applied Sciences, Engineering and Technology)

Funded by World Bank

- 10 Ph.D. students studying energy and ICT in Sub-Saharan Africa/per year
Students Benefits

The highest level of financial support in Korea
To help students focus on their study and research
- Amount for a Ph.D. students
  - USD 1,500~2,100 monthly, plus tuition fee support
- Amount for a M.S. students
  - USD 1,100~1,700 monthly, plus tuition fee support
- Amount for Internship students
  - USD 900 for bachelor, USD 1,000 for master student

Delicate care for student well-being
- Comprehensive insurance / Medical check
- Dormitory facilities for monthly fee of USD 120
- Diverse academic/cultural events

Communication-based curriculum of professional instructors from university
- Free Korean language classes are offered
- Various on-line and off-line classes are provided for student’s adjustment in Korea and for academic life
**Alumni Meeting**

- **VIETNAM**
  - Hanoi, Vietnam

- **THAILAND**

- **INDONESIA**
  - Bandung, Indonesia

---

**Alumni Benefits**

**KIST School Partnership Project**

To stay connected, to maintain continuous and close relationship with the alumni, and to support their research activities

---

**Eligibility**

Should be KIST School alumni members, who are incumbent university faculty members or national/public institute researchers

---

**Period**

The project begins from January, the funding term should be 12 months

---

**Funding**

The selected alumni may receive a budget of up to USD 15,000 for a project
KIST SCHOOL

THANK YOU

Korea Institute of Science and Technolog