

# KIST School

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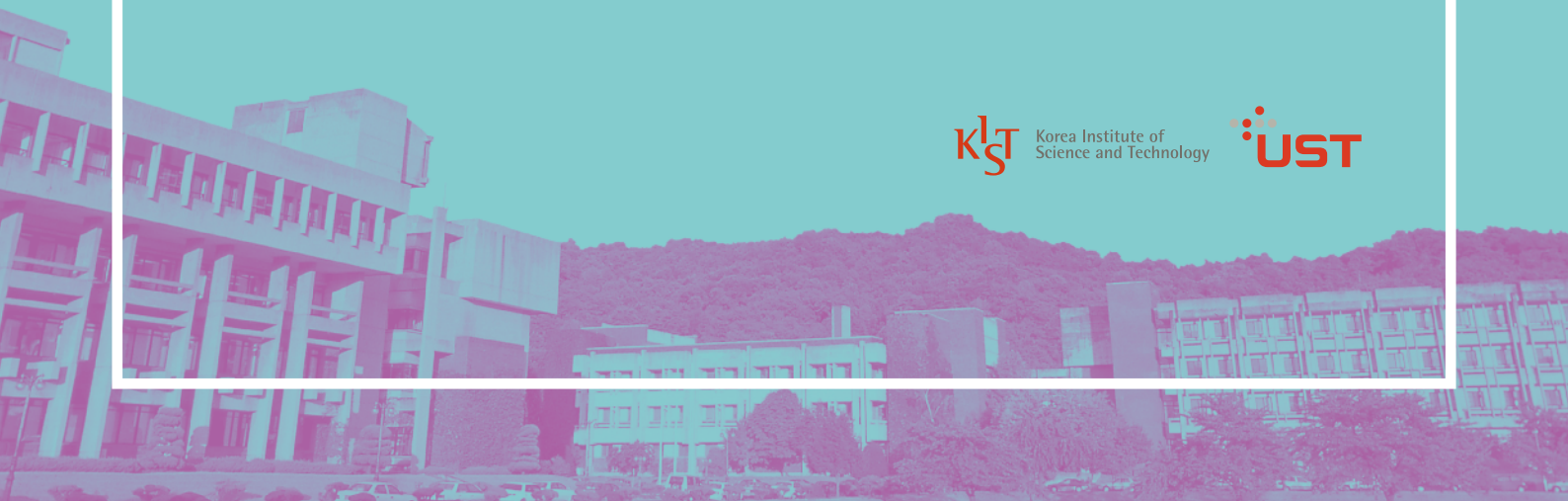
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 Korea Institute of  
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# KIST

Korea Institute of Science and Technology

## KIST Overview

The Korea Institute of Science and Technology (KIST) is the premier multidisciplinary research institute in Korea, and its aim is to create a better future by improving the quality of life for everyone.

KIST was established in 1966 as the first government-funded research institute in Korea. The history of KIST is the history of Korean development in the aftermath of the devastation caused by the Korean War. In 1960, when Korea embarked on its national development plan and laid the foundation for a new research institute, it was one of the poorest countries in the world. Now, it boasts the world's 11th biggest economy thanks to its advancements in the field of science and technology.

In the 1960s and 70s, KIST assisted in establishing national infrastructure for boosting such key industries as the machinery, chemical engineering, shipbuilding, and steel industries. In the 1980s and 90s, KIST committed itself to helping Korea reach parity with advanced nations by keeping up with global cutting-edge technological trends. Since 2000, however, KIST has shifted its focus to the development of homegrown technology. Through it all, KIST served as an incubator for many domestic industries and research institutes.

As a result of focusing on frontier and global-agenda research by concentrating on large-scale, long-term, interdisciplinary R&D projects to increase Korea's R&D capacities in the field of S&T and to nurture promising young talent, in March 2017, KIST was ranked by Reuters as the world's 6th most innovative research institution for the second year in a row.

### The world's 6th most innovative research institute, KIST!

1. Health & Human Services Laboratories <sup>USA</sup>
2. Alternative Energies and Atomic Energy Commission <sup>France</sup>
3. Fraunhofer Society <sup>Germany</sup>
4. Japan Science & Technology Agency <sup>Japan</sup>
5. National Institute of Advanced Industrial Science & Technology <sup>France</sup>

**6** Korea Institute of Science & Technology <sup>South Korea</sup>

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<http://www.reuters.com/article/innovative-institutions-ranking/the-worlds-most-innovative-research-institutions-2017-idUSL2N1GCIING>

Originally born out of foreign development aid, KIST feels it is time to return the favor by disseminating the KIST model of science-based official development assistance (ODA) in hopes of giving back to the global community.

Change begins with education. KIST offers several unique graduate-level programs to help students, both domestic and foreign, gain the knowledge and practical research experience that will equip them for success as scientists and engineers in specialized S&T fields. Students at KIST School are carefully selected for participation in R&D projects at KIST's research centers—projects that closely correspond with the students' respective fields of study. By allowing students to immerse themselves in S&T research under the close supervision of their advisors, KIST is fostering a new generation of S&T leaders capable of creating a brighter future.



# Message

Message from the KIST President

KIST  
Overview

## Dear students,

It is with great pleasure that I look forward to welcoming you to the Korea Institute of Science and Technology (KIST)!

KIST is working hard to increase the quality of life around the world and build a creative economy based on science and technology.

KIST was founded in 1966 as Korea's first government-funded research institute. Since then, it has continually played a leading role in the country's economic development. Many government-funded research institutes have been modeled after KIST which is why KIST has set the standard for national S&T think tanks.

In February 2016, KIST celebrated its 50th anniversary. We are now putting all our effort into making the next 50 years an even greater success by solving global problems such as aging societies and energy/food/resource shortages, while also preparing for the new scientific frontier of convergence research and open cooperation.

As always, KIST is devoted to making sure that its research outcomes translate into greater competitiveness for businesses. We believe that science and technology will be the foundation for firmly establishing a creative economy. And given that KIST was born with the help of foreign aid, we believe the time has come for us to return the favor by disseminating the KIST model so that other countries can use it for bettering their own communities and, in turn, the world.

Thanks to its wealth of research experience, KIST has become the premier location for R&D training and career enhancement. Come and join us as we continue to astonish the world!



Dr. Lee, Byung-Gwon  
President

# KIST School

## KIST Overview

### KIST School

KIST School was established in March 2017 to foster Scientific convergence experts.

Since 1991, KIST has dedicated itself to educating talented young professionals. KIST School has taken full advantage of KIST's vast experience in the creation and operation of graduate schools. The primary goal of KIST School is to educate future global leaders in S&T research. To do that, we offer three interdisciplinary educational programs backed by more than 50 years of top-notch research and educational experience.

KIST School's unique educational system is based on cutting-edge research facilities and infrastructure, and it was founded on the work of outstanding researchers at KIST who paved the way for Korea's S&T revolution.

Students are given opportunities to participate in actual R&D projects, receive firsthand experience at real industrial sites, and undergo research-oriented education and training in their respective fields. In order to maintain close, continued relationships among KIST School alumni and to support their research endeavors, we provide our alumni with significant research grants.

### Message from the Dean

Dear prospective KIST School students,

Since launching in March 2017, KIST School has dedicated itself to nurturing young Science and Technology professionals through a combination of cutting-edge academic facilities and innovative learning strategies.

The future of S&T lies in convergence and integration, which is why KIST School offers courses that enable students to wholly immerse themselves in this exciting new scientific frontier. In particular, KIST focuses on national/global agendas such as public health and green energy. Hundreds of scientific experts from a variety of disciplines work together at KIST to come up with viable solutions to today's biggest problems.

With its high-caliber faculty and hands-on training opportunities, KIST School utilizes diverse learning methods to give students the tools they need to become leaders in their respective fields. KIST School's doors are open to anyone with a thirst for knowledge and the drive to succeed.

Our hope is that KIST School will be a beacon of hope and inspiration to everyone who entrusts us with their academic futures. Our alumni stand ready to make the world a better place—not just for the citizens of their native countries, but for all of humanity.

Dr. Kim, Sang Kyung  
Dean



# Program 1

## Degree Program



### Scholarship Programs

KIST School offers the following three academic programs : Degree Program, Dual Degree Program and Internship Program.

### KIST School Degree Program

#### • Majors

- Division of Bio—Medical Science & Technology
- Division of Energy & Environment Technology
- Division of Nano & Information Technology

#### • Degrees

- Master's Program / Doctoral Program

#### • Semesters

- Spring Semester begins in March,
- Fall Semester begins in September.

#### • Full Scholarship

- Tuition and registration costs are covered by KIST.
- Monthly stipends of 1,100 USD for Master's students and 1,500 USD for Ph.D. students

#### • Student Benefits

- Diverse academic/cultural events
- Free dinners for researchers working overtime

- Discounted condominium rates at many major tourist destinations in Korea
- First-rate dormitory facilities for 120 USD per month

#### • English Language Requirements for Admission

Type	Minimum Scores Required					
	TOEFL			TOEIC	TEPS	IELTS
Score	iBT	CBT	PBT	730	630	6
	79	213	550			

※ All test scores should be dated within 2 years of the application deadline.

- Waiver of English score requirement\_ Applicants with a bachelor's degree or higher who studied for over a year in an English-speaking country such as the US, UK, Canada, Australia, New Zealand, Ireland, or South Africa.

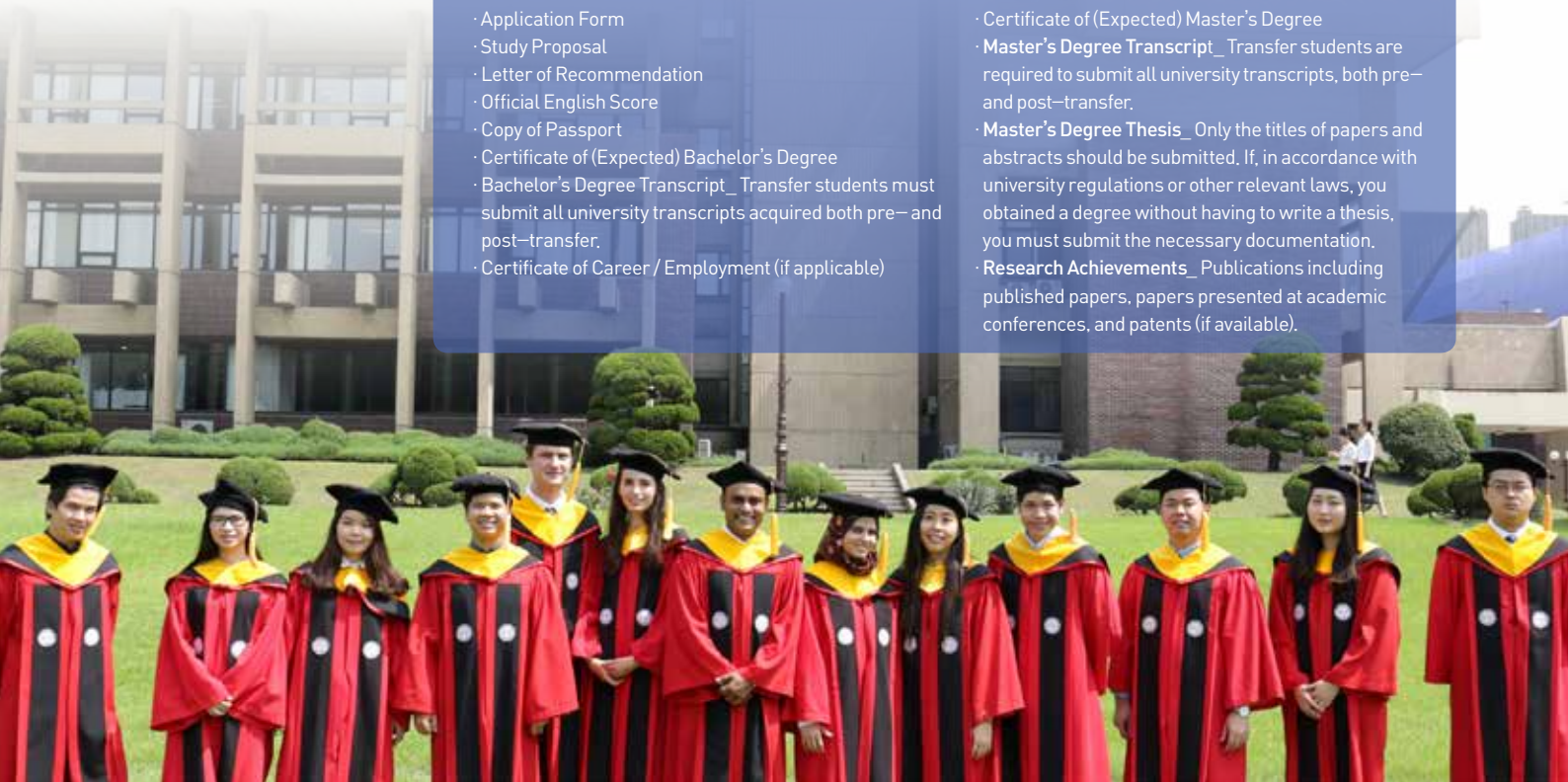
### List of Required Documents

#### • For all applicants

- Application Form
- Study Proposal
- Letter of Recommendation
- Official English Score
- Copy of Passport
- Certificate of (Expected) Bachelor's Degree
- Bachelor's Degree Transcript\_ Transfer students must submit all university transcripts acquired both pre- and post-transfer.
- Certificate of Career / Employment (if applicable)

#### • For doctoral program applicants

- Certificate of (Expected) Master's Degree
- Master's Degree Transcript\_ Transfer students are required to submit all university transcripts, both pre- and post-transfer.
- Master's Degree Thesis\_ Only the titles of papers and abstracts should be submitted. If, in accordance with university regulations or other relevant laws, you obtained a degree without having to write a thesis, you must submit the necessary documentation.
- Research Achievements\_ Publications including published papers, papers presented at academic conferences, and patents (if available).



# Program 2

## Dual Degree Program

### Scholarship Programs

### KIST School Dual Degree Program

As a leading research oriented Academy in science and technology, KIST School aims to provide real research and development experience to those students from overseas countries through intensive graduate level education, and to bring them up as competent engineers and scientists.

#### • Eligibility

- Applicants who have fulfilled their coursework requirements from Partner University with a cumulative GPA of at least 4.0 out of 5.0, will be entitled to enroll in the equivalent M.S. or Ph.D. degree program at KIST School.
- The required language is English. Students who have a TOEFL score of CBT 213 or higher or other equivalent scores such as IELTS or TOEIC will be considered qualified.

#### • List of Schools with Dual Degree Agreements

- Thailand, Asian Institute of Technology(AIT)('00)
- Ukraine, Nat'l Tech. U. of Ukraine Kiev Polytech Institute(NTUU-KPI)('01)
- China, Lanzhou University('04)
- Russia, Novosibirsk State Tech University('07)
- China, Peking University('07)
- Belarus, Belarusian National Technical University('13)
- Ukraine, National Technical University Kharkiv Polytechnic Institute('15)
- Czech Republic, Czech Technical University('15)
- Germany, Saarland University('16)
- Czech Republic, Charles University('16)

### List of Required Documents

#### • For all applicants

- Application Form
- Study Proposal
- Letter of Recommendation
- Official English Score
- Copy of Passport
- Certificate of (Expected) Bachelor's Degree
- Bachelor's Degree Transcript\_ Transfer students must submit all university transcripts acquired both pre- and post-transfer.
- Certificate of Career / Employment (if applicable)

#### • For doctoral program applicants

- Certificate of (Expected) Master's Degree
- Master's Degree Transcript\_ Transfer students are required to submit all university transcripts, both pre- and post-transfer.
- Master's Degree Thesis\_ Only the titles of papers and abstracts should be submitted. If, in accordance with university regulations or other relevant laws, you obtained a degree without having to write a thesis, you must submit the necessary documentation.
- Research Achievements\_ Publications including published papers, papers presented at academic conferences, and patents (if available).



# Program 3

## Internship Program

### Scholarship Programs

### KIST School Internship Program

KIST School provides 6-month-long internship for outstanding applicants, and it offers English classes (to help students getting an official English scores for entering Masters and Doctoral degree courses), a Korean language program, and R&D field training. Students' English scores must meet the minimum requirements in order for them to qualify for the KIST School Internship program.

#### • Eligibility

- Must have a bachelor's or master's degree, or be expected to receive one



### List of Required Documents

#### • For all applicants

- Application Form
- Curriculum Vitae
- Essay
- Letter of Recommendation
- Certificate of (Expected) Bachelor's Degree
- Bachelor's Degree Transcript\_ Transfer students must submit all university transcripts acquired both pre- and post-transfer.

#### • For doctoral program applicants

- Certificate of (Expected) Master's Degree
- Master's Degree Transcript\_ Transfer students are required to submit all university transcripts, both pre- and post-transfer.
- Master's Degree Thesis\_ Only the titles of papers and abstracts should be submitted. If, in accordance with university regulations or other relevant laws, you obtained a degree without having to write a thesis, you must submit the necessary documentation.
- Research Achievements\_ Publications including published papers, papers presented at academic conferences, and patents(if available).



## Division of Bio-Medical Science & Technology



### • Chief major professor

**Name** Park, Kwideok  
**Field of Research** Tissue engineering, Extracellular matrix (ECM) engineering, Stem cell bioengineering  
**Telephone** 82-2-958-5288  
**Email** kpark@kist.re.kr

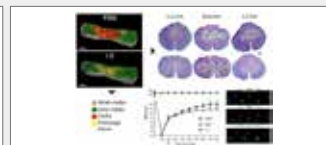
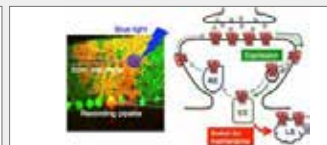
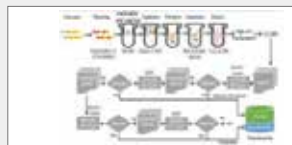
Bio-Medical convergence major covers multi-disciplinary fields which consist of three sub-majors including Biological Chemistry, Biomedical Engineering and Neuroscience. Biological Chemistry focuses on new drug discovery based on the understanding diverse life phenomena using an integrated approach of biology and chemistry. Biomedical Engineering is dedicated to the development of advanced tools and knowledges that can be applied for medical treatments and early diagnosis in clinics. Neuroscience investigates unknown mechanisms underlying human cognition and brain disorders to find new treatment drug and technology. Bio-Medical convergence major provides top class atmosphere and opportunity for cutting edge researches in biomedical science and technology.

### • Concentration

- Biomedical Engineering
- Biological Chemistry
- Neuroscience

### • Main Issues

- 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



### • Chief major professor

**Name** Lee, Hyun Joo  
**Field of Research** Homogeneous & Heterogeneous catalysis for methane and CO2 conversion, Chemical conversion of biomass, Ionic liquid  
**Telephone** 82-2-958-5868  
**Email** hjlee@kist.re.kr

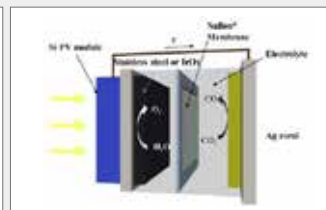
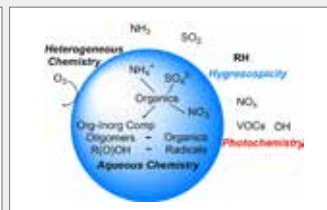
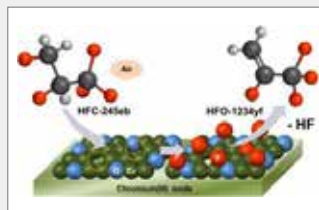
Currently, the biggest social and academic issues are related with development of renewable energy and creation of a clean environment. In order to realize a sustainable green society in the future, it is necessary to approach these issues with an integrated perspective. Energy-Environment Convergence Major aims to solve the future energy and environmental issues by integrated researches of energy engineering and environmental engineering.

### • Concentration

- Energy Engineering
- Environment Engineering

### • Main Issues

- Catalyst
- Solar Chemical Device Module
- Investigation on Atmospheric Air Pollution using Mobile Laboratory



## Division of Nano & Information Technology



### • Chief major professor

**Name** Ahn, Sang Chul  
**Field of Research** HCI(Human Computer Interaction), Augmented Reality, IBMR(Image Based Modeling and Rendering)  
**Telephone** 82-2-958-5777  
**Email** asc@kist.re.kr

Nano-Information convergence major includes both of Nanomaterials Science and Engineering program and HCI & Robotics program. Nanotechnology has been developed recently and applied for many different fields such as materials science, mechanics, bio-and information technology. In Nanomaterials Science and Engineering program, we introduce the nanotechnology and related application with informaton technology. In HCI & Robotics program, we introduce the basic technologies in Human Computer Interaction, mechatronic and computer science areas, and covers all aspects of HCI and robotic applications like industrial, service, medical and extremal environments. We aim at providing students with higher education and chances to obtain practical experience by participating in many projects in Nano and Information technology field.

### • Concentration

- Nanomaterials Science & Engineering
- HCI & Robotics

### • Main Issues

- Mixed-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)
- Social Skills Training for Children with Autism Spectrum Disorder Using a Robotic Behavioral Intervention System (AUTISM RESEARCH 2017)

