

A Handbook for University of Science and Technology Global Research Internship 2022

April 20, 2022

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Table of contents

1. Introduction	_____	3
2. Eligibility	_____	4
3. Benefits	_____	4
4. Application Process	_____	5
5. List of Professors	_____	8
6. Important Dates	_____	19
7. Appendix	_____	20

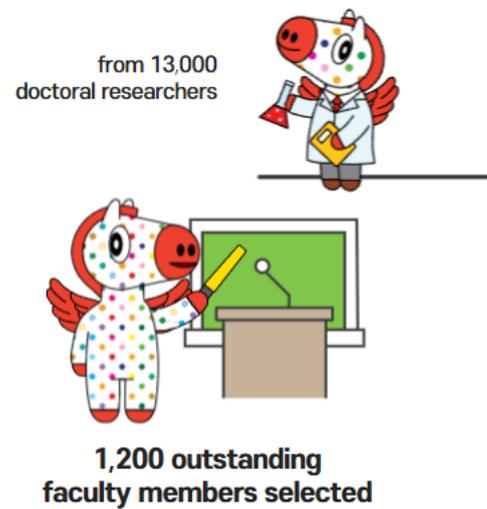
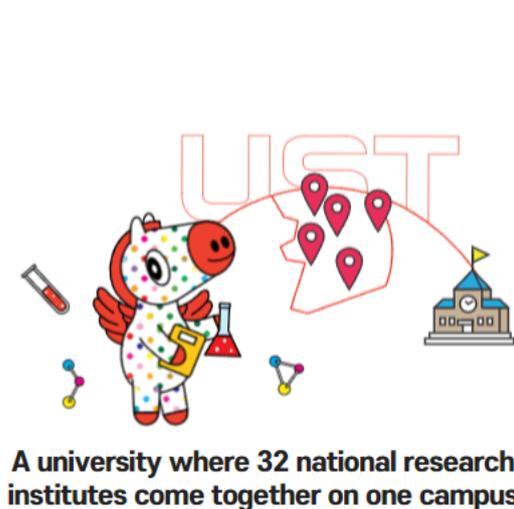
1. Introduction

national research institutes campus

32

outstanding faculty members selected from doctoral researchers

1200



UST is utilizing 32 Korean government funded research institutes as its campuses. The education model is unique and enables all of the UST students to participate in Korean national R&D projects as student-researchers.

All of the UST faculty members are researchers at one of the 32 research institutes. Out of 13000+ Ph.D. holding researchers, UST invites 1200+ professors to contribute to nurturing next-generation leaders in the field of S&T.

2. Eligibility

- Who can apply? You need to meet **ALL the requirements** to apply for the Global Research Internship program for 2022.

- ✓ Non-Korean nationals
- ✓ Residing in Korea as of April 1, 2022
- ✓ Currently-enrolled students (Year3 or 4 in undergraduate course or any year in master's course)
- ✓ Valid VISA holders until the end of internship period (August, 30, 2022)
- ✓ Students in relevant field of study

- Applicants who do not meet the above mentioned requirements will not be successful candidates for in-depth interview

3. Benefits

- For selected interns, the following benefits will be provided when fulfilling all the requirements for internship completion.

- ✓ Mentoring by UST professors
- ✓ Internship allowance (KRW 1,000,000 / month)
- ✓ Relevant insurances
- ✓ Certificate of internship
- ✓ Dormitory (based on availability)

- What is the requirements to meet internship completion?

You need to **attend at least 90% days** of the internship period based on working days. For instance, out of 40 working days, if you missed out 5 days, you will not be completing the program.

At least one **online course of laboratory safety** is mandatory, along a submission of **internship report**.

4. Application process

STEP 1.

Read this Handbook thoroughly. All the information provided on this Handbook is critical and UST is not responsible for any consequences that may occur as a result of not studying this Handbook.

STEP 2.

Self-check your eligibility.

- Are you a non-Korean national?
- Are you residing in Korea as of April 1, 2022?
- Are you currently enrolled students in year 3 or 4 in undergraduate course? Or a master's course?
- Do you hold a valid VISA until the end of August 30, 2022? (UST will NOT sponsor VISA)
- Is your field of study relevant to UST?

Do you tick all the boxes? That's Great! Please follow me for the step 3.

STEP 3.

Go to next section to find a List of Professors. There, you will see names, affiliations (research institutes), majors, field of research, and many more of our 10 amazing professors. Find **2 professors** whose major and field of research matches your field of study and interests the best.

Do you know who is the right professor for your internship? If you are not so sure, contact them directly via emails provided in the List of Professors.

STEP 4.

Alright. If you are at step 4, that means you are an eligible candidate who meets all the requirements for application AND you know **2 professors** that matches your field of interests the most. Now, you need to prepare application documents.

- An application form (can be found in the [Appendix] page 20)
- A copy of VISA grant notice
- A certificate of enrollment
- Transcript from your enrolled course
- (optional) valid English proficiency test score (one of the following; TOEFL, IELTS, or/and TOEIC)

Please note that English proficiency test score is not mandatory, however, applicants can submit it for screening.

All the submitted documents will NOT be returned.

All the submitted documents will be used for the UST Global Research Internship 2022 screening purpose only, and it will be destroyed once screening session is completed.

WHY DO I NEED TO PICK 2 PROFESSORS?

Glad you asked!

UST asks all the applicants to find at least 2 professors whose field of research matches the best. It is to select as many interns as possible. Simply put, the internship is a 1:1 mentoring program, and matching an intern and a professor is a complicated process.

If we have more possibilities to match each intern with different professors, it is more likely that we can give chances to participate in the program to the most number of applicants. If you don't understand this process, contact at globalinternship@ust.ac.kr

STEP 5.

If all your documents are ready for submission, please follow the instruction for application. **DO NOT ZIP THE FILES**

1. Prepare all your documents in **PDF** type. (all documents must be in **VERTICAL** view)

2. Fix the pdf files name in order

: "Last name_Birthdate(YYYY/MM/DD)_document type" For instance, if your name is Jessica Smith and your birthdate is 23, February 2002, your file of visa grant notice name must be **Smith_20020223_VISA**

Code for documents are as follows;

1. An application form: **APPLICATION**

2. A copy of VISA grant notice: **VISA**

3. A certificate of enrollment: **COE**

4. Transcript from enrolled course: **TRANSCRIPT**

5. English proficiency test score: **ENGLISH**

(example) A complete list of file name by applicant Jessica Smith will be as follows;

Smith_20020223_APPLICATION

Smith_20020223_VISA

Smith_20020223_COE

Smith_20020223_TRANSCRIPT

Smith_20020223_ENGLISH

Now, if all your documents are fully ready in PDF version with correct names, send them to an email at: globalinternship@ust.ac.kr

UST will NOT be responsible for any situations that occur as a result of insufficient document submission and/or failure to meet the abovementioned requirements.

5. List of professors

The following list of professors are in alphabetic order of Campus (research institutes) name.

No.	Name (First LAST)	Campus (Research Institute)	City	Major
1	Seung Kwon SEOL	Korea Electrical Research Institute	Changwon	Electric Energy Materials Engineering
2	Hyunuk KIM	Korea Institute of Energy Research	Daejeon	Energy Engineering
3	Ji Whan AHN	Korea Institute of Geoscience and Mineral Resources	Daejeon	Resources Recycling
4	Youngmin KANG	Korea Research Institute of Oriental Medicine	Naju	Korean Convergence Medical Science
5	Kyungsu KANG		Gangneung	Bio-Medical Science and Technology (Natural Products Bioactivity)
6	So-Hye CHO	Korea Institute of Science and Technology	Seoul	Nanoscience and Technology
7	Ho-Young KIM		Gangneung	Bio-Medical Science and Technology
8	Eui-Jeon WOO	Korea Research Institute of Bioscience and Biotechnology	Daejeon	Proteomics and Structural Biology
9	Jaemin LEE	Korea Research Institute of Chemical Technology	Daejeon	Advanced Materials and Chemical Engineering
10	Hagyong KIHM	Korea Research Institute of Standards and Science	Daejeon	Precision Measurement

1. Dr. Seung Kwon SEOL

Korea Electrical Research Institute / in Changwon City

Introduction of Laboratory

- Three-dimensional (3D) printed electronics employing direct-ink-writing methods are promising alternative manufacturing technologies for realizing 'structural electronics'. The emerging demand for accessible, cost-effective, and rapid writing calls for novel approaches to print functional components onto nonflat and 3D architectures. We focus on development of advanced 3D printing technology including 3D printable smart inks, omnidirectional 3D printing, and 3D printer for realization of structural electronics.

Related Majors

- Chemistry, Materials and science engineering, Chemical engineering

Internship field

- Development of the 3D printable functional nano-inks (metal, polymer, nanophotonic materials, carbon material, composite)

Contact: skseol@keri.re.kr

2. Dr. Hyunuk KIM

Korea Institute of Energy Research / in Daejeon City

Introduction of Laboratory

- The main research area of AEML is the development of energy materials based on highly organized porous materials. Now we are investigating metal-organic electrode materials for hybrid supercapacitor with high energy density and power density. And we are also keen on developing CO2 capture materials for CCS technology.

Related Majors

- Chemistry, Chemical engineering, Material Science

Internship field

- The internship will be involved in the development of electrode materials for supercapacitor and Li ion battery.

Contact: hyunuk@kier.re.kr

Other Info: <https://sites.google.com/view/moeml>

3. Dr. Ji Whan AHN

Korea Institute of Geoscience and Mineral Resources / in Daejeon City

Introduction of Laboratory

- The objective of our research group is to develop unique and sustainable technologies that will enable a circular economy to thrive. We work on diverse applications including heavy metal stabilization and nutrient recovery in wastewater/alkali waste leachate, calcium based nanoparticle synthesis and associated applications, synthesis of green cement, rare earth elements enrichment and recovery from alkali waste such as coal ash and bauxite residue, paper recycling, diaper recycling, and other similar research that include utilization/mineralization of CO₂.
- Our lab is equipped with several carbon mineralization units both batch and pilot scale, pressure reactors, and other necessary instruments including essential characterization tools.
- Students in the group can expect to gain experience and expertise in the above mentioned research & related characterizations, method development, and mechanistic/kinetic study along with the analytical and reasoning skills which would prepare them for careers in academia, industries, and developing science policy.

Related Majors

- Chemical engineering, Environmental engineering, Chemistry, Material Science

Internship field

- The internship will be related to the development of applications involving CO₂ sequestration/mineralization and associated applications.

Contact: ahnjw@kigam.re.kr

Other Info: www.kigam.re.kr

4. Dr. Youngmin KANG

Korea Research Institute of Oriental Medicine / in Naju City

Introduction of Laboratory

- Propagation & Production of Traditional Herbal Medicines

Related Majors

- Life sciences, Herbal medicines, Biology

Internship field

- Propagation & Production of Traditional Herbal Medicines

Contact: ymkang@kiom.re.kr

Other Info: <https://oasis.kiom.re.kr/herblib>

5. Dr. Kyungsu KANG

Korea Institute of Science and Technology / in Gangneung City

Introduction of Laboratory

- The main research topic of Dr. Kang's laboratory is to discover bioactive natural products that can promote intestinal health and longevity and natural photosensitizer for antimicrobial treatment. Dr. Kang and his members are interested in elucidating the biochemical and molecular mechanisms underlying the biological effects of various natural products. For this purpose, they are exploiting not only a tiny model nematode, *Caenorhabditis elegans*, but also cultured human cells and intestinal bacteria.

Related Majors

- Biotechnology, Life Science, Biology, Biochemistry, Cell biology, Microbiology, Medicine, Pharmacy, and Food Science, Agricultural science (any major related to bioscience)

Internship field

- The internship will be involved in the development of bioactive natural products using *C. elegans* and cultured cell model.

Contact: kskang@kist.re.kr

Other Info: <https://sites.google.com/site/kkanglab/>

6. Dr. So-Hye CHO

Korea Institute of Science and Technology / in Seoul City

Introduction of Laboratory

- Nanomaterials synthesis and application
- Photocatalysts
- Catalysts for hydrogen carrier
- Antiviral/antibacterial nanocoatings

Related Majors

- Materials Engineering, Chemical Engineering, Chemistry, Physics

Internship field

- The internship will be involved in the development of metal and oxide-based catalysts and formation of nano-coatings for antiviral surfaces.

Contact: sohyec@kist.re.kr

Other Info: <https://sohyecho.weebly.com/>

7. Dr. Ho-Youn KIM

Korea Institute of Science and Technology / in Gangneung City

Introduction of Laboratory

- Establishment of standard cultivation method for functional natural material based on plant factory and development of functional compounds increase technology.

Related Majors

- Plant science (plant chemistry, plant physiology, plant biology), and food science (food analysis, bioactivity)

Internship field

- The internship will be involved in the development of standard cultivation method and increase bioactive compounds in functional plants.

Contact: hykim@kist.re.kr

Other Info:

<https://gn.kist.re.kr/portal/bbs/B0000009/view.do?userIdx=43&category=300&menuNo=200071>

8. Dr. Eui-Jeon WOO

Korea Research Institute of Bioscience and Biotechnology / in Daejeon City

Introduction of Laboratory

- Our lab focuses on structural and functional studies of various biomedical proteins to understand its mechanism and engineers the target proteins by protein design technology.

Related Majors

- Biological sciences, Protein biochemistry, Molecular biology, Bioinformatics

Internship field

- The internship will be involved in protein purification, biochemical analysis and structure based protein design.

Contact: ejwoo@kribb.re.kr

9. Dr. Jaemin LEE

Korea Research Institute of Chemical Technology / Daejeon City

Introduction of Laboratory

- We are focusing on the development of organic materials for OLEDs, perovskite solar cells, and perovskite LEDs. Any applicants who have interest in synthesis will understand the contribution of chemistry/synthesis to the electronic device-related research.

Related Majors

- Chemistry, Polymer science, Organic synthesis

Internship field

- The internship will be involved in the synthesis and characterization of arylamine-type hole-transporting materials for perovskite electronic devices applications.

Contact: jminlee@kRICT.re.kr

Other Info: <https://blog.daum.net/jlee.kRICT>

10. Dr. Hagyong KIHM

Korea Research Institute of Standards and Science / in Daejeon City

Introduction of Laboratory

- The Space Optics Team aims to develop challenging optical systems that are used in the fields of astronomy, space science, and advanced science, encompassing optics from cameras installed on space borne satellites, reflecting mirrors in ground-based astronomical telescopes to extreme ultraviolet high-precision reflecting mirrors for synchrotron radiation accelerators.
- As a notable example, the team developed the first domestically produced reflecting mirror for satellites.
- The team, which is comprised of experts from various fields, actively collaborates with both domestic and overseas industry, academic, and research experts to research and develop unexplored high value-added optical systems.

Related Majors

- Optical engineering, Mechanical engineering, Electrical engineering, Computer science, Robotics, Industrial engineering, Material engineering

Internship field

- The internship will be involved in the development of segmented mirrors for spaceborne telescopes such as James Webb Space telescope, and the semiconductor inspection optical systems.

Contact: hkihm@kriss.re.kr

Other info:

https://www.kriss.re.kr/departmentWeb/department2deptsView.es?mid=a10203040100&kd2_code=1000032

6. Important Dates

April 20	Publication of a Handbook for UST Global Research Internship 2022
April 20 ~ May 11	Submission of application
May 12 ~ May 16	1 st screening of application (document screening)
May 17 ~ May 27	2 nd screening of application (screening by professors)
June 1	Result release
June 30	Internship Launching Ceremony
July 4 ~ August 29	Internship Period
August 30	Internship Commencement Ceremony

7. Appendix

Application for the UST Global Research Internship 2022

▣ Personal Information

Name		Nationality	
Date of Birth	MM / DD / YYYY	Possession of Valid Korean Visa	Y / N
Currently Enrolled University (or grad school)			
University 1 (Bachelor's)		Major 1(Bachelor's)	
University 2 (Master's)	If applicable	Major 2(Master's)	If applicable
Mobile		Email	
Name of 1st choice of advisor			
Name of 2nd choice of advisor			

※ The name must match to the one in your VISA grant notice.

※ All applicants need to be aware that by submitting your applications, you are agreeing to that the personal information you provided will be retained and used in accordance with the relevant university rules. Collected personal information will be used to operate this internship program only.

■ Self-Introduction

Personal Introduction	
Academic Background	
Skills	
Expected outcome from the Internship	
Plan after the Internship	

I hereby verify that I provided accurate and true information for the application to the UST Global Research Internship 2022. I will follow the guidelines of UST while participating in the program.

MM / DD / YYYY

Name :

(Signature)

**Respectfully to
the President of the University of Science and Technology**