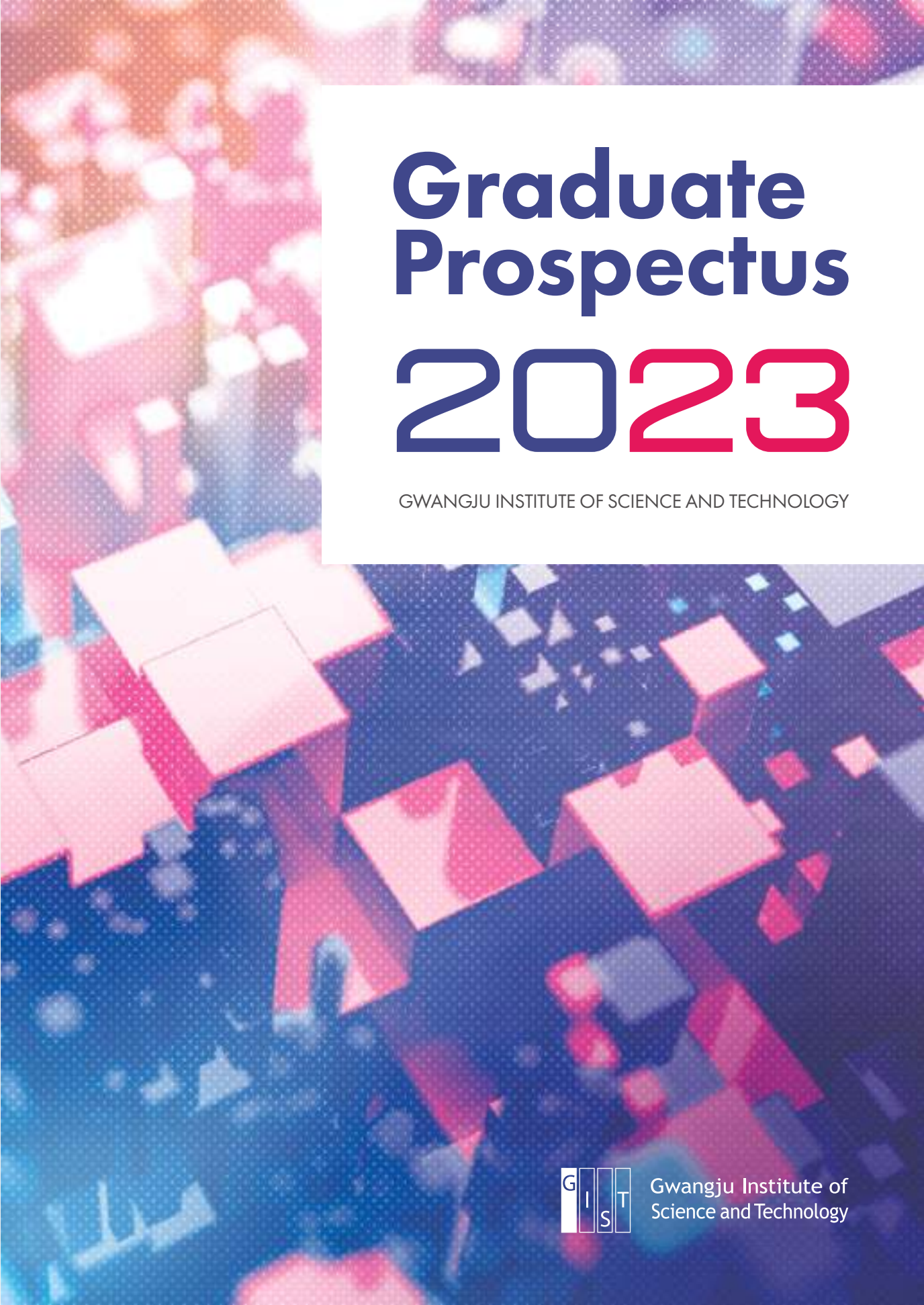
Graduate Prospectus 2023

GWANGJU INSTITUTE OF SCIENCE AND TECHNOLOGY



Gwangju Institute of Science and Technology

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Information in this publication is correct as of June 2022

GRADUATE PROSPECTUS

GIST Introduce

Admissions Guide 12

Academic Schools & Departments 16

General Information 96

President's Message

GIST Cordially Welcomes you, pioneers of advanced science and technology!

GIST has been firmly committed to fulfilling its foundational goals of advancing the nation's science and technology and nurturing excellent talents in those fields. As a result, it has grown into a world-class research university in a relatively short period of just over two decades.

In the QS World University Rankings 2023, GIST was ranked No. 6 in the world in the category of citations per faculty. In the Times Higher Education World University Rankings 2014 – 2015, where GIST was included for evaluation for the first time, it was placed at No. 4 in Korea and at No. 96 in the world in the subject of Engineering and Technology. This clearly shows that GIST can compete with any institution of higher learning around the world in terms of academic and research achievements.

Here at GIST, we are also trying hard to make tangible contributions to local, national, and global development. Through technology transfer and commercialization, our research results should lead to creating new industries and jobs, and ultimately to improving our quality of life. To realize that goal, we are actively promoting student and faculty startups so that they may blaze new trails with a fearless pioneering spirit.

Convergence and innovation in education and research never stop on the GIST campus. Interdisciplinary research projects constantly spring up, and ongoing collaboration across the departments and institutes continues to give new inspirations to our students. In particular, GIST College has become an innovative new model for undergraduate education in science and engineering, as it not only provides a rich, balanced liberal arts education to promote creativity, cooperation, and communication but also works closely with the graduate school to focus on problem solving.

" The promise to be the best For the future of our society and humanity It is the promise of GIST "

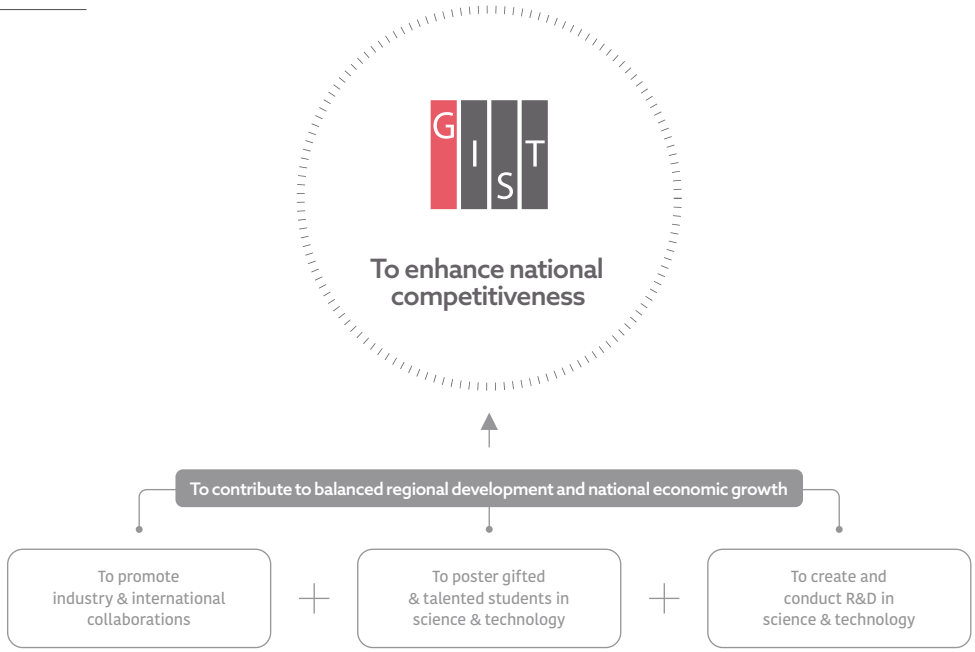
GIST always welcomes interested students, researchers, and professors. I hope you will come to GIST and take advantage of our world-class educational and research opportunities. I am convinced your decision to come to GIST will prove an excellent choice.

Thank you.

President of GIST | **Dr. Kim Ki-Seon**

GIST Introduction

Our Mission



Our Vision

Inclusive R&D
Together with people and local communities

· Enhance quality of life by carrying out research projects solving social problems
· Lay a foundation for national/local job creation by expanding technology entrepreneurship led by students, faculty and residents

R&R Set best practices In GIST operations
That can contribute to the country and society

· Take the lead in social contribution as an S&T institute by innovations within local communities that are dedicated to the country
· Operate GIST in an open, horizonral, and autonomous manner for proved communication, happiness and growth of its members

Nurtuting global leaders
for an S&T centered society

· Foster specialists with knowledge in basic science and humanities for the 4th industrial revolution
· Nurture GIST members to lead the world and the future by having a global campus

GIST at Present

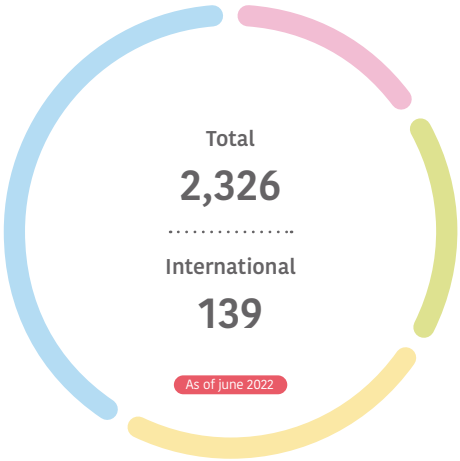
Faculty and Staff

As of July 2022

Faculty	Research Scientist	Staff	Total
202	30	216	448

EECS	SMSE	SME	SESE	SLS	DPH	DC	BMSE	CT	RT	EC	AI	Other
24	21	18	24	25	17	18	9	6	5	8	7	21

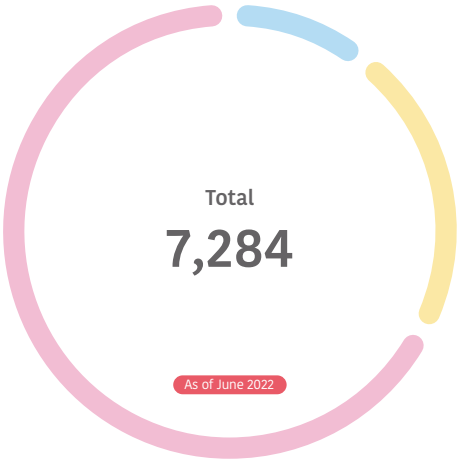
Student Enrollment



Classfication	B.S.	M.S.	Ph.D.	M.S / Ph.D.
Total	1,005	354	503	464
International	17	37	63	22

※ The student-faculty ratio at GIST is 11.5:1 (2,326:202)

Graduates



B.S.	M.S.	Ph.D.
987	4,645	1,652

Abbreviations of Academic Units at GIST

EECS	School of Electrical Engineering and Computer Science
SMSE	School of Materials Science and Engineering
SME	School of Mechanical Engineering
SESE	School of Earth Sciences and Environmental Engineering
SLS	School of Life Sciences
DPH	Department of Physics and Photon Science
DC	Department of Chemistry
BMSE	Department of Biomedical Science and Engineering
IIT	Graduate Program of Culture Technology
	Graduate Program of Intelligent Robot Technology
EC	Graduate School of Energy Convergence
AI	Artificial Intelligence Graduate School

Research Grants per Faculty

Small group learning

10:1

Ratio of students to professors

Papers per year

5

An average, 5 papers per doctoral graduate published in SCI journals in the first half of 2022

Certification of thesis for graduation

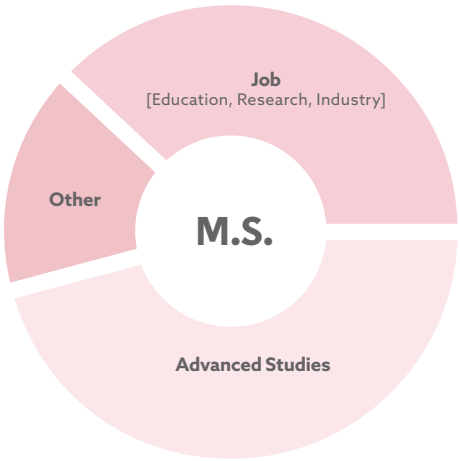
includes a foreign researchar as a member of Ph.D. thesis review board

14% of Ph.D. graduates

are hired as tenure track faculty in major universities both in Korea and overseas

Careers after Graduation

As of February 2022



222 Out of 1,652 doctoral graduates have obtained full-time faculty positions at a number of universities throughout the world

QS World University Rankings 2023-Citation per Faculty index

*GIST ranked 1st in the Republic of Korea for the thirteenth consecutive year.

Rank	Institution	Country
1	Indian Institute of Science	India
2	Harvard University	United States
3	Princeton University	United States
4	California Institute of Technology (Caltech)	United States
5	Massachusetts Institute of Technology (MIT)	United States
6	**Gwangju Institute of Science and Technology**	**South Korea**
7	University of Washington	United States
8	Carnegie Mellon University	United States
9	Stanford University	United States
10	University of California, Berkeley	United States

Academic Policies

Graduation Time Limit

The institute offers M.S., Ph.D. and integrated M.S. and Ph.D. degree Programs. Students are expected to maintain full-time student status and continuous registration until the completion of all requirements.

It normally takes two years to finish an M.S. program and four years for a Ph.D. program. The maximum completion times for the M.S., Ph.D. and M.S./Ph.D. programs are three years, seven years and eight years respectively.

Academic Year

The academic year consists of two semesters, each comprising 16 weeks of instruction. The first semester stars on the first day of March and ends 16 weeks later, and the second semester starts on the first day of September and ends 16 weeks later.

Distinctive Academic Programs and Features

Intensive Education for Highly Qualified Students

· Research-oriented Graduate Programs

· Student-faculty ratio 11 : 1

· Academic Departments specialized in key areas of Science and Technology

Optimal Academic Environment

· All students are exempt from tuition fees

· Dormitories are provided for single students and apartments are provided for married couples on a first-come, first-served basis

· Practical courses are offered to meet the industrial field's needs

· Students' club activities and start-up venture businesses are encouraged

Financial Support

Tuition Assistance

All Students

Tuition fully supported : KRW 3,415,000 per semester

The one-time matriculation fee of KRW 680,000 is charged to all newly admitted students to be enrolled. Some students may be exempt from this fee.

Monthly Stipends

All International Students

· 600,000 won per month for M.S. 1st year and 700,000 won per month for M.S. 2nd year, 1,000,000 won per month for Ph.D. will be guaranteed as a minimum.

· In monthly Stipends, Student allowance(M.S.: 140,000/month, Ph.D: 295,000/month), Meal allowance(100,000/month), International allowance(120,000/month) and research assistantship are included.

Per year, average

Research Assistantship

All Students Participating in Research Projects

Average as of 2021

Housing

All Students

Dormitory & Apartment for Married Students (as of 2022, KRW)

* Housing fees will be increased every year.

Accommodation	room type	Monthly fees	
		2022	Deposit
Dormitory (Graduate)	Single (8)	140,000	150,000
	Double (1~7)	80,000	
	Double (8)	95,000	
	Double (9)	115,000	
Married Student Apartment (Two bedroom)	E / F (Before Renovation)	125,000	300,000
	E / F (After Renovation)	185,000	600,000
	G	175,000	

* Utility fees are charged separately

* Additional costs may occur for wall papering or flooring

Health Insurance

All International Students

· 60% of the National insurance fee and 100% of the annual medical check up fee will be supported.
· Annual Medical Checkup

Flight Reimbursement

All Incoming International Students

· Reimbursement for a one-way flight to Korea - For the first time use only
· Exchange Rate: 1 USD=1,272.34 KRW (as of June, 2022)

ADMISSIONS Guide

Admissions Guide

Application Procedure

STEP 1

Submit the online application with uploading required documents

Choose your field of study and complete all relevant sections of the online application form. The online application form is accessible at https://service.gist.ac.kr/admission/graduate/foreigner

STEP 2

Wait for the confirmation email

The International Admissions Coordinator will contact you when application and all the required documents are confirmed.

STEP 3

A notification of the admission results

A notification of results will be sent to the email address provided on or around December 9 for Spring admission and June 16 for Fall admission to those applicants whose documents have been received by the specified deadlines. Admitted candidates are expected to respond to the offers of admission within 15 days of notification.

STEP 4

Completion of enrollment requires the reception of documents and paying matriculation fee

If you have decided to accept the offer of admission, you should enroll at GIST within the deadline provided. An original Apostille or authenticated final degree and transcript must be sent to Admission team by post. After this procedure, you will receive the admission packet: Certificate of Admission, Certificate of Financial Sponsorship, and a Letter of Invitation.

STEP 5

Apply for a student visa

In order to apply for a student visa, you will need to obtain a student visa application form. This form is available at the Embassy of the Republic of Korea in your home country. When you apply for a visa, you must attach the Certificate of Admission to the application form. After you receive your visa, you can contact the staff at the Section of International Relations(SIR) and the staff at your school or department. The staff of both departments will assist in arranging your travel to Korea.

Application Deadline

Spring Semester: October 14th

Fall Semester: April 14th

Required Documents

Documents	Note
Submission of the online application https://service.gist.ac.kr/admission/graduate/foreigner	Compulsory
Official degree certificates and transcripts · For all undergraduate and graduate degree programs · Apostille or notarized copies will be accepted(Notarized by Korean Embassy is preferred.)	
Two letters of recommendation	
An official English proficiency test score report · Minimum scores: 80(TOEFL iBT), 550(TOEFL PBT), 6.5(IELTS), 750(TOEIC), 285(TEPS)	
A copy of the applicant's passport	
A letter of recommendation from your dept. chair for the Matriculation Fee waiver	If applicable
A certificate of English language proficiency issued by your university [for Conditional Admission only]	

* All required document should be uploaded on your online application

English Requirements Conditional Admission

Because English is the language of instruction at GIST and success in graduate study depends on English language competency, Official English test results must be presented by applicants who are not native born citizens of Australia, Canada, Ireland, New Zealand, the UK or the USA as part of their applications. Applicants holding bachelors or advanced degrees from accredited institutions in one of the countries listed above may be exempted from English requirements with prior approval of GIST.

In general, the minimum TOEFL score for acceptance into our graduate programs is 80 of IBT, 550 of PBT. We also accept the score of IELTS, TOEIC and TEPS(Test of English Proficiency developed by Seoul National University) when the applicant doesn't have TOEFL score. The minimum score for acceptance is 6.5 of IELTS, 750 of TOEIC and 285 of New TEPS.

For an additional means of evaluating the qualifications of applicants, the institute recommends the submission of scores from the Graduate Record Examinations(GRE) for all applicant.

Applicants from countries that do not offer official English tests(TOEFL, IELTS, TOEIC or TEPS) or other applicants for whom it is not possible to take such tests owing to unavoidable circumstances (including schedule conflicts or excessive economic burden) may be permitted to apply for admission to the Institute and may be given conditional admission. Conditional admission requires applicants to submit documentation related to English proficiency issued by the President or the Dean of the last school at tended. The certificate of English language proficiency must indicate that the medium of instruction was English.

Any students admitted to the Institute with conditional admission due to unavailability of official English test results must, within 6 months from the date of admission, submit official English test results that meet the application criteria of the Institute. These results should be sent to the Section of Admissions and receive approval from our Academic Affairs Review Committee. Any persons who have been conditionally admitted to the Institute, but fail to fulfill the requirements stated above, will automatically be removed from the school register 6 months after the date of admission. The relevant departments shall undertake follow-up actions within 1 month after the day of removal.

We strongly recommend that you obtain the English test score because the Korean Immigration Service may require an English or Korean test score for VISA application.

Matriculation Fee

At the beginning of the first semester at GIST, all admitted students pay a Matriculation Fee. This is non-refundable Fee of 680,000 won, which will provide access to a variety of GIST programs and services at no additional charge. This payment is due at the time of enrollment.

Matriculation Fee Waiver Application

GIST may waive the Matriculation Fee for those who have financial difficulties. If you wish to apply for a waiver, please fill out the Matriculation Fee waiver application in the online application form and send a recommendation letter written by your department chair of the current/last university you attended to the Section of Graduate Admissions. The Admission Committee at GIST will review the application and the notification will be made along with the admission review results.

The Admissions Review

GIST encourages applications from candidates with strong academic potential, high motivation for pursuing a career in the areas of science and technology, and focused intellectual and professional interests.

Admissions Committee are composed of faculty members. Applications are usually reviewed by at least four readers. Admissions decisions are based on an evaluation of all materials submitted in combination with the application.

One's study plan, professional experience, and letters of recommendation provide very important qualitative evidence concerning an applicant's academic records, professional background, and potential. Strong academic records and high test scores do not ensure admission. Other kinds of significant achievement, including the overcoming of economic, societal or educational obstacles are also considered important.

The admissions review is based on a comparison of the applicant's qualifications among all those who apply. The school then weighs the generaladmissions criteria in ways that can ensure the diversity of student background, experience, and interest. Each year, the number of applicants may outnumber the available enrollment. Therefore it requires the complex task of selection involving a careful evaluation of past accomplishment and future promise.

Important Things to Remember

Application for Graduate Admission

If any of the submitted materials contain falsified information, matriculation may be rescinded. Also, students whose graduations were pending at other institutions during the time of application should submit their graduation certificates/diplomas within 15 days of enrollment at GIST. Failure to submit these documents may result in their enrollment cancellation. Admitted students should submit their diploma, transcript with the Apostille attached or legalized by a Korean consular officer in their country within 15 days of enrollment at GIST. Otherwise, matriculation may be rescinded. For the student who graduated from Chinese universities can submit a credentials of degree certificate and transcripts issued by China Academic Degree & Graduation Education Development Center.

Study Plan in the Online Application Form

Your typed statement is a very important part of your application and is reviewed with great care. We would like your statement to address your past and current professional experiences, your academic interests and objectives, and your future goals. In addition, please feel free to add any other relevant information. It is imperative that the statement of purpose is fully representative of who you are, how our program matches your academic needs, and what you will do after graduating.

Letters of Recommendation

Recommendation letters will be received directly do recommenders.

Each of the two recommenders will receive an automated email instructing them how to proceed with their recommendation letters through an online process. This form of the letter must be given to people who have worked closely with you in either an academic or professional capacity and who will be able to relate specific information about your performance and abilities. Recommendations must be written by faculty members of the school or institution you attended who are familiar with your academic work.

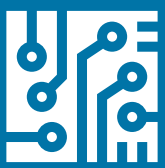
Request your recommender in advance and provide them adequate time to submit letters of recommendation before the deadline. Their signature or stamp must be included. please note that recommendation letters should be received in our system by the document submission due date.

ACADEMIC Schools & Departments

- School of Electrical Engineering and Computer Science
- School of Materials Science and Engineering
- School of Mechanical Engineering
- School of Earth Sciences and Environmental Engineering
- School of Life Sciences
- Department of Physics and Photon Science
- Department of Chemistry
- Department of Biomedical Science and Engineering
- School of Intergrated Technology
- Graduate School of Energy Convergence
- Artificial Intelligence Graduate School

School of

Electrical Engineering and Computer Science



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eecs@gist.ac.kr

https://eecs.gist.ac.kr/eecseng/index.do

School of
Electrical Engineering and Computer Science

The School of Electrical Engineering and Computer Science at the Gwangju Institute of Science and Technology(GIST) is continuously striving to produce the world's most talented researchers and technologists who will embrace and transform the world of tomorrow by focusing on the development of innovative technologies. With these objectives, the School is playing a key role in leading various research fields across a diverse spectrum of devices, systems, and software: from AI and robotics, big data and cloud computing, biomedical informatics, circuits and systems, IoT and cyber security, energy systems and sensors, photonics and nanotechnology, and signal and information systems. These technologies include key parts of electric, electronic, and computers to lead the global economic market of the future and to create new technologies with massive social and economic impact.

To meet the needs of the future where AI, AR gaming, drone and IoT are emerging as new buzzwords, the School of Electrical Engineering and Computer Science is focusing on the field of electronics, which includes information, telecommunication, semiconductors, and photonics as well as the field of computing that includes computation and algorithms. With a shared vision and objectives, students and researchers in the graduate courses and doctoral programs who have diverse backgrounds and degrees (electric, electronic, computation, computer, information, telecommunication, control and measurement, mechanic, physics, chemical, math, statistics, and industrial engineering) gather to study and develop core technologies to drive the future in creative and cooperative research activities and to contribute to practical uses and the dissemination of the technologies. All faculty members and students of the School are committed to nurturing science and technology leaders who will lead the future of the nation within the academic and industrial sectors.

Within the School's organization, research groups with three to seven professors are organized to perform group research in eight different areas. This is to enhance efficiency and competitiveness of research while responding faster to new emerging academic areas based on convergence with relevant academic disciplines. As part of these efforts, the school is hosting diverse research groups, including BK21 Plus Program, Amano Center for Advanced LEDs, Gwangju Senior technology complex, Photonics Research Facility Center, Photonics Research Facility Center, Center for Photon Information Processing, Gwangju Digital consumer Electronics Center, Massively Distributed Sensor Network Center, Intelligent Sensors Research Center, Super Computing Center, Realistic Broadcasting Research Center, Center for Integrated Access Systems, Electronic Warfare Research Center, Smart Software Research Center, Center for Hybrid Optical Access Network, and Center for Optimal Dementia Care Technology Research to take the lead in global research and commercialization of technologies with active cooperation between industry and academia.

Energy Systems and Sensors

- Microwave Sensing & Imaging

Biomedical Informatics

- Bioinformatics and Intelligence
- Data Mining & Computational Biology
- Bio Computing

Big Data and Cloud Computing

- Data Science
- Data Analytics
- Cloud Computing

Signal and Information Systems

- Audio Intelligence technology and research
- Speech and Audio Processing
- Intelligent Information Systems

Circuits and Systems

- Analog And Mixed-signal integrated Circuit Design
- Semiconductor Device Simulation
- Integrated Circuits and Systems

AI and Robotics

- Machine Learning and Vision

IoT and Cybersecurity

- INFOrmation sensing, processing, controlling, and NETworking
- Communication & Information Science

Photonics and Nanotechnology

- Advanced Nano Electronics & Photonics Technology
- Photon Information Processing
- Flexible OptoElectronics
- Artificially Intelligent Semiconductors
- Solid-Stated Lighting
- Applied Optics
- NanoSystems

Faculty

NAME	EDUCATION	E-MAIL	PHONE
Hwang, Eui-seok Associate Professor	**Carnegie Mellon University** Ph.D. in Electrical & Computer Engineering	euiseokh@gist.ac.kr	+82-62-715-3223
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Shin, Jong-Won Associate Professor	**Seoul National University** Ph.D. EECS	jwshin@gist.ac.kr	+82-62-715-2235
Song, Young-Min Professor	**Gwangju Institute of Science and Technology (GIST)** Ph.D. in Information & Mechatronics	ymsong@gist.ac.kr	+82-62-715-2655
Yu, Nam-Yul Associate Professor	**University of Waterloo** Ph.D. in Electrical & Computer Engineering	nyyu@gist.ac.kr	+82-62-715-3716

Labs, Centers

Intelligent Information Systems Laboratory
Ph.D. Hwang, Eui-seok https://iis.gist.ac.kr/isp/

Photon Info. Processing Laboratory
Ph.D. Ham, Byoung-Seung https://pip.gist.ac.kr

Semiconductor Device Simulation Laboratory
Ph.D. Hong, Sung-Min https://sites.google.com/view/gist-sdsl/

Machine Learning & Vision Laboratory
Ph.D. Jeon, Moon-gu https://sites.google.com/view/mlv

NanoSystems Laboratory
Ph.D. Jeong, Hyeon-Ho https://sites.google.com/view/nanogist

Artificially Intelligent Semiconductors Laboratory
Ph.D. Jho, Young-Dahl http://ai-s.gist.ac.kr

BioComputing Laboratory
Ph.D. Jun, Sung-Chan https://biocomput.gist.ac.kr/

Advanced Nano Electronics & Photonics Technology Laboratory
Ph.D. Kang, Dong-Ho https://sites.google.com/view/gist-dhkang

Microwave Sensing & Imaging Laboratory
Ph.D. Kim, Kangwook http://em.gist.ac.kr

Audio Intelligence technology and research Laboratory
Ph.D. Kim, Hong-Kook http://aiter.gist.ac.kr

Analog & Mixed-signal Integrated Circuits Design Laboratory
Ph.D. Lee, Byung-Geun http://analog.gist.ac.kr

Applied Optics Laboratory
Ph.D. Lee, Byeong-Ha http://aolab.gist.ac.kr

Solid-State Lighting Lab (SSLL)
Ph.D. Lee, Dong-Seon http://ssll.gist.ac.kr

INFOrmation sensing, processing, controlling, and NETworking Laboratory
Ph.D. Lee, Heung-No http://infonet.gist.ac.kr

Data Mining & Computational Biology Laboratory
Ph.D. Lee, Hyunju https://eecs.gist.ac.kr/combio/index.do

Integrated Circuits and Systems Lab
Ph.D. Lee, Min-Jae https://sites.google.com/view/icsl/icsl

Bioinformatics and Intelligence Laboratory
Ph.D. Nam, Ho-Jung http://www.csblgist.net/

Speech and Audio Processing Laboratory
Ph.D. Shin, Jong-Won http://mspl.gist.ac.kr/

Flexible OptoElectronics Laboratory
Ph.D. Song, Young-Min https://www.gist-foel.net/

Communication and Information Science Laboratory (CISL)
Ph.D. Yu, Nam-Yul https://sites.google.com/site/informationsciencelab/

Student Interviews

Name **Shikha Dubey**
Nationality **India**
Program **Ph.D.**

How long have you been studying at GIST?

It has been almost more than 2 years since I came to GIST. Before joining as a student, I was a researcher at GIST. After that, I have joined as a PhD student at GIST since September 2017.

What made you choose to study at GIST?

It was all started during my Masters studies. One of my professors and my course coordinator at Masters as well, has received his PhD degree from GIST and from him only I came to know about the GIST. Then, with his guidance I got opportunity for doing an internship at GIST. After that, I joined as an intern at GIST and then continued my stay here as a researcher. Meanwhile, I was looking for some good opportunity to join PhD. During my stay at GIST, I got a chance to know more about GIST. GIST's advance technological approach in research, advance research facilities, dedication for the best & quality research, beautiful & safe campus environment and best dormitory facilities; all these things collectively made a very good impression on me. At that time, GIST was ranked No. 3 in the category of citations per faculty by the QS World University Rankings 2017. It was quite impressive for me also. These all reasons collectively gave me motivation to continue my studies at GIST. Eventually, I found the lab, which had same research area similar to my research interest and then I applied for a PhD position at GIST. That's how I ended up with choosing GIST for my studies.

What are the best things about GIST?

There are plenty of things I like about GIST and I would like to mention a few of them here. As a girl student, I would like to say that GIST's environment is really safe for everyone. GIST provides better financial support and scholarship for international students, so that makes living in another country really easy. GIST has well equipped laboratories and highly advanced resources to do quality research. Other than research's facilities, GIST has world class accommodation facility. GIST has really beautiful campus, which has all kinds of living facilities like all kinds of sports, farming, dispensary, bank, gymnasium and cafeteria. GIST conducts free Korean classes for international students. To give exposure and opportunities to students. To give exposure and opportunities to students at the international level, GIST organizes several International workshops, conferences, and seminars. For cultural exchange, GIST organizes many cultural trips and events as well.

Are you satisfied with the support you receive from GIST?

Yes, I am satisfied with the support which I receive form GIST.

What are your plans in terms of future studies and/or career after you complete your time at GIST?

After completing my PhD, I would like to continue my research in the field of computer vision and will apply for a post-doc position.

What advice would you give to new applicants hoping to enter a program at GIST?

First of all, Good Luck to all the applicants for their admission at GIST. Secondly, I would like to say that, be prepared to work hard at GIST, as GIST is going to give you a log of opportunity to prove yourself and achieve best in your life. To achieve your goal and studying at GIST will require a lot of motivation, focus and passion. Third, GIST has international student club and International student section office to help international students in any kind of situation. Fourth, here, labs are open all the time, so you can work in lab anytime you want to, but I would like to mention that some labs have their restrict lab timings. So be prepared for working in such environment. At last I would like to mention, if you have decided to study in Korea, then GIST is one of the best prestigious institutes in Korea and it will provide you with all kinds of the best resources, facilities, helpful staff and World-class Faculty to make your dreams true. Don't worry, GIST is a good choice, if you are highly motivated. Ready to learn about a new culture and to see beautiful places in Korea. Cheers!

School of

Materials Science and Engineering

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School of
Materials Science and Engineering

Materials science and engineering is an interdisciplinary field of science that involves physics, chemistry, polymer engineering, metallurgy, electrical, and electronic engineering. It deals with new and improved materials for more efficient and effective technologies enhancing the quality of human life.

Our school pursues excellence in teaching and research, drawing upon its world-class faculty members, the state-of-the-art research facilities, and dedicated students. The department aims at motivating students for the development of new materials and preparing them with a better understanding of materials so that they can play an important role in the advanced fields of technology related to new materials.

Current research activities include the areas of nano-scale electronic and photonic materials, organic materials and devices, polymers and biomedical materials. The research focuses are the areas of semiconductor materials for optoelectonics, electronic materials for nanoelectronics, organic materials for information processing, materials for energy technoloy, and polymeric biomaterials for biomedical engineering.

With the effort of faculty members and students, the department is devoted to achieve excellent academic and research performance in the fields of new materials, and moreover striving to be among the leading research groups in the world.

Research on Healthcare

Healthcare materials are key future technology for heatlthy and safe society. Based on the fundamental understanding of life and nature, healthcare material research have focused on aging issues, sensing of life and environmental signals, diagnosis and treatment of diseases, enhancement of human functions. The research groups in the healthcare materials have elaborated to develop new materials, including organic, bio, inorganic, and complexed materials, and their applications for diagnostics, therapeutics, and biomedical devices.

Participating faculty : Ko, Heung Cho, Kwon, Inchan, Park, Ji-Woong, Yeon, Hanwool, Yoon, Myung-Han, Lee, Kwanghee, Lee, Eunji, Lee, Jae Young, Choi, Yeongjae, Tae, Giyoong, Ha, Minjeong

Research on Energy/Green Tech

The world is facing serious energy and environmental problems that will vastly threaten the quality of human life. Developments of new technologies that can minimize natural resource consumption and concurrently assure the continuous supply of green energy from renewable sources are highly needed. Research groups in the 'Energy/Green Tech' aim to respond to the global needs for human sustainability. The core of this research area is understanding the relationship between materials' structure and their properties and ultimately developing new functional materials & devices for their applications in diverse energy and environmental technologies.

Participating faculty : Kwon, Inchan, Kim, Dong-Yu, Kim, Bong Joong, Park, Ji-Woong, Eom, Kwang-sup, Yoo, Seung Joon, Yoon, Myung-Han, Yoon, Tae-Ho, Lee, Kwanghee, Lee, Sanghan, Lee, Eunji, Lee, Joo-Hyoung, Jung, Gun-Young, Cho, Beongki, Jo, Ji Young, Ha, Minjeong

Research on AI

New materials have always advanced our understanding about Nature around us and greatly improved the quality of our lives. However, developing a new material is an extremely time- and cost-consuming process due to vast search space and nontrivial optimization of materials properties. Artificial intelligence (AI) can expedite this task by rapidly exploring the materials space. This is made possible through establishing a close relationship between materials properties and structure. The AI research groups in SMSE at GIST aim to accelerate the design process by constructing and properly training AI models.

Participating faculty : Kwon, Inchan, Yoon, Myung-Han, Lee, Sanghan, Lee, Joo-Hyoung

Research on Connected Mobility

Nowadays called the era of the 4th industrial revolution, the connection of all things (IoT) is spreading beyond smart home appliances and homes to automobiles and urban infrastructure. The concept of connected mobility which is based on technologies represented by V2X (Vehicle to X) enables communications between vehicles and vehicles (V2V), vehicles and infrastructures (V2I), vehicles and offices (V2O), vehicles and houses (V2H) and vehicles and mobile devices (V2M). This multi-dimensional connection will realize autonomous driving with artificial intelligence, smart home, smart city and infortainment (information + entertainment) in the vehicle. The "Connected Mobility Group" is concentrating on developing functional materials and devices that can make these technologies a reality, and processes for them.

Participating faculty : Ko, Heung Cho, Kim, Dong-Yu, Kim, Bong Joong, Park, Ji-Woong, Yeon, Hanwool, Lee, Sanghan, Lee, Eunji, Lee, Joo-Hyoung, Jung, Gun-Young, Ha, Minjeong

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Labs, Centers

Flexible Electronics Lab (FEL)
Ph.D. Ko, Heung Cho https://mse.gist.ac.kr/flexible/

Functional Protein Engineering Lab (FPEL)
Ph.D. Kwon, Inchan http://mse.gist.ac.kr/bimil/

Photonics Polymer Lab (PPL)
Ph.D. Kim, Dong-Yu http://mse.gist.ac.kr/ppl/

In Situ Nano-Energy Processing Lab (INPL)
Ph.D. Kim, Bong Joong https://inpl.gist.ac.kr/inpl/

Soft Nanomaterials and Energy Lab (SNE)
Ph.D. Park, Ji-Woong http://mse.gist.ac.kr/snl/

Electrochemical Energy Systems Lab (EESL)
Ph.D. Eom, Kwang-Sup http://sites.google.com/view/gisteesl

SMART Metallization Lab
Ph.D. Yeon, Hanwool http://yeonlab.org/

ORGANIC ELECTROCHEMISTRY AND ENERGY MATERIALS Lab (OEEML)
Ph.D. Yoo, Seung Joon https://energy.gist.ac.kr/energy/

Bio-Electronics Materials Lab (BEMs)
Ph.D. Yoon, Myung-Han https://sites.google.com/site/gistbioelectronics/

Organic Semiconductors and Photonics Lab (OSPL)
Ph.D. Lee, Kwanghee http://mse.gist.ac.kr/ospl/

Functional Nanostructures and Nanoelectronics Lab (FNNL)
Ph.D. Lee, Sanghan https://mse.gist.ac.kr/sanghan/

Soft Matter Nanoscopy Lab (SOMAT)
Ph.D. Lee, Eunji http://so-mat.wixsite.com/gist

Biomimetic Materials Lab (BML)
Ph.D. Lee, Jae Young http://sites.google.com/site/biomaterialjyl/home

Computational Materials Science Lab (CMAT)
Ph.D. Lee, Joo-Hyoung https://mse.gist.ac.kr/cmat/

Advanced Lithography for Integrated Systems Lab (ALIS)
Ph.D. Jung, Gun-Young http://mse.gist.ac.kr/alis/

Nano Spintronics & Magnetic Materials Lab (NSMML)
Ph.D. Cho, Beongki http://mse.gist.ac.kr/nsmml/

Functional Oxide Nanostructure Lab (FONL)
Ph.D. Jo, Ji Young https://sites.google.com/view/fun-oxide/home

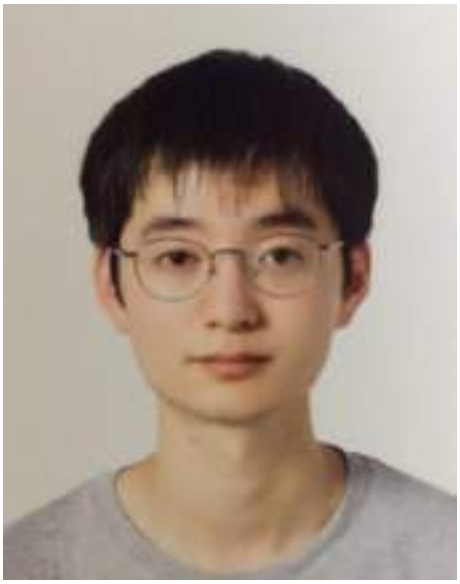
Nucliec acids design studio Lab (NDS)
Ph.D. Choi, Yeongjae http://choi.science

Biomacromolecular Engineering Lab (BMEL)
Ph.D. Tae, Giyoong https://mse.gist.ac.kr/bmel

Intelligent Materials and Devices Lab (IMD)
Ph.D. Ha, Minjeong https://minjeongha.wixsite.com/imd-minjeong-ha

Student Interviews

Name **Huang, Minhu**
Nationality **China**
Program **Ph.D.**



How long have you been studying at GIST?

Three and a half years: two years in the master's course and a year and a half in the Ph.D. course.

What made you choose to study at GIST?

GIST was the top research-based university in Korea, obviously in the world as well. All courses are provided by English, and GIST also provides basic Korean language classes to help foreign students learn some basic Korean for daily life.

What are the best things about GIST?

In terms of academics, GIST is a great place to be a student because the talented faculty members combined with the excellent research facilities has made its notable. Besides, GIST provide foreign students with scholarships which they can overcome their financial problems in studying abroad.

Are you satisfied with the support you receive from GIST?

I am very satisfied with the support I received from GIST.

What are your plans in terms of future studies and/or career after you complete your time at GIST?

I am not sure yet because I would like to continue my career in the research field, and there are many possibilities. After graduation, I will look for a postdoc position or research work.

What advice would you give to new applicants hoping to enter a program at GIST?

Studying at GIST might be challenging, but GIST will provide all of the comforts required for students. Study hard, and do your best. Welcome to GIST, a place for your dream to come true.

School of

Mechanical Engineering

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https://me.gist.ac.kr/meeng/

School of
Mechanical Engineering

The advance of science and technology will lead our society to a better place with improved-quality of life. Mechanical Engineering is the academic discipline that plays a central role to make this change of society come true by systematically integrating mechanical, electrical and software technology. The School of Mechanical Engineering at GIST focuses on the development of new and innovative technologies in mechanical engineering with special research interest in the following areas:

- Robotics and Mechatronics
- Machine Intelligence and Informatics
- Next-Generation Vehicle Engineering
- Smart Design and Manufacturing
- Multi-scale and Multi-physics Engineering
- Thermal Fluids and Energy

To achieve our goal, School of Mechanical Engineering accepts students from diverse backgrounds including, but not limited to, electrical engineering, computer science, mechanical engineering, control, instrumentation, mechatronics, industrial engineering and provides high quality education and research environments. By participating in pioneering researches and system development, the students at School of Mechanical Engineering learn in-depth knowledge of software design/hardware manufacturing/basic science and engineering and the application of these knowledge for industry. The graduates of School of Mechanical Engineering are currently working at many renowned national research laboratories and global leading companies. We trust that the students form School of Mechanical Engineering at GIST will play a key role in realizing human wellbeing through Mechanical Engineering.

Robotics and Mechatronics

- Ahn, Hyo-Sung (Distributed Control & Autonomous Systems)
- Choi, Kyunghwan (Mobility Intelligence and Control)
- Lee, Jaewook (Structural Optimization for Electromechanical Devices)
- Lee, Jongho (Bio-Robotics)
- Park, Kyi Hwan (Dynamics and Control)
- Hur, Pilwon (Dynamics and Biomechartronics)

Machine Intelligence and Informatics

- Ahn, Hyo-Sung (Distributed Control & Autonomous Systems)
- Choi, Kyunghwan (Mobility Intelligence and Control)
- Oh, Hyunseok (Smart Diagnosis and Design Optimization)
- Ko, Gwang Hee (Modeling and Simulation)
- Hur, Pilwon (Dynamics and Biomechartronics)
- Choi, Seongim (Data-Driven Simulation and Design Optimization)

Next-Generation Vehicle Engineering

- Ahn, Hyo-Sung (Distributed Control & Autonomous Systems)
- Choi, Kyunghwan (Mobility Intelligence and Control)
- Lee, Jaewook (Structural Optimization for Electromechanical Devices)
- Lee, Jongho (Bio-Robotics)
- Park, Kyi Hwan (Dynamics and Control)
- Wang, Se Myung (Intelligent System Design)
- Jee, Solkeun (THEORY)
- Lee, Young-Gu (Autonomous Driving)

Smart Design and Manufacturing

- Oh, Hyunseok (Smart Diagnosis and Design Optimization)
- Lee, Jong Hyun (MEMS and NanoSystems)
- Lee, Jongho (Bio-Robotics)
- Ko, Gwang Hee (Modeling and Simulation)
- Jeong, Sungho (Laser Micro/Nano Fabrication)
- Lee, Young-Gu (Autonomous Driving)

Multi-scale and Multi-physics Engineering

- Seol, Jae Hun (Nano Energy & Heat Transfer)
- Lee, Jaewook (Structural Optimization for Electromechanical Devices)
- Lee, Jong Hyun (MEMS and NanoSystems)
- Wang, Se Myung (Intelligent System Design)
- Lee, Seunghyun (Tow-Phase Flow and Thermal Management)
- Yang, Sung (BioMEMS)

Thermal Fluids and Energy

- Seol, Jae Hun (Nano Energy & Heat Transfer)
- Lee, Seunghyun (Two-Phase Flow and Thermal Management)
- Jee, Solkeun (THEORY)
- Yang, Sung (BioMEMS)
- Jeong, Sungho (Laser Micro/Nano Fabrication)
- Choi, Seongim (Data-Driven Simulation and Design Optimization)

-Communications
-Information & Communication
-Radio Engineering
-Computer Science
-Computer Engineering
-Control & Instrumentation Physics
-Optical Engineering
-Optics
-Materials Science
-Chemistry
-Chemical Engineering
-Mechanical Engineering
-Mechanical Design Engineering
-Mechatronics
-Industrial Engineering
-Avionic Engineering
-Mathematics
-Applied Mathematics
-Electrical Engineering
-Electronics Engineering

Faculty

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Mobility intelligence and Control Laboratory
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Data-Driven Simulation and Design Optimization Laboratory
Ph.D. Choi, Seongim http://dd-sdol.gist.ac.kr

Dynamics and Biomechatronics Laboratory
Ph.D. Hur, Pilwon http://hurgroup.net

THEORY Laboratory
Ph.D. Jee, SolKeun http://theory.gist.ac.kr

Laser Micro/Nano Fabrication Laboratory
Ph.D. Jeong, Sungho http://laser.gist.ac.kr

Modeling and Simulation Laboratory
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Structural Optimization for Electromechanical Devices Laboratory
Ph.D. Lee, Jaewook http://sol.gist.ac.kr

Bio-Robotics Laboratory
Ph.D. Lee, Jongho http://biorobotics.gist.ac.kr

MEMS and NanoSystems Laboratory
Ph.D. Lee, Jong Hyun http://mems.gist.ac.kr

Two-Phase Flow and Thermal Management Laboratory
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Autonomous Driving Laboratory
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BioMEMS Laboratory
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Student Interviews

Name **Hamidreza Raei**
Nationality **Iran**
Program **Ph.D.**

How long have you been studying at GIST?

So far, I have lived and studied in Korea around 2 years. This semester, I finished my master program at GIST.

What made you choose to study at GIST?

When I decided to apply for top universities in Korea, I considered various factors frominternational university ranking to educational and recreational facilities inside or near theuniversity. Thus, considering above factors and the satisfaction of studying my master at GIST, I decided to continue my PhD program at GIST as well.

What are the best things about GIST?

Aside from excellent research facilities and educational opportunities which are accessible at GIST, the fact that teaching and assessment is completely in English can be helpful for most of international students to decrease the language barrier in their educational life at least.

Are you satisfied with the support you receive from GIST?

The fact that accommodation is highly subsidized by GIST for all students, and the regulations for scholarships, provide adequate support for a student life in Korea.

What are your plans in terms of future studies and/or career after you complete your time at GIST?

For now, my future plan is studying my PhD, and I think even after that as career, I highly prefer remaining in the research field and maybe working in R&D section of a company.

What advice would you give to new applicants hoping to enter a program at GIST?

After you narrow down universities in terms of their ranking, facilities and support; among them you need to search for the right advisor and lab. This plays a major role in your research quality and student life quality. Try to find the lab that matches your field of interest. Talking with professors is the best way to understand your future working condition. Make sure to contact them before applying. This can help you make the right decision. Good luck!

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School of
Earth Sciences and Environmental Engineering

On behalf of all the members of School of Earth Sciences and Environmental Engineering. I sincerely welcome all of you.Our school bears warmth in its heart, sharpness in the research, innovation in the teaching and learning, safety in conducting experiments, and proactiveness in helping others. Should you visit us, please drop by the faculty office first but prepare yourself not to be overwhelmed by passionate greetings. Every family in the school looks casual but they have big dreams and visions, and they never give up in reaching their goals.

The school has three main different research disciplines: Earth and Climate Change; Sustainable Energy; Water Science and Engineering. However, there are no strict distinctions or boundaries. Research areas of some faculty members are highly science-oriented, while others are engineering based. It is in our school where faculties with different backgrounds and majors can freely discuss their researches and methodologies. Students also have flexibility in research and collaboration. It is not strange at all to find one student co-working with another student from a different lab within the school.

It is thus no wonder that we excelled in producing publications and garnering funding. Now our goal is to be number one in fundamental studies with respect to both academic and research, and in practical applications spanning from compact energy conversion to huge desalination plants capable of feeding zero-carbon city.

Whatever backgrounds you may have, please do not hesitate to contact us if you are interested in joining our school. We are delighted to talk with you and collaborate.

Earth and Climate Change

- Ecological remediation and monitoring of contaminated soil/groundwater in the mining areas
- Environmental management of shale-gas production
- Studies on organic mercury bioaccumulation in freshwater and marine ecosystems
- Investigation into the impacts of black carbon (BC), brown carbon (BrC), and organic carbon (OC) on climate change
- Better understanding and prediction of man-made climate changes
- Air quality and climate change studies using chemistry-transport model simulations and satellite-retrieved data
- Impacts of anthropogenic emissions on air quality, human health and Earth ecosystem
- Development of real time aerosol/nanoparticle monitoring systems and measurements of atmospheric aerosols
- Studies on effects of aerosols on earth environment and climate change
- Microbial biodegradation, biotransformation, and biocatalysis for removal of organic pollutants and production of valu-added chemicals from biomass
- Metal-Microbe interaction for relieving environmental burdens caused by heavy metals and its application for synthesizing new functional materals
- Pathogenic bacteria ecology and its fate and transport in aqualtic environments
- Structure and function of marine ecosystem in changing environment by natural or anthropogenic forcing
- Adaptation strategies of marine invertebrates to climate changes
- Physiological basis of local adaptation and its effects on species range
- Evolutionary and ecological responses of plant species to changing environments
- Environmental omics studies for systematic understanding of biosphere
- Environmental catalysis for reducing air pollution and producing clean energy

Sustainable Energy

- Electrocatalytic creation of hydrogen from CO2
- Oxygen and carbon electrocatalysis in fuel cells and water splitting
- Ion exchange membranes for electrodialysis and reverse electrodialysis
- Development of membranes for fuel cell and batteries
- Ionic transport phenomena in electrolytes and membranes
- Capacitive deionization for water softening and desalination
- Charge and energy transport inside photovoltaic materials
- Biorefinery and biotransformation for biomass utilization
- Microbiological production of valuable chemicals using waste biomass
- Bioelectronics and biofuel cell (microbial fuel cell and enzyme fuel cell)
- Manufacturing of biogenic naanomaterials for energy saving and storage
- Electrochemical Nano/Bio sensor and device
- Carbon capture, utilization and storage technologies
- Development and utilization of unconventional energy sources including methane hydrate and shale gas
- Sustainable energy conversion processes for unconventional envergy sources

Water Science & Engineering

- Membrane-based seawater desalination technologies and systems optimization for O&M
- Mechanism identification and optimized cleaning control of biofouling and biofilm using chemicals and biosurfactants in membrane plants
- Characterization and modification of water filtration membrane for organic polymeric (PA, PS, PES) and inorganic (graphene, ceramic) materials
- Big data (water desalination plants) collection and analysis for industrial marketing support
- Nano-science based and physicochemical-advanced water treatment and desalination
- Nano-enhanced membranes for water/wastewater treatment and desalination
- Nano-archetechtured adsorbent for environment and resource recovery
- Electro-spinning techniques for environmental application
- Bio-electrochemical processes for wastewater reuse and resource recovery
- Oxidation and photochemical reaction processes for drinking water and wastewater treatment
- Appropriate water treatment technologies
- Sustainable sanitation science and engineering: treatment and resource recovery
- Fate and toxicity of contaminants of concern in aquatic environment
- Development of water quality guideline and environmental risk assessment
- Smart water grid : sustainable & integrative water resource management with water-energy nexus systems
- Urban water and watershed management, modeling and monitoring protocols
- Biological wastewater treatmen t: nutrient (N & P) removal, Influential factors (temperature, substrate, toxic compounds)
- Solid waste disposal : reduction of sewage sludge generation, Biogas production

Faculty

NAME	EDUCATION	E-MAIL	PHONE
Chang, In-Seop Professor	**Univ. of Wales Swansea** Ph.D. in Biochemical Eng.	ischang@gist.ac.kr	+82-62-715-3278
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Han, Seung-Hee Professor	**Texas A&M Univ.** Ph.D. in Oceanography	shan@gist.ac.kr	+82-62-715-2438
Hur, Hor-Gil Professor	**Univ. of Minnesota** Ph.D. in Soil Microbiology	hghur@gist.ac.kr	+82-62-715-2437
Hwang, Hui-jeong Assistant Professor	**Yonsei Univ.** Ph. D. in Earth System Sciences Eng	huijeonghwang@gist.ac.kr	+82-62-715-2814
Joo, Jong Hoon Associate Professor	**POSTECH** Ph.D. in Materials Science and Engineering	jhjoo@gist.ac.kr	+82-62-715-2843
Kang, Chang-Keun Professor	**Univ. of Nantes** Ph.D. in Marine Biology	ckkang@gist.ac.kr	+82-62-715-2834
Kang, Sung-bong Assistant Professor	**POSTECH** Ph.D. in Chemical Engineering	sbkang@gist.ac.kr	+82-62-715-2465
Kim, Chang-woo Assistant Professor	**Washington Univ-St. Louis** Ph.D in Energy, Environmental and Chemical Eng	changwookim@gist.ac.kr	+82-62-715-2817
Kim, Eun-Suk Assistant Professor	**Harvard Univ** Ph.D. in Biology	eunsukkim@gist.ac.kr	+82-62-715-3650
Kim, Joon-Ha Professor	**Univ. of California, Irvine** Ph.D. in Chemical & Biochemical Eng.	joonkim@gist.ac.kr	+82-62-715-3277

NAME	EDUCATION	E-MAIL	PHONE
Kim, Kyoung-Woong Professor	**Imperial College, Univ. of London** Ph.D. in Environmental Technology	kwkim@gist.ac.kr	+82-62-715-2442
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Kim, Tae-Young Associate Professor	**Indiana Univ.** Ph.D. in Analytical Chemistry	kimtaeyoung@gist.ac.kr	+82-62-715-3647
Lee, Jaeyoung Professor	**Fritz-Haber-Institut der MPG and FU berlin** Dr. rer. nat. in Physical chemistry	jaeyoung@gist.ac.kr	+82-62-715-2440
Lee, Yun-Ho Professor	**Seoul National Univ.** Ph.D. in Chemical Eng.	yhlee42@gist.ac.kr	+82-62-715-2468
Min, Kyung-Eun Assistant Professor	**Univ. of California, Berkeley** Ph.D. in Earth & Planetary Science	kemin@gist.ac.kr	+82-62-715-3280
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Park, Young-June Associate Professor	**KAIST** Ph.D. in Chemical & Biomoleccular Eng.	young@gist.ac.kr	+82-62-715-2836
Song, Chul-Han Professor	**Univ. of Iowa** Ph.D. in Chemical Eng.	chsong@gist.ac.kr	+82-62-715-3276
Yoon, Jin-Ho Professor	**Iowa State Univ.** Ph.D. in Meteorology	yjinho@gist.ac.kr	+82-62-715-2464

Labs, Centers

Earth and Climate Change

Aerosol Technology and Monitoring Laboratory [ATML]
Prof. Park, Ki-Hong https://env1.gist.ac.kr/atml/

Applied and Environmental Microbiology Laboratory [AEML]
Prof. Hur, Hor-Gil https://env1.gist.ac.kr/aeml/

Atmospheric Chemical Information Research Laboratory [AIRL]
Prof. Song, Chul-Han https://airlab.gist.ac.kr/

Atmospheric Trace MOIecules Sensing Laboratory [ATMOSL]
Prof. Min, Kyung-Eun https://env1.gist.ac.kr/atmoslab/

Climate Analysis and Modeling Laboratory [CAML]
Prof. Yoon, Jin-Ho https://env1.gist.ac.kr/camlab/

Earth Material Sciences Laboratory [EMSL]
Prof. Hwang, Hui-jeong https://sites.google.com/view/gistemsl/

Environmental Catalysis Laboratory [ECL]
Prof. Kang, Sung-Bong https://ecl.gist.ac.kr/ecl/

Environmental Mass Spectrometry & Analytical Chemistry Laboratory [EMAL]
Prof. Kim, Tae-Young https://env1.gist.ac.kr/enol/

Envolutionary Ecology Laboratory [EEL]
Prof. Kim, Eun-Suk http://eunsukkim2.wix.com/board

Soil Environment Laboratory [SEL]
Prof. Kim, Kyoung-Woong https://env1.gist.ac.kr/sel/

Stable Isotope Ecology Laboratory [SIEL]
Prof. Kang, Chang-Keun https://env1.gist.ac.kr/siel/

Trace Metal Biogeochemistry laboratory [TMBL]
Prof. Han, Seung-Hee https://tmbl.gist.ac.kr/

Sustainalble Energy

Carbon & Energy Systems Laboratory [CnESL]
Prof. Park, Young-June https://cnesl.gist.ac.kr/cnesl/

Electrochemical Reaction and Technolgoy Laboratory [ERTL]
Prof. Lee, Jaeyoung https://env1.gist.ac.kr/ertl/

Energy and Biotechnology Laboratory [EBL]
Prof. Chang, In-Seop https://ebl.gist.ac.kr/

Energy and Environmental Material Labratory [EEML]
Prof. Joo, Jong Hoon

Water Science & Engineering

Environmental Systems Engineering Laboratory [ESEL]
Prof. Kim, Joon-Ha http://esel.gist.ac.kr

Environmental Toxicology and Chemistry Laboratory [ETCL]
Prof. Kim, Sang-Don https://env1.gist.ac.kr/etcl/

Environmental Nanotechnology Laboratory [ENL]
Prof. Choi, Hee-Chul https://env1.gist.ac.kr/enl/

Water Quality and Treatment Laboratory [WQTL]
Prof. Lee, Yun-Ho https://env1.gist.ac.kr/wqtl/

Water Security Lab [WSL]
Prof. Changwoo Kim https://env1.gist.ac.kr/water/

Student Interviews

Name **RETA LILYANANDA PUSPASARI**
Nationality **Indonesia**
Program **M.S.**

How long have you been studying at GIST?

I have just finished my first semester in GIST. I really love the classes and feel satisfied with my grades as well. In one of the class, the professor gave us the opportunity to conduct a simple laboratory experiment. Not only did I learn a lot during the experiment, but I also used the opportunity to bond with other students. It was so fun!

What made you choose to study at GIST?

Before I applied for my master program, I searched many institutions in Korea, Australia, and Europe. For me, GIST is the most ideal option with a great university ranking, big scholarship, and comfortable living environment. So, I tried to contact my current laboratory professor and he arranged an interview on Zoom. From the interview, he was not only asking questions about my background and experience, but also introduced me to the Soil Environment Laboratory, GIST and Gwangju. Before I came to Korea, he also supported and helped me with my preparation to move here since it was not easy due to Covid19.

What are the best things about GIST?

I really love my professor and labmates because they treat me as a family. Before I even met them, I already fell in love with the buildings and parks inside of GIST. GIST is a very beautiful school with cherry blossom and maple trees. It is very beautiful in every season, especially Autumn.

Are you satisfied with the support you receive from GIST?

Besides the fully supported tuition fees, I also have been receiving more than enough monthly stipend. It not only covers my daily living costs, but it also gives me the chance to travel and experience nice things in Korea. So, I am very happy with the support.

What are your plans in terms of future studies and/or career after you complete your time at GIST?

As I started my career in a Canadian engineering consulting company before I took my master program, I plan to go back to the industry or join an NGO as an engineer after I graduate. Joining GIST, I have been given the opportunity to work on many interesting projects, as well as the project from World Health Organization. In addition to work on intriguing projects, I also collaborate with many experienced and very talented Professors, students and young professionals. I am certain that my experience in GIST will make me the person with plenty to offer as I graduate.

What advice would you give to new applicants hoping to enter a program at GIST?

GIST website is very helpful to gather the information about how to join GIST and its campus life. It also provides much information about the laboratory, research as well as the members. After finding the laboratory you are interested in, you can contact the professor directly as you can find their email address on the website. Also, you can contact GIST's admin and students by mail or on social media as they are very friendly as well. If you need any help, you can contact me too on KakaoTalk: RetaLily and Instagram: lilykoala_ I will be happy to provide some information for you and look forward to your email. Welcome to GIST!

School of

Life Sciences

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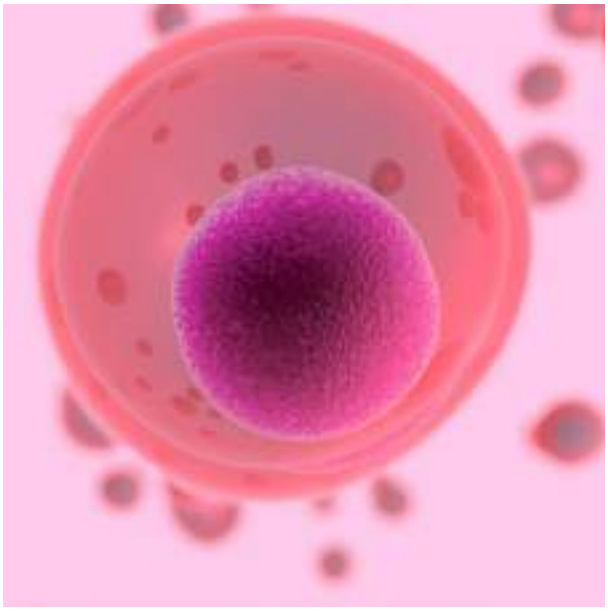
http://life.gist.ac.kr

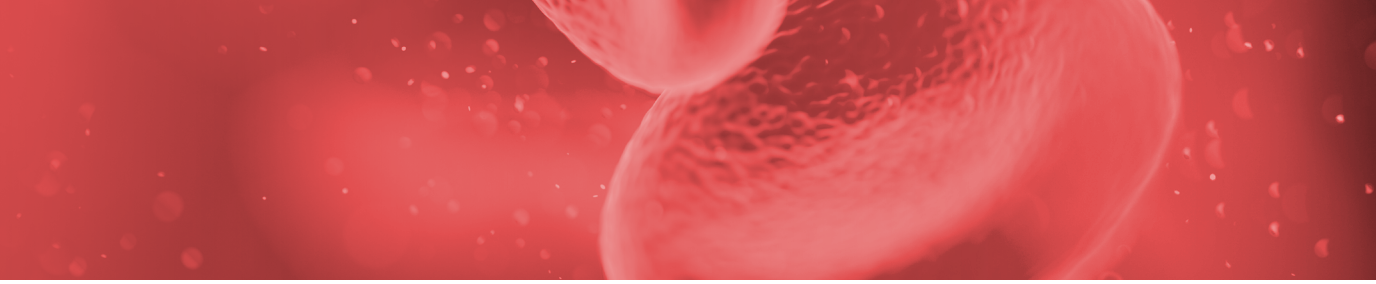
School of
Life Sciences



Life science is a field of science that studies the complex and mysterious phenomena of life. It is composed of thousands of physical and chemical principles. Therefore, a thorough understanding of basic sciences is essential for the efficient and successful study of life science.

A recent rapid progress in biochemistry and molecular biology has allowed us to examine the phenomena of life at the molecular level. Life science is considered to be a contemporary frontier science mainly because its methodological approaches are based on the most updated modern technologies and the outcomes of these studies have a potential to contribute immensely and widely to the well-being of human life.

The basic philosophy of this department is to study the complex phenomena of life through the use of modern molecular biological methods. The knowledge obtained from this basic research will be effectively used by the researchers in the applied fields.



Cell & Molecular Biology

- Cell dynamics imaging and logistics
- Cell aging and clearance
- Genomics and epigenomics
- Tumor metabolism and suppressor
- Gene therapy and new drug targets
- Osteoarthritis research

Biochemistry & Biophysics

- Protein structure and function
- Functional and medicinal proteomics
- Single molecule biology and cellular dynamics
- Membrane protein modulator and drug discovery

Neuroscience & Developmental Biology

- Regulation of neural circuitry and IT control
- Observation of germ cells and gene discovery
- Observation of vascular endothelial cells and vascular markers
- Brain engineering and neurodevices
- Molecular neurobiology

Immunology

- Immune synapse and cell therapy
- Regulation of cancer, autoimmune diseases
- Regulation of inflammatory diseases
- Dynamic interaction of immune system and stem cells
- Tissue regeneration and disease development

Faculty

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Jin, Mi-Sun Associate Professor	**Purdue Univ.** Ph.D. in Chemistry	misunjin@gist.ac.kr	+82-62-715-3562
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Choi, Jinwook Assistant Professor	**Seoul National Univ.** Ph.D. in Immunology	jinchoi@gist.ac.kr	+82-62-715-2504

Labs

Biochemistry & Biophysics

Protein Structure & Function Laboratory
Ph.D. Eom, Soo-Hyun https://xray.gist.ac.kr

Biomembrane Molecular Functional Modulator Discovery Laboratory
Ph.D. Kim, Jae-Il https://nmr.gist.ac.kr

Drug Discovery Laboratory
Ph.D. Kim, Yong-Chul https://ldd.gist.ac.kr

Functional and Medicinal Proteomics Laboratory
Ph.D. Park, Zee-Yong https://mass.gist.ac.kr

Single Molecule Biology & Cellular Dynamics Laboratory
Ph.D. Lee, Gwang-Rog https://smbio.gist.ac.kr

Membrane Protein Structural and Functional Biology Laboratory
Ph.D. Jin, Mi-Sun https://mpsf.gist.ac.kr

Neuroscience & Developmental Biology

Molecular Neurobiology Laboratory
Ph.D. Park, Chul-Seung https://mnl.gist.ac.kr

Reproductive Biomedicine and Gene Discovery Laboratory
Ph.D. Cho, Chung-Hee https://rbgd.gist.ac.kr

Neural Network and Transcriptomics Laboratory
Ph.D. Song, Mi-Ryoung https://ndl.gist.ac.kr

Molecular Neuroethology Laboratory
Ph.D. Kim, Young-Joon http://gistflylab.wix.com/gistlmn

Developmental Genetics Laboratory
Ph.D. Jin, Suk-Won https://dgl.gist.ac.kr

Immunology

Immune Synapse & Cell Therapy Research Laboratory
Ph.D. Jun, Chang-Duk https://isct.gist.ac.kr

Inflammation and Tissue Regeneration Laboratory
Ph.D. Choi, Jinwook https://life.gist.ac.kr

Cell & Molecular Biology

Cell Dynamics and Imaging Laboratory
Ph.D. Song, Woo-Keun https://cell.gist.ac.kr

Bio-Remodeling & Gene Therapy Laboratory
Ph.D. Park, Woo-Jin https://brgt.gist.ac.kr

Osteoarthritis Research Laboratory
Ph.D. Chun, Jang-Soo https://cdl.gist.ac.kr

RNA Genomics and Gene Epigenetics Laboratory
Ph.D. Shen, Hai-Hong https://gistrna.gist.ac.kr

New Drug Targets Laboratory
Ph.D. Darren Reece Williams https://ndtl.gist.ac.kr

Cell & Virus Logistics Research Laboratory
Ph.D. Jun, Young-Soo https://clar.gist.ac.kr

Cell Clearance Laboratory
Ph.D. Park, Dae-Ho https://cellclearance.gist.ac.kr

Cancer Biology Laboratory
Ph.D. Nam, Jeong-Seok https://lcb.gist.ac.kr

Tumor Metabolism and Therapeutic Oncology Research Laboratory
Ph.D. Steve K, Cho https://tmtor.gist.ac.kr

Functional Genomics Laboratory
Ph.D. Park, Ji-Hwan https://genomics.gist.ac.kr

Life Mining Laboratory
Ph.D. Lee, Sunjae https://lifemining.gist.ac.kr

Centers

Cell Logistics Research Center
Ph.D. Director. Jun, Young-Soo

Osteoarthritis Research Center
Ph.D. Director. Chun, Jang-Soo

Immune Synapse Research Center
Ph.D. Director. Jun, Chanu-Duk

Korea Drosophila Resource Center
Ph.D. Director. Kim, Young-Joon

Research Center for AI-Applied High Efficient Drug Discovery
Ph.D. Director. Kim, Yong-Chul

Cell Mechanobiology Research Center
Ph.D. Director. Lee, Gwang-Rog

Antiviral Research Center
Ph.D. Director. Jun, Young-Soo

Student Interviews

Name **Orjin Han**
Nationality **Germany**
Program **Ph.D.**

How long have you been studying at GIST?

I'm currently a 2nd year PhD student, so it's been a little over a year.

What made you choose to study at GIST?

During my time in the US (where I was working on my Master's thesis), I had the chance to meet some GIST graduates. They told me about their experiences at GIST and highly recommended a PhD course, here. At the same time, I also encountered my current PI, who is an Associate Professor at GIST as well as in the US. Talking to him personally, finally, convinced me to come to Korea.

What are the best things about GIST?

I was lucky to gain experience in diverse labs in Germany as well as in the US throughout college, but I have to say that GIST has one of the best facilities. The labs are modern and equipped with latest devices and utensils. Also, the buildings and the campus in general are very neat, so that you can enjoy a nice work as well as leisure environment.

Are you satisfied with the support you receive from GIST?

I think one of the best advantages GIST offers is that the tuition fee is waived and you can get financial support in several ways. I also really appreciate the support for international students in terms of events and activities.

What are your plans in terms of future studies and/or career after you complete your time at GIST?

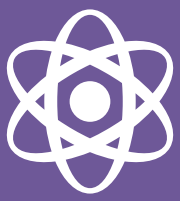
I definitely want to pursue the next step of my academic career as a psotdoctoral researcher.

What advice would you give to new applicants hoping to enter a program at GIST I guess, this depends on where you are coming from. Even though I have a Korean background, having lived my whole life in Germany, I can only say that everything is different!

Nevertheless, the experience you will make here will not only give you the opportunity to grow and mature in regard to work/education but you will also be able to broaden your horizon.

Department of

Physics and Photon Science



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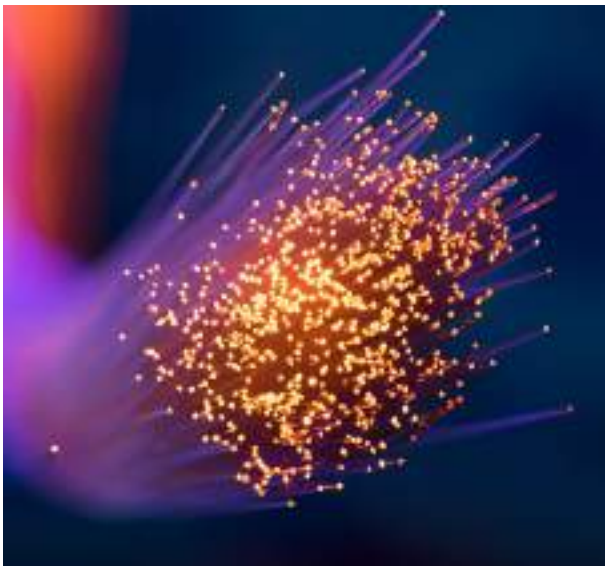
phys@gist.ac.kr

https://phys.gist.ac.kr/physeng/index.do

Department of
Physics and Photon Science

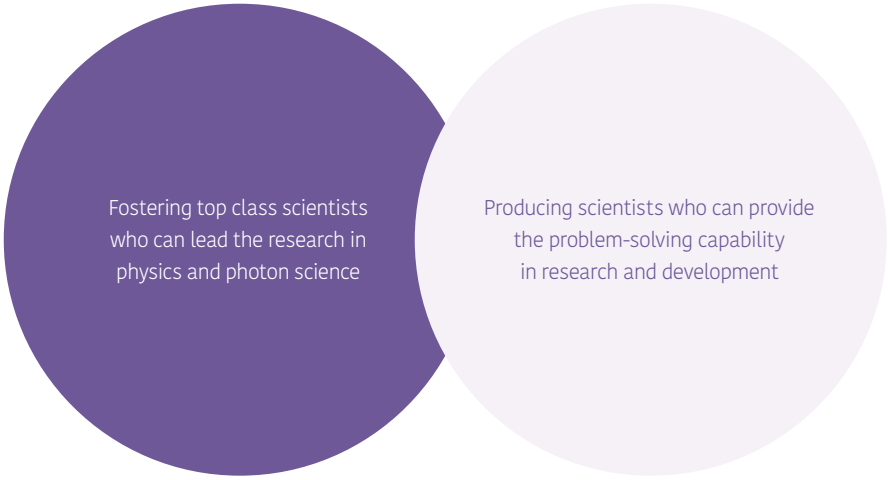


The Department of Physics and Photon Science at the Gwangju Institute of Science and Technology (GIST) aims at

· educating creative scientists in the field of physics and photon science
· conducting in-depth researches in the area of optics, plasma physics, condensed matter physics and particle physics, etc.

The Department of Physics and Photon Science was founded in the fall of 2012 to provide excellent education and research opportunities to graduate students in the field of physics and photon science, condensed matter physics and particle physics. The department has a short history, but we are growing very fast. The number of professors and graduate students will continue to increase for the next several years, and it will be a major department soon. At present, Department of Physics and Photon Science has strong research activities in the field of optics, plasma physics, condensed matter physics and particle physics.

Educational objectives



Participating organizations at GIST

Advanced Photonics Research Institute

Center of Relativistic Laser Science at IBS
(Institute for Basic Science)

Optics

- Attosecond science
- Quantum integrated photonics
- Relativistic Quantum Photonics
- Ultrafast optics and nonlinear optics
- Ultra High power lasers and high field laser science

Condensed Matter Physics

- Quantum device physics
- Surface science using X-rays
- Computational quantum physics
- Quantum information science and technology
- X-ray studies of nano condensed matter physics
- Optical spectroscopy for condensed matter physics

Plasma Physics

- Laser Fusion
- High energy density physics
- Intense laser and matter/Plasma interactions
- Particle acceleration and coherent radiations by laser plasmas

Particle Physics

- Gauge / gravity duality
- Field theory and string theory
- Gravitational understanding of strongly correlated systems

Faculty

RESEARCH AREA	NAME	EDUCATION	E-MAIL	PHONE
Optics	**Ko, Do-Kyeong** Professor	**Seoul National University** Ph.D. in optics	dkko@gist.ac.kr	+82-62-715-2227
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	Kim, Ki Yong Professor	**University of Maryland at College Park** Ph.D. in Physics	kiyong@gist.ac.kr	+82-62-715-4750
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	Suk, Hyyong Professor	**University of Maryland at College Park** Ph.D. in plasma physics	hysuk@gist.ac.kr	+82-62-715-3350
	Cho, Byoung-Ick Associate Professor	**University of Texas at Austin** Ph.D. in plasma physics	bicho@gist.ac.kr	+82-62-715-2879
Condensed Matter Physics	**Kim, Dong-Hee** Associate Professor	**KAIST** Ph.D. in Physics	dongheekim@gist.ac.kr	+82-62-715-2883
	Noh, Do-Young Professor	**Massachusetts Institute of Technology** Ph.D. in Physics	dynoh@gist.ac.kr	+82-62-715-2311
	Doh, Yong-Joo Professor	**POSTECH** Ph.D. in Physics	yjdoh@gist.ac.kr	+82-62-715-5921
	Mun, Bong-Jin Simon Dean, Professor	**University of California Davis** Ph.D. in Physics	bsmun@gist.ac.kr	+82-62-715-2882
	Yu, Un-Jong Associate Professor	**POSTECH** Ph.D. in Physics	uyu@gist.ac.kr	+82-62-715-3629
	Lee, Sang-Yun Assistant Professor	**University of Utah** Ph.D. in Physics	sangyunlee@gist.ac.kr	+82-62-715-5931
	Lee, Sung-Bae Assistant Professor	**Rice University** Ph.D. in experimental condensed matter	jaylinlee@gist.ac.kr	+82-62-715-3634

RESEARCH AREA	NAME	EDUCATION	E-MAIL	PHONE
Condensed Matter Physics	**Lee, Jong-Seok** Professor	**Seoul National University** Ph.D. in Physics	jsl@gist.ac.kr	+82-62-715-2222
Particle Physics	**Kim, Keun-Young** Professor	**State University of New York at Stony Brook, USA** Ph.D. in Physics	fortoe@gist.ac.kr	+82-62-715-3648

Full-teaching Professors

Particle Physics	**Park, Chan-Yong** Associate Professor	**Hanyang University** Ph.D. in Theoretical Physics	cyong21@gist.ac.kr	+82-62-715-5930
	Yang, Hyun-Seok Associate Professor	**Sogang University** Ph. D. Theoretical Physics	hsyang@gist.ac.kr	+82-62-715-5934

Distinguished Visiting Professor

Optics	**Nam, Chang-Hee** Professor	**Princeton University** Ph.D. in Plasma Physics	chnam@gist.ac.kr	+82-62-715-4701

Adjunct Professors

Condensed Matter Physics	**Hwang, Chi-Ok** Adjunct Professor	**Univ. of Southern Mississippi** Ph.D. in Scientific Computing	chwang@gist.ac.kr	+82-62-715-3627
Optics	**Kee, Chul Sik** Adjunct Professor	**KAIST** Ph.D. in Physics	cskee@gist.ac.kr	+82-62-715-3426
	Kim, Chul Min Adjunct Professor	**KAIST** Ph.D. in physics	chulmin@gist.ac.kr	+82-62-715-4710
	Shin, Woojin Adjunct Professor	**GIST** Ph.D. Information and Communications	swj6290@gist.ac.kr	+82-62-715-3343
	Lee, Yeung Lak Adjunct Professor	**Yeungnam University** Ph. D. in Applied Physics (Optics)	laks@gist.ac.kr	+82-62-715-3380

Labs, Centers

Optics

Laboratory for Ultrafast Nonlinear Optics (LUNO)
Ko, Do-Kyeong https://phys.gist.ac.kr/ultrafast/

Attosecond Science Laboratory
Kim, Kyung-Taec https://phys.gist.ac.kr/atto/

Intense Laser Matter Interaction Lab
Kim, Ki Yong

Plasma Physics

Laser Fusion Laboratory
Bang, Woo-Suk https://phys.gist.ac.kr/laserfusion/

Laser Plasma Acceleration Laboratory
Suk, Hy-Yong https://phys.gist.ac.kr/lpal/

High Energy Density Physics and Ultrafast X-ray Laboratory
Cho, Byoung-ick https://phys.gist.ac.kr/hedp/

Particle Physics

Field Theory and String theory Group
Kim, Keun-Young https://phys.gist.ac.kr/gctp/

Condensed Matter Physics

Computational Many-body Physics Group
Kim, Dong-Hee https://phys.gist.ac.kr/stat/

X-ray Laboratory for Nano Scale Phenomena (X-Ray Lab.)
Noh, Do-Young https://phys.gist.ac.kr/x-ray/

Nano-hybrid Quantum Devices Laboratory
Doh, Yong-Joo https://phys.gist.ac.kr/qdev/

Laboratory for Electron Spectroscopy for Surface/Interface Chemical Analysis (ESCA)
Mun, Bong-Jin Simon https://phys.gist.ac.kr/gistesca/

Computational Condensed Matter Physics Laboratory
Yu, Un-Jong https://phys.gist.ac.kr/ccmp/

Spin and Quantum Information Laboratory
Lee, Sang-Yun https://sites.google.com/view/gist-sqil

Nanoscale Electronic Devices Laboratory
Lee, Sung-Bae

Laboratory for Spectroscopy of Condensed matter Physics
Lee, Jong-Seok https://phys.gist.ac.kr/optogist/

Student Interviews

Name **Sara Arif**
Nationality **Pakistani**
Program **Ph.D.**

How long have you been studying at GIST?

I joined the GIST in March 2020, Now it is almost two and half years.

What made you choose to study at GIST?

The GIST physics department has some of the best laboratories to carry out experiments in fields like superconductivity, laser, etc. The environment is supportive, and proper training is provided to conduct experiments not only to make the process quick but also to enhance the skills needed for future experiments.

What are the best things about GIST?

GIST provides equal Opportunities not only to local students but also to foreign students. The on-campus facilities like dispensary, 24 hours shop, barber and café, and restaurants make like easy.

Are you satisfied with the support you receive from GIST?

GIST provides financial support which covers all the expenses of the student. This enables a student to only focus on their studies without worrying about the expenses.

What are your plans in terms of future studies and/or career after you complete your time at GIST?

I work in the field of superconductivity, I aim to continue my work as a researcher in the industry based on the skills I got during my program at GIST.

What advice would you give to new applicants hoping to enter a program at GIST?

Ph.D. is usually 4 years program mainly focused on a specific research area and it is an effort and time-consuming job. My advice for new students is to be sure about which research area they want to make a career in.

Department of

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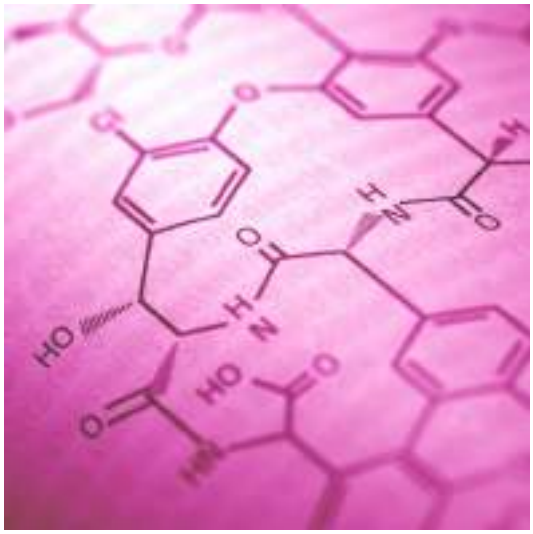
Department of **Chemistry**



Chemistry is a molecular science that attempts to understand and control the properties of substances and their reactions. Pioneering research is performed in the Department of Chemistry at GIST by the cooperative efforts of molecular scientists, who are involved in basic studies with the aim of understanding the fundamental properties of molecular world, and molecular engineers, who pursue creative applications of knowledge in the behavior of molecular systems. These research activities require a clos connection with physics and biological sciences. Applied methods and techniques obtained from studies in chemistry and molecular engineering can have an immense influence on various fields like material science, environmental science, medical and pharmaceutical sciences, agricultural science, and information technology. The graduate (M.S. and Ph.D.) program in GIST Chemistry aims to provide a suitable environment and necessary guidance to enable students to become independent scientists. The main focus of the program is research. Through active participation in original research, students can develop their creativity and become fully prepared for successful career in an academic or industrial field.

The Department offers in-depth programs of study in the major chemical disciplines (Organic, Inorganic, Physical, Analytical, and Biological Chemistry), as well as Nano-technology, Chemical Biology, and Materials Chemistry, and Nano-bioimaging.

Organic Chemistry

- Synthetic methodology and catalyst development
- Natural product synthesis
- Medicinal chemistry and drug discovery
- Molecular sensors and high-throughput screening
- Peptides and peptidomimetics

Fundamental understanding of chemical reactivity leads to the development of novel synthetic methods, which can be utilized for the effective synthesis of unprecedented molecular frameworks with novel functions. At GIST, synthetic studies on a variety of organic molecules are actively ongoing. These small or macromolecules have applications in the field of medicine, sensors, catalysts, and materials with a wide variety of functions. Collaborative research with other disciplines is actively undergoing to elucidate structures and properties of the new compounds.

Biological Chemistry

- Enzymology & biochemistry
- Structural biology
- Biosensors and bio-Instruments

The goal of biological chemistry is to advance our knowledge of the molecular mechanisms of biochemical processes by applying the principles of chemistry to biological systems. Research areas in the biological chemistry division encompass Structural Biology experiments on proteins and nucleic acids by using X-ray crystallography and NMR spectroscopy, and the development of biosensors utilizing nanodevices and optics. Our basic research findings are translated into the bases for medical applications in disease diagnostics and noble drug design.

Physical Chemistry

- Realtime 3D imaging
- Photochemistry and spin chemistry
- Time-resolved spectroscopy and dynamics
- Molecular dynamics simulations

Physical chemistry is a molecular level study of the physical properties and chemical reactions based on fundamental physics principles. It includes the development of new experimental techniques and applications to the investigation of the structures and dynamics of molecular systems. The physical chemistry division is pursuing advanced experimental and theoretical researches including ultrafast reaction dynamics, nonlinear optical imaging and spectroscopy, live-cell imaging, etc. These efforts are not only the limited to the elucidation of the fundamental chemical phenomena, but also aim to solve various impending problems such as energy, environment, and medical-nanobio imaging diagnosis and therapy in collaboration with other disciplines such as biology, medicine, and materials science.

Inorganic Chemistry

- Synthetic modeling of metalloenzyme active site
- Organometallic catalyst development
- Hybrid molecular material catalyst for the solar fuels research

Inorganic chemistry at GIST includes bioinorganic, organometallic, and solar fuels research topics. Synthetic modeling of the metalloenzyme active site provides fundamental understanding on the natural strategy to utilize coordination complexes in the enzyme activity. Synthesis of transition metal complexes can lead to the development of catalysts, promoting valuable organic reactions in the chemical industry. In another area of inorganic chemistry including materials, the integration of molecules with material surface can develop hybrid molecular materials to exhibit both merits of homogeneous and heterogeneous catalysts. The inorganic and molecular modification of Si semiconductor surface is ongoing research interest in the solar fuels research.

Analytical Chemistry

- Surface Analytical Chemistry
- Nanoscale Material Chemistry
- Biosensors and Bio-Instruments
- Electrochemistry

Analytical Chemistry is a branch of chemistry that deals with the separation, identification and quantification of chemical species. Analytical chemistry plays an important role in the various fields of natural science to characterize the properties of chemical compound and materials, such as chemical structures and compositions, which is based on the fundamental understanding of natural sciences. In the department of chemistry at GIST, we are studying surface plasmon resonance, fluorescence and biosensor using nanodevices. Also, we are trying to develop the synthetic methods for 2D nanomaterials like graphene and to fabricate the outstanding photoelectric devices with 2D nanomaterials. Our efforts on analytical chemistry do not only extend fundamental understanding, but also contribute to resolve social problems.

Faculty

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Kim, Jungwook Associate Professor	**Texas A&M University** Ph.D. in Chemistry	jwkim@gist.ac.kr	+82-62-715-4622
Kim, Min-Gon Professor	**Pohang University of Science & Technology** Ph.D. in Chemical Engineering	mkim@gist.ac.kr	+82-62-715-3330

NAME	EDUCATION	E-MAIL	PHONE
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Labs

Organic Chemistry

Organic Synthesis Lab
Prof. Chung, Won-jin https://orgsyn.gist.ac.kr

BioOrganic Chemistry Lab
Prof. Han, Min Su https://boc.gist.ac.kr

Biomimetic Materials Lab
Prof. Seo, Jiwon https://peptoid.gist.ac.kr

Medicinal Chemistry Lab
Prof. Ahn, Jin Hee https://mcl.gist.ac.kr

Functional Organic Molecules Synthesis Lab
Prof. Hong, Sukwon https://fos.gist.ac.kr

Physical Chemistry

Computational Chemistry Lab
Prof. Choi, Jun-Ho https://sites.google.com/view/comp-chem-gist

Quantum Chemical Simulation Lab
Kim, Hyun Woo https://sites.google.com/view/hwk-grp

Femtosecond Spectroscopy Lab
Prof. Pang, Yoonsoo https://femto.gist.ac.kr

Nanobio Photonics Lab
Prof. Lee, Kang Taek https://bpc.gist.ac.kr

Photonic Quantum Chemistry Lab
Prof. Lee, Hohjai https://hohjai.gist.ac.kr

Inorganic Chemistry

Chemical Nanoplasmonics Lab
Prof. Park, Jeong-Eun https://jeparklab.com/

Hybrid Catalysts Lab
Prof. Seo, Junhyeok https://inorg.gist.ac.kr

Biological Chemistry

Biosensors and Bio-Photonics Lab
Prof. Kim, Min-Gon http://bsbp.gist.ac.kr/

Structural Biochemistry Lab
Prof. Park, Chin-Ju https://bionmr.gist.ac.kr

Structure-Function Discovery Lab
Prof. Kim, Jungwook https://sfdl.gist.ac.kr

Analytical Chemistry

Nanoscale Surface Chemistry Lab
Prof. Lim, Hyunseob https://tetoslim.wixsite.com/nscl

Student Interviews

Name **Salsabila Salma Dienta**
Nationality **Indonesia**
Program **MS/Ph.D.**

How long have you been studying at GIST?

I entered GIST in Fall, of 2020. It has been almost 2 years since I studied at GIST.

What made you choose to study at GIST?

I had good impression during my internship when I was in my final year of undergraduate. GIST has suitable environment for doing research which makes its students easy to stay focus. Through the internship, I also found my interest in the field of lab I was working on.

What are the best things about GIST?

GIST offers some internship programs for international students who are in their final year of undergraduate or masters which can make it as a way to gain insight and more details about the lab's study field and working environment before deciding to continue study.

GIST's good reputation for its citation and publication makes GIST a best choice to develop students path career especially for those who want to pursue their career in research and academic.

What are your plans in terms of future studies and/or career after you complete your time at GIST?

After my graduation, I am going to apply some postdoc opportunities. Exploring science through research has always been my passion.

What advice would you give to new applicants hoping to enter a program at GIST?

The first thing that you need to know is your true motive in joining every single program held by GIST. The same goes when you are going to continue study, since every decision you take will have responsibility, make sure that you put a strong determination into the decision.

Department of

Biomedical Science and Engineering

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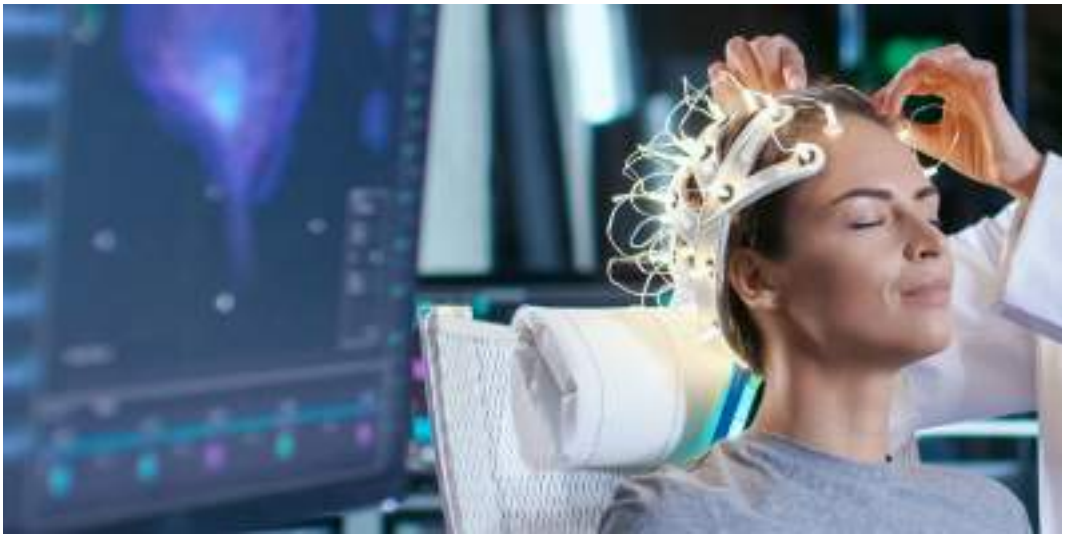
Department of **Biomedical Science and Engineering**



As a new multidisciplinary research and education program, the Department of Biomedical Science and Engineering(BMSE) was established in spring 2008 with the mission of promoting integrative researches in Biomedical Science and Engineering.

All faculty members of BMSE are recognized as world-class researchers in their specialties. The ongoing research topics include optical system design for biomedical applications, neuro signal analysis, neuromodulation, a study on sleep and consciousness, peroxisome and lipid metabolism, genomic medicine, aging and metabolic disease, and so on. In 2019, a multi-million dollar grant allowed BMSE to establish the "AI Center for Medical Science (AICMS)" with a goal to discover cancer-specific metabolic targets using artificial intelligence technology. AICMS will be a hub to integrate medical science with AI technology to produce new cancer therapeutic agents.

BMSE invites extremely energetic applicants pursuing advanced degrees (M.S., Ph.D.) in biomedical science and engineering. Especially, candidates who have majored in western or oriental medicine, as well as engineering or science backgrounds, are strongly encouraged to apply.

With world-class faculty members and collaborating physicians in affiliated hospitals, we provide BMSE students top-class educational opportunities to become a future professor, physician-scientist, biomedical researcher, or CEO/CTO in medical start-ups.

Immune & Metabolism

- Post-transcriptional Regulation of Immune System
- Anti-cancer Microbiome
- Regulation of Aging and Metabolic Stress
- Lipid Metabolism Dysfunction
- Cancer Metabolism

The research groups of Immune and Metabolism aim to unveil novel molecular pathways underlying immune and metabolic regulation, which may lead to development of new therapies for immune and metabolic disorders

Biophotonics

- Neurophotonics
- Next Generation Biophotonic Imaging
- Photomedicine as a diagnostic and therapeutic tool

Biophotonics covers a variety of research areas but BMSE at GIST focuses on developing next-generation biophotonic imaging technology, neurophotonics to uncover and modulate the brain function, and photomedicine to diagnose and to treat diseases.

Brain Science & Neuro Engineering

- Neuromodulation
- Neural Circuit Connectomics
- AI-based Brain Imaging & Signal Processing

In the division of science and neuroengineering, we are exploring the pathomechanisms of neurologic and psychiatric diseases in central nervous system (CNS) and the novel therapies for them. Specifically, state-of-the-art technologies, such as neuromodulation, neural connectomics, and AI-based processing of imaging data and biosignals, are actively applied to CNS disorders such as dementia, autism, sleep disorders, and cerebral infarction.

Faculty

NAME	EDUCATION	E-MAIL	PHONE
Cho, Jun Assistant Professor	**Seoul National Univ.** Ph.D. in Biological Sciences	juncho@gist.ac.kr	+82-62-715-5369
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Kim, Tae Assistant Professor	**Kyung Hee Univ.** M.D. in Medicine / Ph.D. in Psychiatry	tae-kim@gist.ac.kr	+82-62-715-5363
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Labs

Immune & Metabolism

Lab of Peroxisomes & Lipid Metabolism
Prof. Park, Rae-Kil https://bmse.gist.ac.kr/peroxisomes

Lab of Genomic Medicine
Prof. Park, Han-Soo https://bmse.gist.ac.kr/genomic-medicine

Lab of Molecular Biomedical Sciences
Prof. Cho, Jun https://bmse.gist.ac.kr/

Lab of Aging and Metabolic disease
Prof. Oh, Chang-Myung https://sites.google.com/view/cmohlab/home

Biophotonics

Lab of 3D Biomedical Image & Technology
Prof. Kwon, Hyuk-Sang https://bmse.gist.ac.kr/3dbit/

Theranostics by Electro Digital Technology Laboratory (TEDi Lab)
Prof. Kim, Jae Gwan http://biophotonics.gist.ac.kr

Lab of Neurophotonics
Prof. Chung, Eui-Heon https://bmse.gist.ac.kr/neurophotonics/

Brain Science & Neuro Engineering

Bio-Medical Information & Signal (BMIS) Lab
Prof. Lee, Bo-Reom https://bmis.gist.ac.kr

Lab of Translational Neuroscience
Prof. Kim, Tae https://t-neurolab.gist.ac.kr

Student Interviews

Name **Drew, Victor James**
Nationality **Unite State of America**
Program **Ph.D.**

How long have you been studying at GIST?

I entered GIST in Fall, 2017. While this was the start of my Ph.D. journey, this was actually my 3rd time in Korea. I attended two previous Global Village programs at Yonsei University in Wonju in 2011 and 2013.

What made you choose to study at GIST?

My experience in my Global Village programs made me interested in completing a Ph.D. in Korea. But it was the opportunity to study neuroscience, specifically Alzheimer's disease, through novel approaches and advanced technology that attracted me to GIST.

What are the best things about GIST?

In my experience, my lab is the best thing about GIST. I love everything about my lab. My professor is encouraging and supportive. I can talk to him about anything and he always gives helpful advice. I can always count on my labmates from the small things like translations to the larger things guidance with troubleshooting and learning research techniques. I am currently working on 3 interesting research projects that I find challenging and fulfilling.

Are you satisfied with the support you receive from GIST?

If we are talking about money, I am never really "satisfied". This question is a bit complicated because on one hand, I know I can earn more money with my skillset working for a company than in graduate school. On the other hand, I'm trying to focus my efforts on networking and mastering my skillset before worrying about how much I'm making for the time being.

What are your plans in terms of future studies and/or career after you complete your time at GIST?

I'm still considering my options for after graduation. My greatest goal in life is to achieve something that makes my time on earth relevant to humanity. I think I can accomplish this either working for a meaningful biotech company or furthering my career in advanced academic research. I'd like to pursue this goal in Korea if possible.

What advice would you give to new applicants hoping to enter a program at GIST?

You know those rumors about Koreans being smart and hard-working? They're true. So if you plan to earn a graduate degree from GIST, come prepared to work hard. That means many late nights and weekends. Graduate school is a choice to enter into a symbiotic relationship. Students are selected based on our ability to contribute (publications) to advancing GIST among the top-ranked schools in Korea. In return, GIST provides us with the resources to grow into elite researchers of our fields. Just keep this in mind.

School of

Integrated Technology

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School of
Integrated Technology

New convergence services based on connectivity, big data and artificial intelligence are at the heart of the Fourth Industry Revolution. The School of Integrated Technology aims to educate new talents that this revolutionary change requires. In order to develop students' potential creativity, the School proposes hands-on convergence training. From the proposal of the new system to the design, implementation and experimentation, students are able to lead their own creative education.

Graduate Program of Culture Technology

The Graduate Program of Culture Technology focuses on integration between communication media technology and culture, and aims to foster students so that they can become the professionals who lead Culture Technology (CT), by training them through specialized tracks, Digital Art & Exhibition Technology, Media Display Technology, and Trans-Media Storytelling. Digital Art & Exhibition Technology provides opportunity to students who want to build innovative media devices using recent culture technology, interface, and etc. Media Display Technology allows students to acquire core knowledge of related research fields (e.g., computer graphics, human-computer interaction, augmented and virtual reality). in the last track, Trans-Media Storytelling, students are able to study a variety of storytelling techniques to create trans-media contents. The enrolled students can choose a main track that matches their interests and goals, and also have opportunity of studying a variety of classes related to Culture Technology.

Graduate Program of Intelligent Robotics Technology

Educational Objectives

· Train specialists in intelligent robot-based fusion field by acquiring core technologies of artificial intelligence and intelligent robots
· Focus on Hands on Experience training using various practical infra
· Realistic education through participation in various actual research projects
· To create enabling technologies to solve real, everyday problems by investigating the relationship between computer technology, human activity and society at the intersection of HCI (Human-Computer Interaction) and Responsible AI (Artificial Intelligence)

Educational scope

· Acquisition of recognition, actuation, decision making and control technology, which is the overall core technology related to intelligent robots
· Education of basic technology related to artificial intelligence
· Acquiring of Design, Control and Manufacturing technology for Rehabilitation and Wearable Robots
· Developing innovative research topics such as medical robotics, micro-nano-robots navigation, magnetic hyperthermia, and soft robotics.
· Learning of 3-D position recognition, navigation, Human Robot Interaction, ICT linking technology, which is a convergence technology related to intelligent robotInteraction, ICT linking technology, which is a convergence technology related to intelligent robot
· Participating in sponsored R&D projects in the field of HCI (Human-Computer Interaction), HCDE (Human Centered Design & Engineering), IMWUT (Interactive, Mobile, Wearable, Ubiquitous Technology), Future Mobility & Automotive UI/UX, including XR and Metaverse Apps.

Faculty

RESEARCH AREA	NAME	EDUCATION	E-MAIL	PHONE
Culture Technology	**Hong, Jin Hyuk** Assistant Professor	**Yonsei University** Ph.D. in Computer Science	jh7.hong@gist.ac.kr	+82-62-715-5343
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	Moon, Bochang Associate Professor	**Korea Advanced Institute of Science and Technology** Ph.D. in Computer Science	bmoon@gist.ac.kr	+82-62-715-5341
Intelligent Robotics Technology	**Kim, Seung Jun** Associate Professor	**GIST** Ph.D. in Mechatronics	seungjun@gist.ac.kr	+82-62-715-5331
	Lee, Kyoobin Associate Professor	**Korea Advanced Institute of Science and Technology** Ph.D. in Mechanical Engineering	kyoobinlee@gist.ac.kr	+82-62-715-5333
	Yoon, Jung Won Professor	**GIST** Ph.D. in Mechatronics	jyoon@gist.ac.kr	+82-62-715-5332

Labs, Centers

Culture Technology

Soft Computing & Interaction Lab
Prof. Hong, Jin Hyuk https://iit.gist.ac.kr/sci/

Cognition and Intelligence Lab
Prof. Kim, Kyung-Joong https://cilab.gist.ac.kr/

Computer Graphics Lab
Prof. Moon, Bochang https://cglab.gist.ac.kr/

Intelligent Robotics Technology

Human-Centered Intelligent Systems Lab
Prof. Kim, Seung Jun https://sites.google.com/view/gist-hcis-lab

Artificial Intelligence Lab
Prof. Lee, Kyoobin https://iit.gist.ac.kr/ailab/

Intelligent Medical Robotics Lab
Prof. Yoon, Jung Won https://iit.gist.ac.kr/medrobotics/

Student Interviews

Name **Cao, Luu Thanh**
Nationality **Vietnam**
Program **Ph.D.**

How long have you been studying at GIST?

I have been enjoying my study at GIST for one and a half years.

What made you choose to study at GIST?

There are 3 main points making me choose GIST for my study: professional research environment, financial supports and married students housing.

What are the best things about GIST?

I think professional research environment is the best thing at GIST. I have been well supported by my kind professor and friendly lab mates.

Are you satisfied with the support you receive from GIST?

As I said, married students housing is the support I have satisfied the most because it helps married students like me to focus on my research without considering daily living of my family.

What are your plans in terms of future studies and/or career after you complete your time at GIST?

Korea is the developed country. Therefore, I will try to find a stable career as a researcher or professor after completing my study. This helps my children study and live such a good education.

What advice would you give to new applicants hoping to enter a program at GIST?

You should be well-prepared in knowledge and spirituality to enjoy and study in a professional research environment like GIST.

Graduate School of

Energy Convergence

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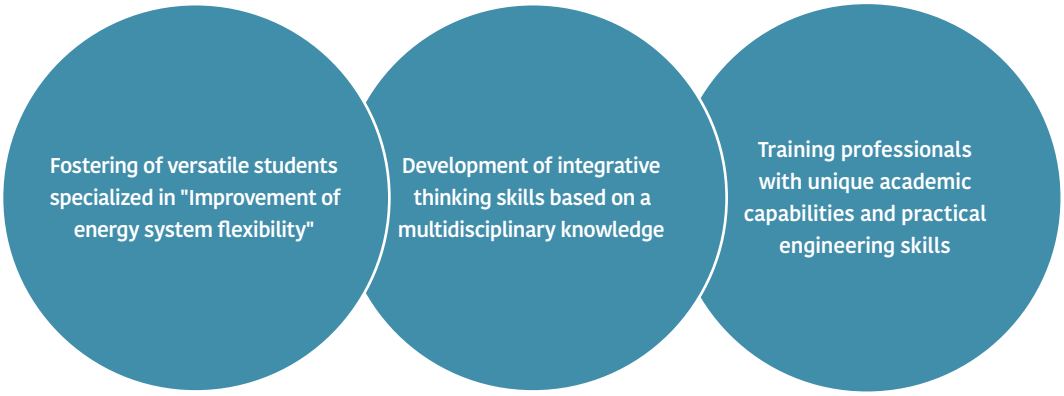
https://flexenergy.gist.ac.kr/flexenergyeng/

Graduate School of Energy Convergence

The graduate school of energy convergence aims at raising the creative talent of its members in order to actively adapt to the upcoming change of energy environment and to realize an energy welfare society based on sustainability. To this end, the converging foundation for education and research is offered to connect and unify diverse members, whose original fields can be electrochemistry, nano-materials (associated with renewable energy and energy storage), power electronics, power system, network technology (related to efficient and active management of electric grid), energy environmental engineering, humanities, social sciences, economics (for elevating value and contribution of energy to human society), and so on. The graduate school of energy convergence is expected to be contributive to the flourishing and enrichment of related industries like BitGaRam Energy Valley by developing practical and advanced energy technologies.



Educational Objectives

Training of versatile students

- Improvement of energy system flexibility
- Problem-solving ability
- Practical engineering skills

Accelerating the growth of new industries

- Patent/Technology Transfer
- Fostering startups
- Networking with enterprises

Research

Energy Technology

Driving innovation in energy technology through innovative researches in renewable energy, eco-friendly hydrogen/electric vehicles, and smart power grids

- Energy Conversion and Storage
- Energy Informatics
- Power Electronics, Power System, Power Economics
- Sustainable Energy (Nano Materials and Energy Environments)

Faculty

NAME	EDUCATION	E-MAIL	PHONE
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Kim, Sangryun Assistant Professor	**Tokyo Institute of Technology** Ph.D. in Electronic Chemistry	sangryun@gist.ac.kr	+82-62-715-5328
Kim, Yun Su Associate Professor	**Seoul National University** Ph.D. in Electrical Engineering and Computer Science	yunsukim@gist.ac.kr	+82-62-715-5327
Pak, Chanho Professor	**Korea Advanced Institute of Science and Technology** Ph.D. in Chemistry	chanho.pak@gist.ac.kr	+82-62-715-5324
Park, Yong Soon Associate Professor	**Seoul National University** Ph.D. in Electrical Engineering and Computer Science	yongsoon@gist.ac.kr	+82-62-715-5326

Labs, Centers

Power System Economics Lab
Prof. Kim, Jin Ho https://psel.gist.ac.kr/psel/

Solid-state Chemistry & Energy science Lab
Prof. Kim, Sangryun http://www.ssce-gist.com

Power Systems Lab
Prof. Kim, Yun Su https://psl.gist.ac.kr/psl/

Energy Catalyst and Device Lab
Prof. Pak, Chanho https://catalyst.gist.ac.kr/

Power Electronics Research Lab
Prof. Park, Yong Soon https://perl.gist.ac.kr/perl/

Student Interviews

Name **Hoang Van Manh**
Nationality **VietNam**
Program **M.S.**

How long have you been studying at GIST?

II have been at GIST for 4 semesters.

What made you choose to study at GIST?

At first, a professional research environment and good financial supports are 2 major points making me choose GIST. Now, the kindly labmates make me feel I was right to be in here.

What are the best things about GIST?

To be an MS Student, I think a professional environment with friendly labmates and a kind professor is the best thing at GIST. They give me the best support for my research life.

Are you satisfied with the support you receive from GIST?

I am satisfied with the support provided by GIST.

What are your plans in terms of future studies and/or career after you complete your time at GIST?

After M.S. completion, I have a plan to come back to my country and keep working with all the things I have learned here.

What advice would you give to new applicants hoping to enter a program at GIST?

You should plan your study and prepare spirituality to enjoy a professional research environment like GIST.

AI Graduate School

+82-62-715-6350

ai@gist.ac.kr

https://ai.gist.ac.kr

School of AI Graduate

GIST Artificial Intelligence (AI) Graduate School, pursuing the comprehensive understanding of artificial intelligence in cooperation with researchers from fields of variety, aims to promote outstanding talent of integrated AI who are capable of creating new common values developed from innovative solutions to confronted problems in industries, via commercialization and startups that can effectively utilize them. In pursuit of the aforementioned objectives, the school has manifested two plans, T.R.A.I.N. and G.I.S.T. AI for X. T.R.A.I.N. will help students Teach themselves in Recreations and become Adapted to the environment of Industries, ultimately generating New values; G.I.S.T. AI for X, on the other hand, inspires students to Generalize and Integrate core technologies of AI in a Safe/Swift manner with sufficient Transferability, based on which joint studies on the common purposes of the society, including healthcare, automobile, and energy issues, can be successfully conducted.

Our primary goal is to promote the next generation of integrated AI talent who owns the following traits that are adapted to the compound body of industries, institutes, and universities: 1. Ability to discover unprecedented problems in industries and exploit various AI technologies to solve them effectively. 2. Technological knowledge that, aided by creative thinking, enables high performance for research and development in corporations. 3. Skill to communicate with people from various backgrounds of study and understand the actual mechanism of industries, thus stimulating businesses and startups with AI technologies.

There are 7 full-time professors in our school, who are experts on research and education and professionals in the fields of traditional AI such as machine learning, deep learning, evolutionary learning, computer vision, data mining, natural language processing, and network reinforcement learning. Their outstanding achievements in these fields have led to prominent advances in integrated AI technologies regarding healthcare, automobile, and enerw. The effort to gradually enhance our research capability to allow students to stay creative and adventurous has recently met with 5 advancing professors in AI joining us post the second half of 2018, along with 2 senior professors who have successfully supervised their students for over 10 years.

The full-time professors, with a general manager himself, have published 146 papers in the last 5 years, 91 of which are related to the topics in AI. They add up to 350 impact factor points, demonstrating the global-standard excellence of the AI researches involved. In addition, the full-time professors have produced 42 graduates, 28 in their Master's and 14 in their Doctorate degrees, in the last 3 years, and have participated in numerous research projects that include expenses in the amount of 7 billion Won in total. The 5 recently invited professors, in particular, have experience of conducting researches in the worldwide AI institutes such as Carnegie Mellon University, Max Plank Institutes, and Allen Institute for AI. They have also been recognized with their research capability, proven with numerous publications in the top AI conference proceedings including CVPR, ICCV, ECCV, CHI, ICML, and ICLR.

AI Core

- Machine Learning
- Evolutionary Computation
- Natural Language Processing
- Computer Vision

AI core mainly aims at designing and improving fundamental technologies and algorithms in artificial intelligence to accomplish generalizable, integrated, safe, and transferable AI. These core improvements lead to the Human-like AI and Super-human AI, which contributes to applications in various area including automobile, healthcare, and energy.

AI for Automobile

- Robotics
- Computer Vision
- Autonomous Driving
- Tangible AI for In-Vehicle UX

AI for automobile is settled to build an automobile system that implements object recognition, safe driving, and human-centered intelligence. In specific, integrated technologies of sensor fusion and object recognition contribute to safe driving that is robust to environmental variances. Human-centered intelligence designs an autonomous vehicle system that supports a driver in driving and infortainment services with less physical and mental workload through in-depth verification of human-computer interaction and psychophysical analysis.

AI for Healthcare

- Disease Prediction and Diagnosis
- Bioogical Cell Simulation and Medicine
- User Interface Design in Virtual / Augmented Reality
- AI for Drug Development
- Brain Engineering

The fundamental goals for healthcare in AI are prevention, diagnosis, and therapy of diseases. By using data captured from biological multimodal sensors, healthcare AI diagnoses diseases at the early-stage and reduces costs and time for developing drugs. Also, it helps medical experts find the best therapy or provides potential therapy for personalized medicine.

AI for Energy

- AI Infrastructure
- Reinforment Learning in Networks
- AI for Energy Informatics
- Smart Energy System

AI for energy are designing AIs that monitor and manage energy for efficient, smart, and safe energy usage. In energy monitoring, integrated data monitoring AI collects and analyzes renewable and behind-the-meter energy data collected from a hierarchically structured system. Energy management utilizes machine learning techniques including decision tree and SVM to maximize prosumers' profit. Safe AI for Energy predicts failures of energy production facilities, proposes strategy for fast and efficient recovery from disasters, and provides management guidelines for robust energy supply.

Faculty

NAME	EDUCATION	E-MAIL	PHONE
Ahn, Chang-Wook Professor	**Gwangju Institute of Science and Technology (GIST)** Ph.D. in Information & Communication Eng.	cwan@gist.ac.kr	+82-62-715-2661
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Kim, Jong-Won Professor	**Seoul National Univ.** Ph.D. In Control & Instrumentation Eng	Jongwon@gist.ac.kr	+82-62-715-2219
Kim, Kang-Il Assistant Professor	**Seoul National Univ.** Ph.D. in Computer Science and Engineering	kikim01@gist.ac.kr	+82-62-715-2260
Kim, Ue-Hwan Assistant Professor	**Korea Advanced Institute of Science and Technology (KAIST)** Ph.D. in Electrical Engineering	uehwan@gist.ac.kr	+82-62-715-6384
Park, Gun-Hyuk Assistant Professor	**Pohang University of Science and Technology** Ph.D. in Computer Science and Engineering	maharaga@gist.ac.kr	+82-62-715-2261
Son, Jeany Assistant Professor	**Pohang University of Science and Technology** Ph.D. in Computer Science and Engineering	jeany@gist.ac.kr	+82-62-715-6381

Labs, Centers

Meta-Evolutionary Machine Intelligence (MEMI) Laboratory
Ph.D. Ahn, Chang-Wook https://sites.google.com/view/gist-memi/

Visual AI Laboratory
Ph.D. Jeon, Hae-Gon https://sites.google.com/site/hgjeoncv/

Networked Intelligence Laboratory
Ph.D. Kim, Jong-Won https://netai.smartx.kr/

Intelligence Representation and Reasoning Laboratory
Ph.D. Kim, Kang-Il https://irrlab.github.io/

Autonomous Computing Systems Laboratory
Ph.D. Kim, Ue-Hwan https://uehwan.github.io/

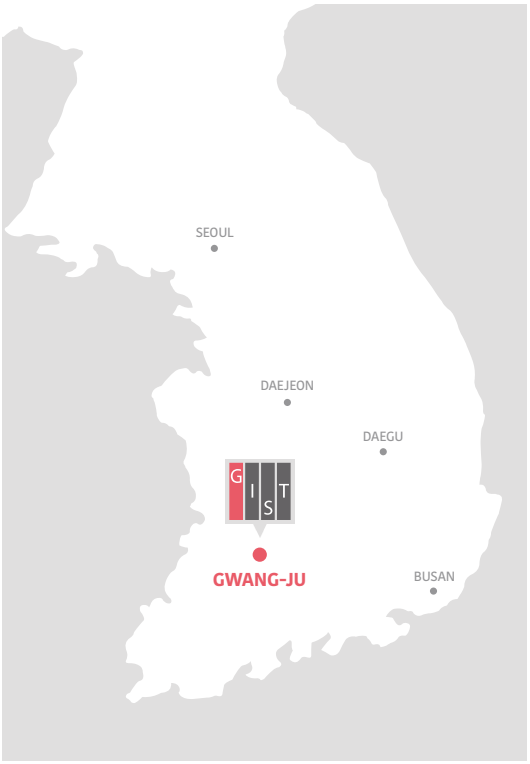
Haptic Assistive Media Laboratory
Ph.D. Park, Gun-Hyuk https://www.hamgist.net

Visual Recognition and Learning Laboratory
Ph.D. Son, Jeany https://jeanyson.github.io/lab/

GENERAL Information

- About Gwangju City
- Research Institute
- Support Facilities
- Global Intern Program
- GIST Campus Map
- GIST History

About Gwangju City



Gwangju City is located in central Honam, which is in the southwest of the Korean Peninsula, the center of Northeast Asia. It borders Damyang County on the northeast, Jangseong County on the north, Hampyeong County on the west, Naju City on the south and Hwasun County on the southeast. Gwangju is the largest metropolitan city that represents the southwestern region.

Gwangju extends from Nam-gu Seungchon-dong (35˚03'' north latitude) in the south to Sanpo-myeon, Youngsan River to Buk-gu Yongkang-dong (35˚15'' north latitude) in the north. On the east side of Biseonggul, Buk-gu Chunghyo-dong forms the eastern boundary (127˚00'' east longitude) of the city. The city extends 34.3 km. from east to west and 23.1 km. from north to south. Cities located on similar latitude lines are Busan and Jinhae in Korea, Tokyo in Japan, Jungsen in China, Algiers in Algeria and Oklahoma City in the U.S. Seoul is located on a similar longitude.

Geographically, Gwangju is situated in the north of Jeollanam-do, centered in Honnam province, serving as a hub of economy, administration, education and culture, including some parts of Jeonbuk. Surrounding Gwangju, there has been development toward Mokpo going through agricultural areas and towards Wando in terms of the bounty of agricultural products, towards Yeosu extending to Gwangyang international container ports and towards Namwon connecting Yeongnam. Likewise, Gwangju is located in the center of the six directions of the Honnam region, providing opportunity for geographical development into the hub of Honnam province.

The city is located in the median latitude maritime temperate climate zone. Its climate is somewhere in-between the west coast climate and the continental climate but is more similar to the west coast climate, which means that the city is warm and has sufficient rainfall. Winter is cold and dry, while summer is hot and humid. It has four distinct seasons. Recently, due to climate change, spring and fall have been shorter, presenting characteristics of a semi-tropical climate.

In terms of accessibility, Gwangju City has excellent transportation infrastructure, such as flights, rails and expressways, which enable a round trip to major cities, including Seoul, Incheon, and Busan within a day. The distance between Gwangju and Seoul is 290.9km (182 miles) which takes 55 minutes by plane, 1.5 hours by KTX (Korean High Speed Rail), and 3.5 hours by car. The distance between Gwangju and Incheon, a gateway to Korea, is 311.4km (194 miles), which takes 4 hours, 10 minutes by car, whereas the distance between Gwangju and Busan is 286.8km (178 miles), which takes 3 hours, 50 minutes by car.

Historically, Gwangju has cultivated a philosophical and cultural environment as a city of spirit, art and taste. It is a city of democracy, human rights and peace which has shown its spirit in many movements, including those in the late Joseon Dynasty, the Gwangju Students Independence Movement during the Japanese occupation of Korea and the May 18th Gwangju Democratic Uprising. In addition, Gwangju is a city of art and is moving forward as a hub of culture in Asia, following the hosting of the Gwangju Biennale and Design Biennale, which are international cultural festivals. Along theses lines, Gwangju has developed as a 21st century Northeast Asian country by nurturing the next generation of strategic industries represented by the LED industry, New Energy industry and the cultural content industry.

Research Institute

APRI (Advanced Photonics Research Institute)

National Strategic R&D, Industrial Support, Academic Excellence of APRI

APRI has been undertaking world-class research activities in the area of optical science and photonics technology, supported by world's best 1.5 Peta Watt ultra-intense laser system, as well as the state-of-the art research facilities. APRI's researcher are currently carrying out R&D project based on the basic laser science, national strategic research and photonics technology required for industry, and aiming, through research excellence, to continue their leading role that moves APRI to the next level in laser and photonics technology.

KCTI (Korea Culture Technology Institute)

Leader of creative convergence research for the development of cultural contents and state-of-the-art medium for communication KCTI carries out R&D activities on efficient state-of-the-art media devices in order to promote the communication of cultural elements based on media communication technologies, and creates outcomes for communication through the convergence of humanities, science, engineering, design and art. We suggest the direction of how to develop heart-touching communication method, and focus on the development of listener-centered story telling, interaction tools (to enable exploration and participatory acceptance), and media devices for active communication (sculpture, installation and video contents) for more efficient communication.

RISE (Research Institute for Solar and Sustainable Energies)

RISE leads global R&D efforts towards next-generation energy

The aim of the Research Institute for Solar and Sustainable Energies (RISE) is to be the growth engine which can lead a technology and national competitiveness in the future by securing the core technologies for the next generation energies and future energy industries. Specific research areas of RISE include high efficient flexile thin film solar cells, electrochemical cells, plastic solar cells, and platform technologies for plastic electronics.

GRI (GIST Research Institute)

GRI is designed for the convergence of GIST's research group.

GRI aims to maximize GIST's outstanding research capabilities and infrastructure to support researcher so that they can perform cutting-edge research which has the potential to improve humanity and change the world. To achieve these goals, GRI is providing a variety of educational programs and research opportunities that encourage communication among various research group and academic institutions.

IERI (International Environmental Research Institute)

IERI contributes to solving environmental problems and adapting to the climate change in developing countries though Research, Education and International Collaboration

Since the inauguration in 2001 towards the establishment of the UNU-ISTS, IERI has been focused on the activities of Research, Education and International Collaboration to fulfil the objectives; to carry out and promote research and training on science and technology for sustainability, to undertake information dissemination and advisory services through international environment information network and to benefit all those, especially in developing countries, on environmental management and sustainable development.

ARI (Aging Research Institute)

BIC utilizes Bio Imaging Technology that requires multidisciplinary efforts to record and analyze biological phenomenon of living organisms at a nanoscale.

· Bioimaging Research Center

· Cell Dynamics Research Center

· System Biology Research Center

GIST-Caltech (GIST-Caltech Research Center)

Through the collaborative research between GIST and Caltech, GIST is trying to develop future technologies

GIST-Nobel (Nobel Research Center)

Nobel Research Center is where Nobel prize laureates, GIST professors and GIST students conduct joint-research. GIST students & research groups are co-working with 6 Nobel prize laureates in 6 specialized research fields resulting in securing research competitiveness and leading globalization of research.

Ertl Center for Electrochemistry and Catalysis

PEOPLE

· Director Gerhard Ertl (2007 Nobel Prize in Chemistry)
· Vice-Director Lee Jae young (GIST professor of Environmental Science and Engineering)

RESEARCH SUBJECT

· Alkaline Water Electrolysis and Liquid Fuel Cells
· Fuels from CO2 · Oxygen Electrocatalysis

Heeger Center for Advanced Materials

PEOPLE

· Director Alan J. Heeger (2000 Nobel Prize in Chemistry)
· Vice-Director Lee Gwang Hee (GIST professor of Materials Science and Engineering)

RESEARCH SUBJECT

· Plastic Solar cell · Organic thin-film transistor
· Organic Light Emitting Diodes · Printing Technology

Grubbs Center for Polymers and Catalysis

PEOPLE

· DirectorRobert H. Grubbs (2005 Nobel Prize in Chemistry)
· Vice-DirectorLee Jae Suk (GIST professor of Materials Science and Engineering)

RESEARCH SUBJECT

· Development of New carbine ligand/catalyst
· Synthesis of functional high polymer using Grubbs' catalyst
· Development of eco-friendly synthesis method
· Preparation of controlled nanostructures

Grünberg Center for Magnetic Nanomaterials

PEOPLE

· Director Peter A. Grünberg (2007 Nobel Prize in Physics)
· Vice-Director Cho Beong ki (GIST professor of Materials Science and Engineering)

RESEARCH SUBJECT

· Brillouin light scattering spectroscope (BLS)
· Magnetic devices and Magnetic thin film
· Spintronics

Amano Center for Advanced LEDs

PEOPLE

Honorary director Hiroshi Amano (2014 Nobel Prize in Physics)
Vice-Director Lee Dong Sun (GIST professor of Information and Communications)

RESEARCH SUBJECT

· GaN nanostructure-based LED
(Core-shell InGaN nanorod LED, Lift-off for flexible LED)
· GaN nanomembrane-based FET
(Ultra-thin GaN nanomembrane, GaN-on-Si hetero-junction FET)
· Integration of optoelectronic devices
(Monolithic integration, Double-sided integration)

Steitz Center for Structural Biology

PEOPLE

· Director Thomas A. Steitz (2009 Nobel Prize in chemistry)
· Vice-Director Eom Soo Hyun (GIST professor of Life Sciences)
· Wang Ji min (Director of Yale Univ. Structural Biology Center)

RESEARCH SUBJECT

· Structural and functional studies of the central
dogma system including DNA replication, transcription and translation
· Three dimensional protein structure-based drug design
(anti-bacterial, anti-viral, and anti-cancer agents)
· Structural and functional studies on the mechanism of proteosomal degradation
· Structural and functional studies of the mitochondrial calcium uptake system

School of Electrical Engineering and Computer Science

· Center for Distributed Sensor Network
· Center for Hybrid optical Access network
· Center for Integrated Access Systems
· Center for Optimal Dementia Care Technology Research
· Center for Photon Information Processing
· Gwangju Digital Consumer Electronics Center
· Intelligent Sensors Research Center
· Photonics Research Facility Center
· Realistic Broadcasting Research Center
· Senior Technology Complex Project Center
· Smart Software Research Center
· SuperComputing Center
· The Electronic Warfare Research Center

School of Earth Sciences and Environmental Engineering

· Advanced Environmental Monitoring Research Center
· Environmental Analysis Center
· Global Desalination Research Center
· Long-term Marine Ecological Research Center
· PM2.5 Integrated Characterization Center
· Sustainable Water Resource Technology

Department of Physics and Photon Science

· Center for Advanced X-ray Science
· Center for Extreme Light Applications

School of Materials Science and Engineering

· Center for Emerging Electronic Devices and Systems
· Consortium For Southwest Touch Industry Development
· Nano Technology Research Center
· Research Center for LightoEmitting Diode
· The GIST-ICL International Collaboration R&D Centre

School of Mechanical Engineering

· Center for Unmanned Autonomous Aerial Vehicles
· Haptics Technology Research Center
· Immersive Contents Research Center
· Intelligent Welfare Robot Research Center

Department of Biomedical Science and Engineering

· Institute of Medical System Engineering

School of Life Sciences

· Immune Synapse Research Center
· Silver Health Bio Research Center

Support Facilities

Section of International Cooperation SIC

Section of International Cooperation serves both the international and Korean community of GIST students and scholars. Our mandate is to enhance international collaborations between GIST and universities/organization abroad. SIC also promotes mutual understanding among students and scholars of differing cultural backgrounds, and values. The mission of SIC is to create an international atmosphere for Korean students and assist international students with successful academic and cultural experience at GIST.

Our goal is to develop GIST into a truly international campus where English is the official language for everyone. We welcome all Korean, international students, visiting scholars, faculty and researchers. We look forward to serving you and hope your experience at GIST is valuable and productive.

The current programs and services include :

- International student advising services : New student orientation, Alien registration, Immigration, Health insurance etc.
- Cultural Functions: Annual Culture Night
- GIST Global Intern Program (GIP)
- GIST promotion materials: Brochures, Leaflets, GIST Newsletter, Weekly News, etc.
- International collaborations and MOU

Language Education Center

The Language Education Center (LEC) was instituted in March 2015, when the former English Education Center expanded by integrating the Korean Program, in order to consolidate language education and related services for both Korean and international, undergraduate and graduate students across the GIST campus.

Here at the GIST Language Education Center, we provide both English and Korean language courses according to students' needs and skills levels. Our English courses help students learn English as a formidable tool for expanding the limits of their knowledge and thinking. We envision a campus where English is no longer an obstacle for students, where students feel empowered and emboldened by their abilities in English, and where they can use English as a springboard for their continued academic and personal success. The Korean courses are an important component of the new LEC, serving the international students and members of GIST. The Korean courses provide international students with language education that is relevant to their double needs to function in their academic activities and adjust to Korean culture at large.

The purpose of the LEC is to provide all GIST students with the best learning environment to help achieve GIST's vision for higher education in science and engineering. Through our staff of dedicated and experienced teachers, we provide courses and special programs that allow students to develop and grow academically, while also offering individual opportunities for self-reflection and discussion via our Clinic services.

The current programs and services include :

English Courses

[Graduate]

- **English 1**
  Introduction to Academic Communication
- **English 2**
  Research Writing in Science and Engineering
- **English 2**
  Academic Presentation

[Undergraduate]

- **English 1**
  Study Skills for Freshmen
- **English 1**
  Presentation and Discussion
- **English 2**
  Introduction to Academic Writing in Science and Engineering
  Debate and Argumentation for Scientists
- **English 3**
  Undergraduate Research Writing in Science and Engineering

Korean Courses

[Graduate]

- **Korean I Beginner**
- **Korean II Low Intermediate**
- **Korean III High Intermediate**
- **Intensive Korean (summer only)**
- **Korean IV Advanced (non-credit)**

Others

- **English Clinic**
  free one-on-one English practice by appointment
- **English Workshops**
  skills-building workshops on practical topics
- **GIST College Camp for the Incoming Freshmen**
- **Special lecture series in research writing and publication in science and engineering (for graduate/on demand)**


Central Library & LG Library

Central Library & LG Library

GIST has two modern library buildings. The vast selection or resources includes books, journals (electronic and hard copy), DVD titles, CD-ROM titles, and other materials. The GIST online library enables you to conduct a keyword search of all types of library materials through the Internet. Through this service, you can easily access the information from 29,400,000 articles issued from over 36,000 journal titles. After you view information in a specific journal, you may send a full text request online. The full texts of any academic periodicals not available at GIST can be obtained through the interlibrary copy services, which includes the 160 major Korean higher educational institutes in the area of science and technology, and the British Library Document Supply Centre. GIST is the first to develop an updated delivery system for journal contents, resource sharing system, and library ASP (Application Service Provider) system, and takes a leading role in providing researchers studying the newest fields with the best information service.


Oryong Hall

Oryong Hall

Oryong Hall is a four-story building equipped with sophisticated facilities and equipment to hold various events such as lectures, seminars and workshops. Main facilities include an auditorium (518 seats), multipurpose hall (180 seats), 9 lecture rooms, 5 conference rooms and restaurant.


Student Union Bldg

Student Societies and Associations

There are more than 20 student societies and associations, including art, music, sports, science, social and religious groups, which create a dynamic and enriching campus culture harmonizing science and art.

Sports and Welfare facilities

There is a broad range of facilities and services available including 1 gymnasium, 7 tennis courts, 1 outdoor sports ground, a 426-seat auditorium, weight room and on-campus restaurant, cafeteria and equipped kitchen only for international students.


Married Student Apartments

Housing

International Hall

International Hall is a nine-story dormitory building that is used for residence by international scientists. Joint public facilities include a gym, internet room, self-service laundry room, rest area and maintenance office. Eligible occupants shall be internationals involved in the area of education and research at GIST. There are three types of apartments : one-bedroom apartments, two-bedroom apartments and three-bedroom apartments.

Married Student Apartments

There is housing accommodation on campus for married students(M.S. or Ph.D.). Married students are eligible to apply for a 2-bedoom apartment.


Domitory

Dormitory

The institute provides all students with on-campus dormitory housing free with reasonable fees. The fees will be deducted from your monthly stipends. Each room accommodates two students, with rooms for male and female students arranged in separate wings. The dormitory facilities include cooking facilities for international students, shower rooms and TV lounges.

Global Intern Program

About GIP

What is GIP

The Global Intern Program offers students from countries around the world an opportunity to stay at GIST for a short period (typically eight weeks over summer) to receive training and carry out research.

Who can apply for GIP

Eligibility

Undergraduate applicants must have completed a minimum of at least three semesters at their home institution, and graduate applicants must be in a master's degree program at their home institution. Ph.D. applicants are not eligible.

GIP Research Field

The Global Intern Program is designed to provide knowledge and skills in the following areas:

- Electrical Engineering and Computer Science
- Materials Science and Engineering
- Mechanical Engineering
- Earth Sciences and Environmental Engineering
- Life Sciences
- Physics and Photon Science
- Chemistry
- Biomedical Science and Engineering

Participants of the Program will be assigned to specific laboratories and receive their research training under the supervision of the professors in charge of the laboratories.

More information about the participating laboratories can be found from the GIST website. (www.gist.ac.kr)

GIP Benefits

- One-way Airfare
- Dormitory Accommodation
- Korean Language Class
- Cultural Class
- Special Lectures
- Stipend

How to Apply

Complete online Application

· Go to https://ipa.gist.ac.kr
· Create an account with your email address
· Fill in online application form

* Applicants should indicate two preferred laboratories in the application form

Upload Required Documents

· Original (Official)
Degree Certificates (Proof of Enrollment and/or Graduate Certificate)
· Original (Official) Transcripts; All in English
· Letter of Recommendation
· English Language Proficiency Test Result for Non-native speakers of English

GIP TImeline

* The schedule is tentative

Late February – Mid March	Application Period
Late April	Selection Notice
Late June – Mid August	GIP Program

GIP Committee / Section of International Cooperation

3F Administration Building, Gwangju Institute of Science and Technology (GIST)
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Information is accurate at the time of printing in May. 2017

GIST Culture Night

GIST Culture Night is an annual event that brings the GIST community closer together by sharing the diversity that is found on our campus. GIST international students and their families celebrate their unique cultures with performances, foods, and exhibition booths that highlight traditions and customs from their home countries. More than 400 people from GIST and the local community attend GIST Culture Night every year to experience a little bit of the sights and tastes from the rest of the world.

GIST Campus Map

W1 Oryong Hall
W2 Gymnasium
W3 International Hall
W4 Graduate School Dormitory
W5 Married Student Apartment
W6 Student Union Building1
W7 Graduate School Dormitory
W9 Faculty Housing
W10 President's Residence
W11 Facility Maintenance Building
W12 Business Incubator B
W13 Central Storage

S1 Mechanical Engineering Building
S2 Administration Building
S3 Life Sciences Building
S4 Kumho Research Building
S5 Materials Science & Engineering Building
S6 Earth Sciences and Environmental Engineering Building
S7 GIST Technology Institute Center for Creative Economy and Innovation, Gwangju
S8 Business Incubator A

E4 KEMCO Energy Center
E5 Advanced Photonics Research Institute [APRI]
E6 Ultrashort Quantum Beam Facility
E7 International Collaboration Building
E9 Student Union Building 2
E11 GIST College Dormitory A
E12 GIST College Dormitory B
E13 Power Plant

N1 Central Library
N2 LG Library Energy Valley Institute of Technology
N3 Faculty Apartment
N4 GIST College Building A
N5 GIST College Building B
N6 GIST College Building C

C1/C2/C3 Electrical Engineering and Computer Science Building
C4 Kumho Hall
C7 Samsung Environmental Science & Research Building
C9 Dasan Building
C10 Renewable Energy Research Building[RISE]

GIST History

2021	**Nov 10**	Established Space Laser Research Center
2020	**Mar 02**	AI Graduate School Established
	Jun 10	4th in the world in QS World University Rankings (in the field of the number of citations per faculty)
	Sep 29	Graduate School of Energy Convergence established
	Feb 19	Graduation Ceremony for 2020 * Alumni: 6,813 (820 bachelors, 4,462 masters, 1,531 doctorates)
2019	**Mar 06**	Dr. Kiseon Kim was appointed as the 8th president
2018	**Jun 07**	3rd in the world in QS World University Rankings (in the field of the number of citations per faculty)
2016	**Feb 25**	Graduation Ceremony for 2015 (Dr. No. 1000)
	Jun 30	Establishment of GIST Fundation
2015	**Feb 25**	Dr. Seung-Hyeon Moon was appointed as the 7th president
	Apr 06	GIST Central Library opened
	Sep 14	2nd in the world in QS World University Rankings (in the field of the number of citations per faculty)
	Oct 29	Institute of Integrated Technology opened
2014	**Feb 25**	Graduation Ceremony 2013 (first bachelor's degrees conferred, 54 students)
2013	**Jun 10**	Korea Institute of Cultural Technology (KCTI) opened
	Nov 15	Celebration of the 20th anniversary of establishment
2012	**Jun 04**	Dr. Young-Joon Kim was appointed as the 6th president
	Dec 01	IBS Center for Relativistic Laser Science opend
2011	**May 16**	International Science Business Belt Research Center opend (GIST Campus)
2010	**Mar 02**	Entrance Ceremony for first undergraduate students (GIST College, 100 students)
2009	**Feb 25**	Research Institute for Solar and Sustainable Energies opened

2008	**Jun 04**	Dr. Jung-Ho Sonu was appointed as the 5th president
	Jun 13	Acceptance of establishment of undergraduate course (Law No. 9107)
2006	**Feb 16**	Dr. Sung-Gwan Huh was appointed as the 4th president
2005	**Mar 26**	Changed Institutional English Name (K-JIST > GIST)
2004	**Apr 11**	GIST Technology Institute opened
2003	**Nov 14**	Celebration of the 10th anniversary of establishment
2002	**Feb 16**	Dr. Jung-Woong Ra, was appointed as the 3rd president
2001	**May 09**	Advanced Photonics Research Institute opened
2000	**May 17**	Academic exchange agreement with United Nations University
	Aug 20	Graduation ceremony for the second half of the year 2000 (The first doctoral degree conferred)
	Dec 14	Technology Support Center opened
1998	**Jan 22**	Dr. Hyo-Gun Kim was appointed as the 2nd president
1997	**Feb 27**	The 1st Graduation Ceremony (First master's degrees conferred, 92 Masters)
	Feb 27	The 1st Graduation Ceremony (First master's degrees conferred, 92 Masters)
	Jun 12	Completion of LG Science Library
1995	**Mar 09**	Institute Opening Ceremony and Entrance Ceremony for first master's students
1993	**Aug 05**	Act on Gwangju Institute of Science and Technology was enacted and proclaimed (Act No.4580)
	Oct 06	Enforcement Decree of Act on Gwangju Institute of Science and Technology was enacted and proclaimed (Presidential Decree No. 13988)
	Oct 11	Dr. Doo-Bong Ha was appointed as the 1st president and ground breaking ceremony was held.
	Nov 17	Registration of incorporation was established (Establishment anniversary)
1992	**Mar 26**	Bureau for the establishment of Gwangju Institute of Science and Technology was formed
1991	**Oct 17**	Steering Committee was formed for the foundation of Gwangju Institute of Science and Technology

More Information

About GIST
https://www.gist.ac.kr/en/main.html

SIR(Section of International Relations)
http://ipa.gist.ac.kr

Admissions Information
https://www.gist.ac.kr/iadm/

Online application
https://service.gist.ac.kr/admission/graduate/foreigner

Campus Life
https://www.gist.ac.kr/en/html/sub05/0501.html

Gwangju City
https://www.gjcity.go.kr/en/main.do

School of Electrical Engineering and Computer Science
https://eecs.gist.ac.kr/eecseng/index.do

School of Materials Science and Engineering
https://mse.gist.ac.kr/mseeng/index.do

School of Mechanical Engineering
https://me.gist.ac.kr/meeng/

School of Earth Sciences and Environmental Engineering
https://env1.gist.ac.kr/env1eng/index.do

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Department of Physics and Photon Science
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Department of Biomedical Science and Engineering
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School of Integrated Technology
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· Culture Technology
· Intelligent Robotics Technology

School of Energy Convergence
https://flexenergy.gist.ac.kr/flexenergyeng/index.do

Artificial Intelligence Graduate School
https://cwww.gist.ac.kr/aieng/index.do

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