

2022 QS World University Rankings  
for 'Citations per Faculty'  
**4th in the World | 1th in Korea**  
(for 14 consecutive years)



# GIST

At **GIST** which has world-class research capabilities  
We are looking for talented people who will  
leap together towards **World No.1**



Gwangju Institute of  
Science and Technology

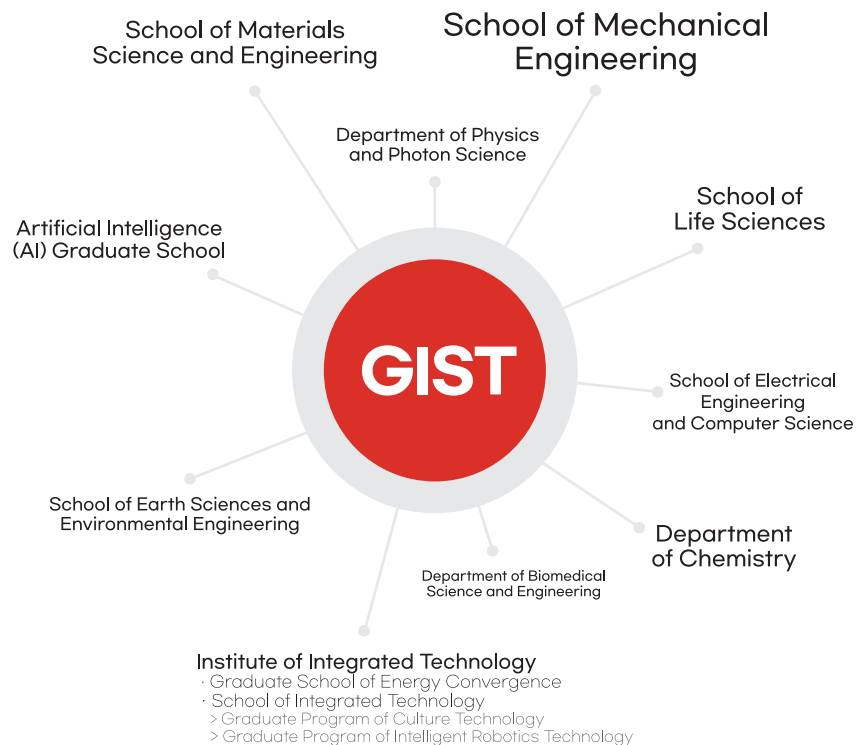
# INTRODUCTION OF GIST

A research institute in Korea with graduate and undergraduate programs where passion and knowledge converge to innovative technical solutions for issues and problems affecting the world; also known as the Gwangju Institute of Science and Technology

## DEGREE PROGRAMS

- Master of Science Program(M.S.)
- Doctor of Philosophy Program(Ph.D.)
- Integrated M.S. and Ph.D. Program

## Academic Schools/Departments



Section of Admissions, Unit 323, GIST College A, 123  
Cheomdangwagi-ro, Buk-gu, Gwangju, 61005, Republic of Korea

<https://www.gist.ac.kr/iadm/main.html>  
T. +82-62-715-3951 E. [admis@gist.ac.kr](mailto:admis@gist.ac.kr)

## ADMISSION SCHEDULE

Semester of Entrance	Spring Semester (starting from March)	Fall Semester (starting from September)
Application Deadlines	October 14th(Fri.)	April 14th(Fri.), 2023
Documents Review	30 days	30 days
Notification of Admission Results	December 9th(Fri.)	June 16th(Fri.)
Registration of Admitted Students	December 27th(Tue.), 2022 ~ January 6th(Fri.), 2023	June 20th(Tue.) ~ June 30th(Fri.)

## APPLICATION&REQUIRED DOCUMENTS (Online Upload)

<b>Website</b>	<ul style="list-style-type: none"> <li>• <a href="http://servicegistackr/admission/graduate/foreigner">http://servicegistackr/admission/graduate/foreigner</a></li> </ul>
<b>Mandatory</b>	<ul style="list-style-type: none"> <li>• Online application</li> <li>• Official degree certificates and transcripts(apostille or notarized)</li> <li>• Two letters of recommendation               <ul style="list-style-type: none"> <li>&gt; Recommendation letters will be received electronically from the referees you register on our system.</li> </ul> </li> <li>• An official English proficiency test score report               <ul style="list-style-type: none"> <li>&gt; Minimum scores: 80(TOEFL iBT),550(TOEFL PBT), 6.5(IELTS), 750(TOEIC), 285(NEW TEPS)</li> </ul> </li> </ul>
<b>If applicable</b>	<ul style="list-style-type: none"> <li>• A letter of recommendation from your department chair/dean for the Matriculation Fee waiver.</li> <li>• A certification of English language proficiency issued from the applicant's last home institution               <ul style="list-style-type: none"> <li>&gt; For Conditional Admission only</li> </ul> </li> </ul>

## FINANCIAL SUPPORT

<b>Tuition Assistance</b>	<ul style="list-style-type: none"> <li>• Fully supported : 3,415,000 won per semeste (One-time matriculation fee of 680,000 won is charged to all newly admitted students to be enrolled)</li> </ul>
<b>Monthly Allowance (KRW, per month)</b>	<ul style="list-style-type: none"> <li>• Student allowance : M.S. : 140,000/Ph.D. 295,000</li> <li>• Meal allowance : nearly 100,000</li> <li>• International student allowance : 120,000</li> </ul>
<b>Research Fellowships (KRW, per year)</b>	<ul style="list-style-type: none"> <li>• Average as of 2021</li> <li>• A certification of English language proficiency issued from the applicant's last home institution               <ul style="list-style-type: none"> <li>&gt; M.S. : 5,460,000</li> <li>&gt; Ph.D. : 12,510,000</li> </ul> </li> </ul>
<b>Housing</b>	<ul style="list-style-type: none"> <li>• On-campus Dormitory : Double occupancy</li> <li>• Apartment for Married Students: Two bedroom apartment</li> </ul>
<b>Health Insurance</b>	<ul style="list-style-type: none"> <li>• 60% of the National Insurance fee is supported</li> <li>• Annual medical checkup</li> </ul>
<b>Flight Reimbursement</b>	<ul style="list-style-type: none"> <li>• Reimbursement for a one-way flight to Korea.</li> <li>• For the first time use only.</li> </ul>

\*All students are participating in research projects

## SCHOOL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

- For the preparation of a future where the global development of creative and innovative technologies will be of paramount importance, the School of Electrical Engineering and Computer Science focuses on the Education and research in the core areas of devices, systems and software along with eight other interrelated research areas.

### AI and Robotics

- Machine Learning and Vision

### IoT and Cyber Security

- Communication & Information Science
- INFONET

### Circuits and Systems

- Integrated circuits and Systems, Analog And Mixed-signal
- Intergrated Circuit design, Semiconductor Device
- Simulation, High Speed Intergrated Circuit

### Biomedical Informatics

- Data Mining & Computational Biology
- BioComputing
- Biomedical Informatics

### Energy Systems and Sensors

- Microwave Sensing & Imaging

### Signal and Information Systems

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

### Big Data and Cloud Computing

- Data Science
- Data Analytics
- Cloud Computing

### Photonics and Nanotechnology

- NanoSystems
- Advanced Nano Electronics & Photonics Technology
- MathSymbolica, Heat-smart Optoelectronics &Phonon Engineering
- Photon Information Processing, Flexible OptoElectronics
- Solid-States Lighting, Applied Optics

## SCHOOL OF MATERIALS SCIENCE AND ENGINEERING

- Missions of School of Materials Science and Engineering at GIST are (1) to educate and train talented students as innovative global leaders at the forefront in future materials research, and (2) conduct pioneering, interdisciplinary research in areas of(not limited to) Healthcare, Energy/Green Tech, Connected Mobility(Infortainment), and Artificial Intelligence.

### Healthcare

#### Inorganic materials

Flexible electronics/Electronic skins, sensors/Bioglass

#### Organic materials

Shape morphic /Drug delivery hydrogel/Porous biofunctional materials /Mixed conductor polymers/Organic Semiconductors/Supramolecular thernagnostic nanoagent/Hydrogel/Conducting polymers, ionogels

#### Biomaterlas

Therapeutic protein, nanobiomaterials for drug delivery /Ionic hydrogel /Cryopreservation nanoagent/Tissue engineering, nanobiomaterial /DNA nanorobotics based therapeutics, DNA synthesis/Drug delivery system, regenerative medicine, stem cell, thernagnosis/Bio-degradable materials

#### Composite materials

Bioink, bioelectrode/Polymer, DNA based microrobotics based therapeutics /Compliant electronics and bio-signal monitoring sensors

### Artificial Intelligence

#### Inorganic materials

Neuromorphic device, emerging memory, memristor synapse/AI-based catalyst development/Energy materials based on machine learning /Deep learning, Computational materials design

#### Organic materials

AI-based organic electronic material development/4D printing materials, biomimetic self-assembly

#### Biomaterlas

Computational design of therapeutic protein/DNA-based data storage

#### Composite materials

AI-based hybrid catalyst development/Security system based DNA and light-responsive materials/AI-powered intelligent soft actuators

### Energy /Green Tech

#### Inorganic materials

Perovskite/Catalyst exsolution, Photo-sensor/Nanoporous metaloxide heterostructure catalyst /Hydrogen production materials/Hydrogen energy related oxides/Metal halide perovskite /Solar water splitting, Solar fuel/Energy storage, Renewable energy materials/Photocatalysis, Battery anode materials/Magnetic energy materials, Nano-spintronics /Harvesting/Piezo, ferroelectric materials

#### Organic materials

Organic Solar Cell - Small molecule nanostructure/Carbon capture, conversion materials and catalysts/Redox-active electrolytes/Environmental purification polymers/Flexible organic solar cells /Flexible organic optoelectronics /Photodetector, Photovoltaics

#### Biomaterials

Biocatalytic carbon Recycling, recovery of rare earth elements /Implantable energy storage

#### Composite materials

Graphene/Halide perovskite stability/Nanostructure energy, green chemistry catalysts and catalytic processes /Next-generation battery materials/Fuel-cell materials/Advanced electrolytes, energy storage /Metal-organic hybrid catalyst /Porous carbon, monolith, biomass /Metal oxides/Photodetector, Photovoltaics /Flexible energy harvesting devices

### Connected Mobility (Infortainment)

#### Inorganic materials

3D electronics/CNT/Semiconductor, Sensor, Metastructure insulator /Back end of line (BEOL), Advanced packaging/Emerging electronic materials /2-dimensional materials/Thin film transistor, Gas sensor/ Magnetic materials based proximity sensors

#### Organic materials

Organic materials/OTFT/Switching device, Flexible insulator/Electromagnetic shielding and absorption/Triboelectronics

#### Composite materials

3D electronics/CNT composite/Transistor/Metastructure insulator

## SCHOOL OF MECHANICAL ENGINEERING

### Robotics and Mechatronics

Robots, Lidar/Radar Sensors, Material Devices, Precision Machining Robots, Robot and Human

### Multi-scale and Multiphysics Engineering

Clean Combustion Technology, Highly Efficient Motor, Integrated Study, Mechanical engineering problems requiring a micro-and multidisciplinary approach

### Smart Design and Manufacturing

Scientific Visualization and 3D printing, Laser Micro/Nano Fabrication, Laser Fabrication and Applications, Prognostics and Health Management of Engineered Systems, Computational Modeling and Simulation with Finite Element Methods, Unmanned Automated Production, Ultraprecision Hybrid Manufacturing Technologies, 4D Printing Research, Design and Measurement Technologies for Micro Systems, Micro Sensor and Actuator Tehnology

### Next-Generation Vehicle Engineering

Autonomous and Intelligent System, Vehicle Dynamics, Optimization, Smart Manufacturing, Sensor/ Actuator, Information Technology, Aerodynamics, and Unmanned Aerial Vehicles

### Thermal Fluids and Energy

Thermodynamics, Fluid Mechanics and Heat Transfer, Automotive and Aircraft Engine Cycles and Aerodynamic Design, Fluid Dynamics and Heat Transfer in Micro-Nanoscale, Thermal Phenomena in Lasers and Micromachining

### Machine Intelligence and Informatics

Deep Reinforcement Learning and Control, Smart AR/VR, Object Recognition and Geometric Data Processing, Smart Multi-Modal Data Fusion, Energy Informatic's and Big-Data Based Predictive Analysis, Power lot for Smart Energy Management, Statistical Machine Learning for Data Channel in Physical Layer, Compressive Sensing and Smart Detection for Machine Systems, System Health Diagnostics and Prognostics, Distributed Consensus for Multi-Agent Machine Systems.

## SCHOOL OF EARTH SCIENCES AND ENVIRONMENTAL ENGINEERING

- ▶ The necessity of science and technology to overcome the climate crisis, environmental pollution, and energy and resource depletion caused by growth-oriented industrialization and increases in energy consumption
- ▶ Contribute to solving global environmental issues as well as local problems through the development of sustainable energy, and the diagnosis and restoration of air, water and soil pollution
- ▶ Educating environmental experts much needed in a carbon-neutral era, developing advanced environmental technology, and leading world-class environmental science and engineering research

### Earth and Climate Change

Climate Change, Air Pollution, (ultra)Fine Particles, Marine Resources, Restoration of Ecological System, Environmental Satellite

### Sustainable Energy

Electrochemistry, Energy Storage, Carbon Dioxide Capture and Storage, Catalysis Chemistry

### Water Science & Engineering

Water Treatment, Seawater Desalination, Membrane, Hydrospheric Toxicity and Monitoring, Recycling Technology of Water and Resources

**Sustainable Future Environment Created by the School of Earth Sciences and Environmental Engineering **GIST****

## SCHOOL OF LIFE SCIENCES

- ▶ Use of innovative research techniques and technological advancement are key to exploring principles that underlie various life phenomena. These may provide a strong foundation for the following: next-generation drug development, identification of causes of diseases, production and design of useful bio-materials, technology for sustainable conservation of biological and environmental resources.
- ▶ Going beyond the boundaries of life science academics and implementing a new conceptual framework as a research-oriented university based on convergence studies.



### Cell/Molecular Biology

- Cell dynamics imaging and logistics
- Cell dynamics imaging and logistics
- 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
- Brain engineering and neurodevices
- Observation of vascular endothelial cells and vascular markers
- 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

## DEPARTMENT OF PHYSICS AND PHOTON SCIENCE

- ▶ Educating creative scientists 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.

### Condensed Matter Physics



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

### Optics



- Ultrafast optics and nonlinear optics
- Ultrafast optics and nonlinear optics
- Attosecond science
- Quantum integrated photonics
- Relativistic Quantum Photonics

### Plasma Physics



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

### Particle Physics



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



## DEPARTMENT OF CHEMISTRY

- ▶ We are building a new model for department of chemistry with five focused research areas, Organic, Inorganic, Physical, Biological and Analytical Chemistry.

### Inorganic Chemistry

- Synthetic modeling of metalloenzyme active site
- Organometallic catalyst development
- Hybrid molecular material catalyst for the solar fuels research
- Development and Analysis of Surface Chemistry on Two-dimensional Nanomaterials
- Precise synthesis of plasmonics nanostructures and their applications

### Organic Chemistry

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

### Physical Chemistry

- Photochemistry
- Time-resolved molecular spectroscopy
- Biophysical chemistry of cells and biomolecules
- Development and application of quantum chemical simulation method using AI

### Biological Chemistry

- Protein structure by X-ray crystallography
- Biosensor and biophotonics for diagnosis, theragnosis and food safety
- Multidimensional NMR spectroscopy for protein-ligand interactions

### Analytical Chemistry

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

## DEPARTMENT OF BIOMEDICAL SCIENCE AND ENGINEERING

- ▶ As a new multidisciplinary research and education program, Department of Biomedical Science and Engineering (BMSE) was established in spring 2008 with the mission of promoting fusion researches in Biomedical Science and Engineering applications.
- ▶ All faculty members of BMSE are recognized as world-class researchers in their special areas. The ongoing research topics are in the field of biomedical science and engineering such as optical system design for biomedical applications, neuro signal analysis, neuromodulation, study on sleep and consciousness, peroxisome and lipid metabolism, genomic medicine, and so on. BMSE invites extremely energetic applicants pursuing advanced degrees (M.S., Ph.D.) in multidisciplinary biomedical science and engineering. Specially, candidates who have Western or Oriental M.D.s 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 future professor, physician scientist, biomedical researcher or CEO/CTO in medical fields and clinic.

Convergence Technology	Immune & Metabolism	Biophotonics	Brainscience & Neuroimaging
	<ul style="list-style-type: none"> <li>• Post-transcriptional Regulation of Immune System</li> <li>• Anti-cancer Microbiome</li> <li>• Regulation of Metabolic Stress</li> <li>• Lipid Metabolism Dysfunction</li> <li>• Ocular Immune Privilege and Immune Regulation</li> </ul>	<ul style="list-style-type: none"> <li>• Neurophotonics</li> <li>• Photomedicine</li> <li>• New Generation Biophotonic Imaging</li> </ul>	<ul style="list-style-type: none"> <li>• Neuromodulation</li> <li>• Neural Circuit Connectomics</li> <li>• AI-based Brain Imaging &amp; Signal Processing</li> </ul>

## SCHOOL OF INTEGRATED TECHNOLOGY (SIT)

### A Proud Creator of Future Science and Technology

#### Graduate Program of Culture Technology

#### Research Area

- Application of Computational/Information Technology to various cultural-related fields such as humanities, education, and art entertainment

- Media Technology (Computer Graphics, AR/VR)
- Intelligent Interaction Technology (AI, HCI)
- Cultural Content Design (Game, Art&History)

#### Graduate Program of Intelligent Robotics Technology

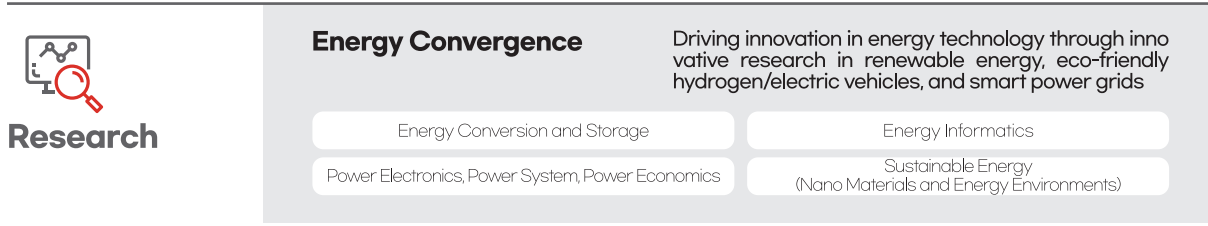
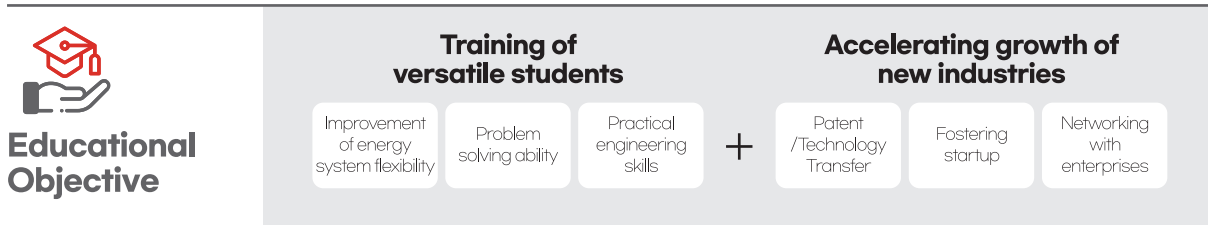
#### Research Area

- Specialized in healthcare and medical robots
- Global technology leadership in rehabilitation and nano-robot fields
- Presenting human-computer interaction and human-centered future environmental solutions that bring in human and artificial intelligence technology
- Artificial intelligence research and development that can be used to a variety of robotic fields (robot vision, manipulation, swarm control, cloud robotics etc)

- AI robotic applications
- Cloud AI platform for Robotics
- Human-Computer Interaction (HCI+AI Mixed Reality Future Mobility)
- Medical Robots (Nanorobots, Wearable and Rehabilitation robots)
- Sim-to-Real (Synthetic Data Generation via Simulator, Domain Adaptation) for robot vision and manipulation
- AI-based Robot Control (Autonomous Navigation, Autonomous Medical Robot Manipulation, Intelligent Human-Robot Interaction)

## GRADUATE SCHOOL OF ENERGY CONVERGENCE

- ▶ Fostering of versatile students specialized in Improvement of energy system flexibility
- ▶ Development of integrative thinking skills based on a multidisciplinary environment
- ▶ Training professionals with unique academic capabilities and practical engineering skills



## AI Graduate School

- ▶ Aiming at the life-cycle development of professional talent based on the T.R.A.I.N. concept to lead artificial intelligence technology that has emerged as the core of the 4th Industrial Revolution and to improve the quality of human life
- ▶ Extended development to G.I.S.T. AI for X convergence research, which is based on traditional AI core technologies that link and deepen data, networking, and AI algorithms

### Education



### Students



### Research



### AI For

