

Department of Applied Physics

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What is Physics?

The purpose of physics is to explore the laws of Nature, to understand diverse natural phenomena on the basis of the laws, and to explain and predict new phenomena. Modern physics including the theory of relativity and quantum mechanics enlarges human knowledge about nature and is leading modern science and technology in diverse fields such as semiconductor electronics, nanotechnologies, new material development, energy-related technology, cosmology, complex systems, and biology

Physics and Applied Physics at Kyung Hee

The Physics Department was founded in the College of Science and Engineering at the Suwon campus in 1980. In 1999, it became the Physics and Applied Physics major in the School of Electronics and Information, and it returned to the independent department, Department of Applied Physics again in 2009. Promising technologies such as nanostructures, memory and non-memory semi-conductors, applied optics, and nonlinear complex systems have been chosen as areas of specialization, and practical education facilities have been established to provide training programs at the undergraduate level. In the field of nanostructures and semiconductors, we undertake research into the processing, modification and characterization of electronic and optoelectronic materials, and into the design, fabrication and testing of novel electronic and optoelectronic devices. Applied optics, an increasingly important field for all optical telecommunication networks, is also one of our specialized research areas. Currently, we have nine faculty members that are performing joint theoretical/experimental collaboration in the fields of nanostructures, semiconductors, new energy-related materials, and optical devices. The Semiconductor Physics Research group was selected for Brain Korea 21 Grant of 7-year graduate school research supported by the Ministry of Education.

Degree Requirements

To receive the Bachelor of Science in Physics and Applied Physics, a student must:

- complete a minimum of 130 credit units.
- satisfy the General Requirements of the School for professional degrees.
- complete 13 units of Required Courses.
- complete 38 units of Technical Electives for Physics and Applied Physics.
- complete 48 units (maximum 56 units) stated in the common studies program and Humanities/Social Science Electives.
- acquire a minimum English proficiency test score of TOEIC 650.

Courses

Year 1

General Physics and Laboratory I, II, Calculus I, II, Linear Algebra, Differential Equation, Introduction to Programming

Year 2

Mechanics I, II, Electromagnetism I, II, Introduction to Modern Physics, Basic Circuits Laboratory, Circuit Theory, Digital Circuit Design, Digital Circuits Laboratory, Mathematical Physics I, II

Year 3

Quantum Mechanics I, II, Optical Engineering, Thermal and Statistical Physics, Advanced Optics, Advanced Mathematical Physics, Modern Physics Laboratory, Physical Electronics, Advanced Optics, Semiconductor Engineering, Semiconductor Devices, Computational Physics, Applied Computational Physics

Year 4

Optical Fiber Communications, Advanced Thermal and Statistical Physics, Introduction to Solid State Physics, Nuclear and Particle Physics, Display Devices, Nano Devices and Processing, Condensed Matter Physics Laboratory, Special Topics in Physics, Laboratory for Physical Properties of Semiconductor and Application

Careers and Graduate Destinations

Our students can take jobs in most semiconductor electronics and optics companies or become physics teachers. We strongly recommend students to enter a physics graduate program to have special knowledge and capability as advanced researches. With a graduate degree, students can be welcomed by leading electronics companies or research laboratories.

Faculty

Suk-Joon Lee, Ph.D. Yale University, 1986, Professor, Nuclear Physics, ssjlee@khu.ac.kr

Hae-Yang Chung, Ph.D. University of California, San Diego, 1990, Professor, Applied Optics, chunghy@khu.ac.kr

Gyu-Seung Shin, Ph.D. KAIST, 1985, Professor, Statistical Physics, shings@khu.ac.kr

Suk-Ho Choi, Ph.D. KAIST, 1987, Professor, Semiconductor Physics, sukho@khu.ac.kr

Jeong-Woo Choe, Ph.D. University of Pittsburgh, 1990, Professor, Semiconductor Physics, jwchoe@khu.ac.kr

Ho-Sun Lee, Ph.D. University of Illinois at Urbana-Champaign, 1993, Professor, Semiconductor Physics, hlee@khu.ac.kr

Dae-Young Lim, Ph.D. University of Texas at Austin, 2001, Associate Professor, Semiconductor Physics, dlim@khu.ac.kr

Min-Chul Lee, Ph.D. Seoul National University, 2003, Assistant Professor, Condensed Matter Theory, minchul.lee@khu.ac.kr

Jong-Soo Lee, Ph.D. Gwangju Institute of Science and Technology, 2005, Assistant Professor, Energy-Related and Magnetic Material Experiment, jsrhyee@khu.ac.kr