

Department of Plant and Environmental New Resources

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What is Plant and Environmental New Resources?

The resources and energy needs of the developed world are currently over-dependent on the utilization of the finite fossil fuel. While renewable-power technologies, such as wind and photovoltaics, may have major roles in the future for the production of electricity, provisions must still be made for the supply of industrial chemicals, modern synthetic products and motor fuels that are currently produced predominantly from fossil fuel. Plant and Environmental New Resources is a scientific discipline which uses a systematic approach in combining material science and biotechnology to develop functional bio-materials from environment-friendly and renewable plant biomass resources for promotion of shared humanity and common wealth. Efficient and wise management of plant biomass resources is also required for solving the problems of human-nature interaction.

Plant and Environmental New Resources at Kyung Hee University

Emerging biorefinery technologies using plant biomass offer a sustainable alternative through the utilization of carbohydrates, the most abundant organic chemicals on the surface of the earth. Our department was established to seek solutions for current worldwide problems, especially those of limited resources and pollution, through wise utilization of renewable and environment-friendly plant biomass. To this end, students are educated and trained with the most advanced curriculum. Not only academics, but also various group and department activities are designed to encourage enjoyable and instructive student-life in the university, such as membership training, field practices, and annual training programs in overseas universities.

| Degree Requirements |

To receive the Bachelor of Science in Plant and Environmental New Resources, a student must

- complete a minimum of 130 credit units
- satisfy the general requirements of the School for professional degrees
- complete 15 units of required courses
- complete 40 units of technical electives for Plant and Environmental New Resources
- complete 50 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

Statistics, General Physics, Chemistry1, Chemistry2, Biology1, Biology2, Differential and Integral Calculus, Bio-resources

Year 2

Biomass Physiology, Introduction to Natural Polymer Science, Material Science and Engineering, Plant Cell Biology, Biomass Genetics & Physiology, Organic Chemistry of Natural Polymer, Biomass Formation, Practical Training I

Year 3

Biomass Functional Development, Environmental Plant, Biomass New Materials, Biomass Chemistry I, Plant Biotechnology, Biomass Biotechnology Workshop, Biomass Chemistry II, Interfacial Engineering in Nano-Materials, Practical Training II, Internship in Research I, Internship in Research II, Internship in Plants and Environmental New Resources, Materials Informatics

Year 4

Graduation Thesis, Materials for Bio-Applications, Biomass Enzymology, Capstone Design for Biomaterial 1,2, Introduction to Converged Plant Biotechnology, Internship in Research I, Internship in Research II, Internship in Plants and Environmental New Resources, Functional Materials and Devices Fabrication Experiments, Developments and Application of Biomass, Independent Learning & Research 1-2

| Careers and Graduate Destinations |

Students graduating from Plant & Environmental New Resources at the undergraduate or graduate levels are very much in demand and will find rewarding careers in the following areas of specialization : specialist in environment impact assessment(soil, water, vegetation). They can also acquire positions at subsidiary research organizations, such as the Korean Ministry of Agriculture(Rural Development Administration and Office of Forestry), Ministry of Environment and its subsidiary(Agricultural & Rural Infrastructure Corporation), and private companies. After the acquisition of a master's or doctoral degree, advancement to a research organization or university is also possible.

| Faculty |

___ Ung-Jin Kim, Ph.D. The University of Tokyo, 2002, Professor, Biomaterial Sciences, sbpujkim@khu.ac.kr

___ Jae-Heung Ko, Ph.D. Yonsei University, 1997, Professor, Plant Functional Development, jhko@khu.ac.kr

___ Chanhui Lee, Ph.D. University of Georgia, 2011, Professor, Plant Molecular Biology, chan521@khu.ac.kr

___ You, Jungmook, Ph.D. Yonsei University, 2011, Assistant Professor, Chemical and Biomolecular Engineering, jmyou@khu.ac.kr

___ Jung Tae Lee, Ph.D. Georgia Institute of Technology, 2014, Assistant Professor, Materials Science & Engineering (Polymer Textile & Fiber Engineering), jungtae@khu.ac.kr

___ Sung Yeon Hwang, Ph.D. Hanyang University, 2011, Associate Professor, Fiber and Polymer Engineering, crew75@khu.ac.kr