**산림자원학과**

**(Forest Resources)**

**Department Introduction**

Our department was established as "Department of Forestry" in September 1979 in College of Natural Resources, Yeungnam University, and the department name was changed to the Department of Forest Resources later. The master's program was adopted in March, 1987 and Ph. D. program in the year 2000 in our department. Originally our department has opened two different majors to the students such as forest resources major and forest utilization major. Through these two different majors, students are studying and researching the ways of forest silviculture, breeding, conservation, management, economics, policy and recreation, healing, education, welfare and forest products utilizations etc. from forest land which is covering 63% of Korean Peninsular land with forest. We have also forest experimental station with 330 hectare and facilities of research building in the forest experimental station.

**List of Faculty Members**

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| --- | --- | --- | --- | --- |
| Position | Name | Last School Graduated | Degree | Major |
| Professor | Lee, Heon-ho | Univ. of Tokyo (JAPAN) | Ph.D. | FOREST HYDROLOGY |
| Professor | Oh, Yong-sung | Univ. of Mississippi (USA) | Ph.D. | WOOD ADHESIVES AND PANEL MANUFACTURE |
| Professor | Lee, Do-hyung | Georg-August Univ. of Göttingen (GERMANY) | Ph.D. | TREE PHYSIOLOGY AND  DENROLOGY |
| Associate Professor | Lee, Ju-hyoung | Georg-August Univ. of Göttingen (GERMANY) | Ph.D. | FOREST MANAGEMENT AND ECO-TOURISM |
| Associate Professor | Lee, Yohan | Oregon State University | Ph.D. | FOREST ECONOMICS AND POLICY |

Course Description

■ 기초공통(Basic Major Courses)

목재물리학특론 3 credit

(ADVANCED WOOD PHYSICS)

Advanced lectures on density and specific gravity of wood; wood moisture relationships; wood in relation to heat; electrical properties of wood.

목재식별학특론 3 credit

(ADVANCED WOOD IDENTIFICATION)

Advanced lectures on reference sources and guide for the identification of commercial timber species; fundamentals of microscopy; fundamental properties; gross and minute structural characteristics of wood leading to identification.

산림자원경영학특론 3 credit

(ADVANCED FOREST RESOURCES MANAGEMENT)

Lecture on the forest management adequate for forest situation in Korea on the basis of fundamental theories, knowledge and facts underlined in forest management.

Main contents are management factors in forest, principles of forest management, growth, final age, rotation, normal forest, organization of forest management, regulation of the cutting volume and preparation of the working plan.

산림토목공학특론 3 credit

(ADVANCED FOREST CIVIL ENGINEERING)

It acquires the theory and technique about planing, surveying and design of forest road for logging, transportation of timber, equipments etc., and about rehabilitations through silvicultural control engineering method for disaster by human and climate factors in the forest.

조림학특론 3 credit

(ADVANCED SILVICULTURE)

Lecture on advanced theory and technique for establishment of good forest stand; tree seed dormancy and germination, sexual reproduction and vegetative propagation, tending of forest tree and forest land and density control, site quality, silvicultural system of natural regeneration, etc.

수목생리학특론 3 credit

(ADVANCED TREE PHYSIOLOGY)

Lecture on the theory of growth of tree, synthesis of organic matter and metabolism, effect of inorganic matter in tree, physiology of water, flowering and seed of tree, and on the growth regulators and also effect of internal and external factors to the tree growth.

산림휴양학특론 3 credit

(ADVANCED FOREST RECREATION)

As human society evolves into what is term a urban society, the pursuit and the demand of Leisure by human being have been increased. Human beings are experiencing self-actualization, belong, adventure and relieving stress, etc. by participation forest recreation.

해외임업세미나 3 credit

(SEMINAR ON INTERNATIONAL FORESTRY)

This course focuses on various topics on international forestry issues including REDD+, climate change, biodiversity, and desertification. This coursework ask for students to actively participate in presentation and discussion in the class through team or individual projects.

산림자원경제학특론 3 credit

(ADVANCED FOREST RESOURCES ECONOMICS)

This course will deal with the advanced theory and tools of forest resource economics. In addition, this course will discuss what factors affect consumer demand for wood-using goods, derived demand for wood as an input to the production of wood products, and supply of timber and wood products. Furthermore, this course will consider the role of forests in producing both market and nonmarket goods.

■ 전공(Major Courses)

개별연구(1) 3 credit

(INDEPENDENT STUDY (1))

개별연구(2) 3 credit

(INDEPENDENT STUDY (2))

산림자원학과세미나 1 credit

(SEMINAR)

■ 산림자원학전공(FOREST RESOURCES MAJOR)

사면녹화특론 3 credit

(ADVANCED SLOPE AFFORESTATION)

It acquires the theory and technique about the method of forestry and forest engineering to stabilize the slope for road slope including forest land slope and forest road which is slided land or have a possibility of danger with slided land.

산림기능평가특론 3 credit

(ADVANCED FOREST FUNCTION EVALUATION)

It gives a course to a student about the theory and technique of forest function evaluation for the efficient showing of each function by classifying multifarious function of forest into several pattern, and about forest practices and the method of forest engineering for the sustainable showing of this function.

산림노동및기계학특론 3 credit

(ADVANCED FOREST LABOR AND MACHINERY)

Lectures on the various problems of ergonomics arising in the forest work, and kinds of forest machine, the knowledge for operation method, maintenance, and repair.

산림보호학특론 3 credit

(SPECIAL TOPIC FOREST PROTECTION)

It acquires the theory and technique which can always maintain sound forests by controlling insect and solving the cause including weather, tree disease and insect etc. It is intensively learned the theory and technique to maintain sound forest by finding the cause of forest's physical damage and making its plan especially forest's physical damage.

산림생태학특론 3 credit

(ADVANCED FOREST ECOLOGY)

Lecture on advanced theory for forest community analysis, plant succession, nutrient cycling in forest ecosystem, biomass analysis, relation between growth and environmental factors and also affect of the factors to the forest ecosystem.

산림수자원관리학특론 3 credit

(ADVANCED WATER RESOURCE MANAGEMENT SYSTEM)

It acquires the theory and technique which can manage water resources and water quality scientifically by using the remote-sensing-observance system and the transmission system of observed data, which can observe the hydrologic phenomenon and transmit data for forest watershed in a long distance.

산림유역관리학특론 3 credit

(ADVANCED FOREST WATER RESOURCE MANAGEMENT ENGINEERING)

It acquires the theory and technique about forest practices, land management, sustainable forest management and equipment for the maintenance and development of forest water resources content and the improvement of water quality in forest watershed.

산림자원정책학특론 3 credit

(ADVANCED FOREST RESOURCES POLICY)

The course deals with general background, brief history and general principle of forest policy, public regulation on forestry, fostering measures to forestry, introduction to forest policy of foreign countries.

산림환경학특론 3 credit

(ADVANCED ENVIRONMENTAL FORESTRY)

Forest and engaged Environment have been becoming more important for the people living in industrial society. Providing well-managed natural environment is one of government tasks. This class aimed more about the practice and case study, which included all theme of Forest instruction program, Management, Facility, Nature based recreation, Ecotourism, Climate change, etc.

수목형태학특론 3 credit

(ADVANCED TREE MORPHOLOGY)

Lecture on development of tree in vegetative and reproductive growth morphologically and anatomically; wood structure, pattern of diameter and height growth, structure of leaves and roots, structure of flowers and fruits, etc.

임목육종학특론 3 credit

(ADVANCED FOREST TREE BREEDING)

Lecture on advanced theory and technique of forest tree breeding; basic concept of forest genetics including quantitative and population genetics and breeding methods of hybridization, selection, establishment of seed orchard, management of improving seed yielding, progeny test, provenance test, genetic response, etc.

산림유역관리특론 3 credit

(ADVANCED WATERSHED MANAGEMENT SCIENCE)

It acquires the theory and technique about forest practices, land management, sustainable forest management and equipment for the maintenance and development of forest water resources content and the improvement of water quality in forest watershed.

산림유전자원보존학특론 3 credit

(ADVANCED CONSERVATION OF FOREST GENETIC RESOURCES)

Lecture on theory and method of in situ and ex situ conservation for forest genetic resources in order to maintain or to improve gene pool.

산림환경학특론 3 credit

(ADVANCED ENVIRONMENTAL FORESTRY)

Lectures on the function of forest for serious environmental pollution; air, water, soil pollution etc., and on the interrelation of man, environment and forest with emphasis on the forest benefit.

수목보호관리학특론 3 credit

(ADVANCED PROTECTION AND TENDING OF TREES)

The subject with theory and technology of protection and tending of trees in terms of physiological and ecological aspects and deal with principles of practical, effective protection and tending especially to ornamental, road and park trees.

수목분류학특론 3 credit

(ADVANCED TAXONOMY OF FOREST TREES)

Lecture on theory and method of classification and identification of forest tree in morphology, anatomy, embroyology, cytology and especially in systemstic and nature classification.

유용식물번식학특론 3 credit

(ADVANCED PROPAGATION TECHNIQUE OF USEFUL TREES)

Lecture on reproduction theory and technology of important special useful trees; seed physiology nad nursery operation, vegetative production through cutting, grafting and layering, environmental factors affecting on reproduction method.

천연갱신학특론 3 credit

(ADVANCED NATURAL REGENERATION OF FOREST)

Lecture on the natural generation theory and methods for forest establishment and it deals mainly with silvicultural system such as clear cutting method, shelterwood method, selection method, coppice method, coppic with standard method, etc.

자연공원관리학특론 3 credit

(ADVANCED PARK MANAGEMENT)

All National Parks have two statutory purposes and a duty that set out the main reasons for their designation and describe the overall focus for their management, which are nature conservation and public nature experience. This lecture is aimed to help students to understand the advanced concepts of national park, leisure and recreation and to learn how to manage recreation resources through understanding socioeconomic aspects of visitor demands.

생태관광론 3 credit

(ECOTOURISM THEORY)

Course will introduce students to the history, concepts, principles, marketing, planning and management of ecotourism activities and development which promote cultural and environmental awareness and local economic benefits with an emphasis on non-western cultures.

생태비판론 3 credit

(ECO-CRITICISM THEORY)

Ecocriticism is the critical and pedagogical broadening of literary studiesto include texts that deal with the nonhuman world and our relationship to it. In this course, we will address the connection between ecology, culture, and literature. Components of the course will cover environmental literary history, nature/culture/gender, the changing natural world, and transcultural environmental issues.

산림복지학특론 3 credit

(ADVANCED FOREST-BASED WELFARE)

A study of ecologically based welfares of forests to achieve desired management objectives. Students will learn how to develop and apply forest welfare business model and learn the effects of these prescriptions on local society, non-marekting and marketing area, public benefits, human health and biodiversity, water resources as well as their effect on social, economic, and ecological issues.

수목분류학특론 3 credit

(ADVANCED FOREST TREE BREEDING)

Advanced on theory and method of classification and identification of forest tree in morphology, anatomy, embryology, cytology and especially in systematic and nature classification.

산림치유론 3 credit

(THERAPEUTIC FOREST THEORY)

This course in Therapeutic forest focuses on broadening and deepening the practice of psychotherapy by extending the psychotherapeutic context to include the natural world in which we live. We will explore topics such as environmental identity, restorative effects of direct contact with nature and forest, a “sense of place,” the concepts of a Nature Language and Human Rewilding, and contemporary influences that affect the human-nature relationship.

산림교육학특론 3 credit

(ADVANCED FOREST PEDAGOGY)

The goal of this course is to provide graduate students from a variety of backgrounds (e.g., education, environment, natural resource management, other) with the knowledge and skills to lead and manage forest education and education for sustainable programs. To achieve this goal, students will learn about relevant theories/models, “best practices,” and instructional resources, in part by applying class concepts to writing a competitive grant proposal and reviewing a program evaluation.

사방공학특론 3 credit

(ADVANCED FOREST ENVIRONMENTAL CONSERVATION ENGINEERING)

It acquires the theory and technique about the method of forestry and forest engineering to prevent soil disaster including landslide, debris flow, landcreep, erosion, etc., and to rehabilitate failured land including denuded land, post-fired hillslope in the forest.

산림국제개발협력론 3 credit

(THEORY ON OFFICIAL DEVELOPMENT ASSISTANCE IN FOREST SECTOR)

This course focuses on the concept, history, core strategies and projects of forest ODA. This course dicusses deeply on the role and efforts of forest ODA in the Republic of Korea, in line with UN sustainable Development Goals. Students in the course require to present their individual or team projects on Forest ODA cases in forest sector.

산림자원모델링특론 3 credit

(ADVANCED FOREST RESOURCE MODELING)

This course focuses on the advanced thchniques and science of decision-making with regard to the organization, use, and consevation of forests and related resources. In this course, the dicisions to discuss many different methods and to formulate and solve the related models with optimization and simulation methods used in actual decision making for wisely managing forests.

■ 산림이용학전공(FOREST UTILIZATION MAJOR)

목재추출화학특론 3 credit

(ADVANCED WOOD EXTRACTIVE CHEMISTRY)

The academic field of application of chemical engineering field of various kinds of wood extractives including polyphenols and flavanoids.

목재화학특론 3 credit

(ADVANCED WOOD CHEMISTRY)

This subject covers general wood chemistries including chemical delignification of wood, basic cellulose and hemi-cellulose chemistries and biochemistry of lignin in the wood. This subject also covers thermo chemical reactions with new theories of wood chemistry.

목재보존학특론 3 credit

(ADVANCED WOOD PRESERVATION THEORY)

Advanced lectures theory of wood protection; types of wood preservatives; types of fungus for wood deterioration; method of protection for wood cultural assets.

목재접착및보드제조특론 3 credit

(ADVANCED WOOD ADHESIVES AND PANEL MANUFACTURE)

Advanced lectures on types of wood adhesives; properties of wood adhesives; physical parameters affecting reconstituted wood products; individual standard and quality control; markets.

목재보존학특론 3 credit

(ADVANCED WOOD PRESERVATION)

Advanced lectures theory of wood protection; types of wood preservatives; types of fungus for wood deterioration; method of protection for wood cultural assets.

특수임산물학특론 3 credit

(SPECIAL FOREST PRODUCTS)

Lecture on types of mushroom, microorganism, utilization of extractive in wood, other minor properties of wood, charcoal from wood and woody material, essential oil, bark, tannin, turpentine oil, rosin, latex, natural lacquer.

목재가구학특론 3 credit

(ADVANCED WOOD FURNITURE)

Theory of furniture production, machines and their function, testing fastening system, computer-aided design, frame construction, fasteners, recliner mechanism, advanced wood machining, upholstering and design of upholstered furniture, and transportation.

펄프제지학특론3 credit

(ADVANCED PULP AND PAPER)

Lecture on type of pulping, pulp fiber properties, cellulose and lignin, control and interaction of surfaces in the beating and felting of fibers, dyeing, sizing, filling and coating, fundamental information of paper, technological aspects of making and using paper.

목재절삭학특론 3 credit

(ADVANCED WOOD MACHING)

Lecture on the raw materials, production methods and product specifications for sawn wood products, machinery and plant layout, operation, control, analysis of lumber manufacturing system, market.

목재역학특론3 credit

(ADVANCED WOOD MECHANICS)

Lecture on strength, elastic and viscoelastic behavior of wood and wood composites, variations in properties as function of structure, moisture, temperature and time, fracture in wood, stress analysis, structure design, and current topic in wood mechanics.

목조주택학특론 3 credit

(ADVANCED WOOD HOUSING)

Lecture on environmental wood house built, types of wood-based panel products, wood using in house, computer-aided design, energy saving materials, and green wood house construction.

목재건조학특론3 credit

(ADVANCED WOOD DRYING)

Lecture on both the basic and practical aspects of drying lumber, types of water in wood, types of drying, drying degradation, moisture control during transit and storage, dimensional change in wood, design factors affecting dimensional change in structure.

임산환경학특론 3 credit

(ADVANCED FOREST PRODUCTS ENVIRONMENT)

Lecture on environmental impact, regulation, management of wood treatment by-products and chemical wastes, biodegradation and microorganisms, bioremediation, biomass residues, soil, sediment, water, air contaminations, current clean-up technologies.

바이오매스학특론3 credit

(ADVANCED BIOMASS)

Lecture on bioenergy from wood and biomass, types of grass and agricultural crop residues, types of biomass, natural gas, ethanol, methanol, wood fuel, liquefaction of wood, economic aspect of bioenergy.