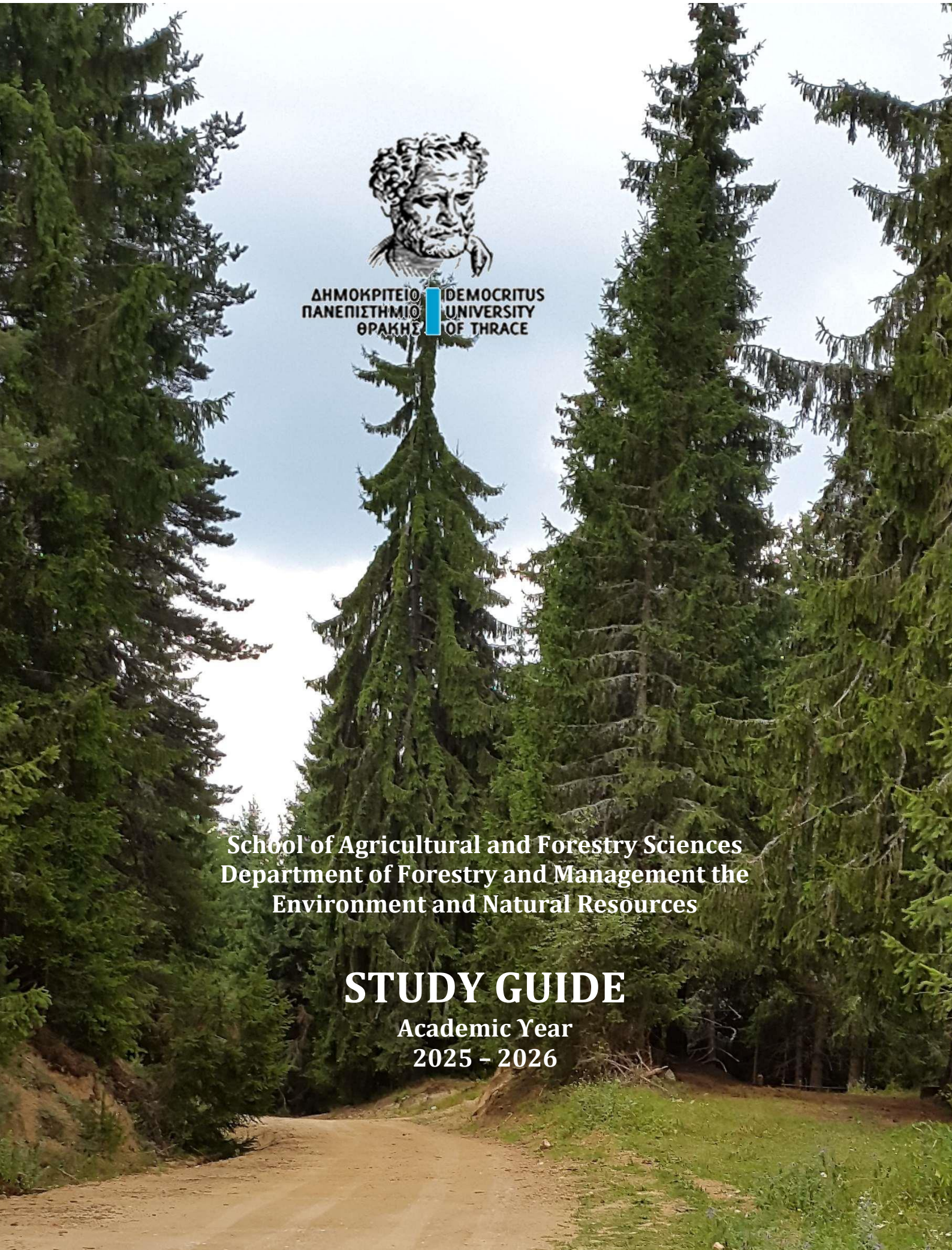

School of Agricultural and Forestry Sciences
Department of Forestry and Management the Environment and Natural Resources

STUDY GUIDE

Academic Year
2025 – 2026

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ΔΗΜΟΚΡΙΤΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΡΑΚΗΣ
DEMOCRITUS UNIVERSITY OF THRACE

School of Agriculture and Forestry Sciences
Department of Forestry and Management the Environment and of Natural Resources

Study Guide

Academic Year
2025 - 2026

INTRODUCTION

In its twenty-year history, the Department has contributed to the formation of the scientific identity of forestry in the country and continues to ensure the demanding criteria for the expression and practice of our science. This is achieved through our comprehensive undergraduate program which has a special physiognomy and meets modern needs. The culmination of our tireless efforts is the fact that the Department is today the only one of the five university forestry departments in Greece that awards to its graduates a Certificate of Pedagogical and Teaching Competence; an achievement that fills us with pride, but also a strong sense of responsibility for the continuation of our efforts.

The dedication of the Department to excellence, its student-centred orientation in teaching, its laboratories with state-of-the-art equipment, the mandatory completion of a diploma thesis are, among other things, the cornerstone of our Undergraduate Program. The high quality of studies in the Department is also reflected in the high level of the diploma theses, the publications of our students in reputable scientific journals, the numerous distinctions of our students during their postgraduate studies in well-known universities as well as their professional careers.

The connection of the Department with the labour market, the possibility of conducting internships in companies and organizations, the mobility opportunities through European programs, the cultivation of critical thinking, the development of leadership skills and the cultivation of a spirit of cooperation and creativity give our graduates a competitive advantage in the labour market and in their subsequent academic development.

The present Study Guide includes analytical information on the Departments' undergraduate program in force for the academic year 2025-2026. It also informs students about the Department's educational process and educational activities.

We wish all our students, old and new ones, the best of luck with their studies, assuring them that we will always be by their side, as helpers in their efforts.

The Head of the Department,
Professor Georgios E. Tsantopoulos

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THRACE

Geographically speaking, the area of Thrace resides in the northeast part of mainland Greece while it borders on Turkey from the east and on Bulgaria from the north. Notably, Thrace is directly connected with the two countries via a reliable road and railway network. Its range is 8.578 square kilometers (km^2) and its population reaches approximately 350.000 residents nowadays.

Thrace and the area of East Macedonia consists of a special administrative prefecture of the Greek state with the city of Komotini as its capital. It is divided into three districts, i.e.Xanthi, Rodopi and Evros with their capital cities of Xanthi, Komotini and Alexandroupoli respectively. The network of urban cities in this area is completed if we add the towns of Orestiada, Didimoteicho, Soufli, Feres, Iasmos and Sapes. Finally, Samothraki, one of the most beautiful islands in the North-East of Aegean Sea belongs to the Prefecture of Evros from an administrative point of view.

Agriculture, livestock and small-scale industry consist the major sectors of the economy in the area. Throughout recent years, there has been noted a rapid development in the sector of tourism as well. Due to its key geographic location, Thrace has been transformed into a ‘gate’ of Europe to Turkey and the East as well as into a significant transportation hub from and towards the area of Central Balkans. In effect, these achievements have resulted in the gradual development of the area and in the enhancement of living standards of its residents.

Within the limits of Thrace, there are important archeological sites such as Abdera, Maronia, Mesimvria, Samothraki, Mikri Doxipara and wet marshlands of exceptional importance such as the Delta of the rivers Nestos and Evros and the Vistonida lagoon which are all protected by national conventions and organizations.

Finally, Thrace also hosts one of the most important state National parks in Greece, the Dadia-Lefkimi-Soufli National Park, where some of the protected and rarest species of birds of prey in Europe find shelter.

Ardas River

NEW ORESTIADA

New Orestiada is the northernmost city in Greece and the capital city of the respective Borough. It is about 2 kilometers away in straight line from the river Evros, which is the natural border between Greece – Turkey. Its distance from Adrianoupolis and the tri-border area of Greece-Turkey-Bulgaria is 23 and 64 kilometers away respectively.

The Municipality of New Orestiada belongs to the prefecture of Evros, the biggest county in Thrace in terms of both range and population. The county has a range of 4.242 square kilometers and a population of 153.164 residents. The Municipality of New Orestiada is adjacent to Bulgaria from the West and the North to Turkey from the North and the East, as well as to the Municipality of Didimoteicho from the South and has a range of 944 square kilometers while its population reaches 41.074 residents. The population of the main city of New Orestiada is approximately 20.000 residents according to the 2011 Census, while the permanent residents are about 25.000.

The Town Square in Orestiada

The city has a 50-metre altitude and its distance from the capital city of Evros, Alexandroupolis, is 110 kilometers. Thessaloniki is 410 kilometers and Athens is 910 kilometers away respectively. The area of New Orestiada is one of the most fertile and productive areas in Greece, with a landscape that is distinctively beautiful and rich.

The area in Kastanies with Adrianoupolis in the background

GENERAL INFORMATION

- Democritus University of Thrace (DUTH)
- Administration in DUTH
- The Department of Forestry and Management of the Environment and Natural Resources

DEMOCRITUS UNIVERSITY OF THRACE (D.U.TH.)

FOUNDATION

Democritus University of Thrace was founded in July 1973. It was named «Dimocriteio» after the ancient Greek philosopher Democritus, whose origin was from the town of Abdera in Thrace. The administrative services of the University are based on the city of Komotini, which is the capital city in the Prefecture of East Macedonia and Thrace.

ORGANIZATION

The following Schools and Departments constitute parts of the Democritus University of Thrace:

POLYTECHNIC SCHOOL

- Department of Civil Engineering
- Department of Electrical and Computer Engineering
- Department of Environmental Engineering
- Department of Production Engineering and Administration
- Department of Architecture Engineering

LAW SCHOOL

- Department of Law

SCHOOL OF PHYSICAL EDUCATION & SPORTS STUDIES

- Department of Physical Education and Sports

SCHOOL OF CLASSICAL & HUMANITIES STUDIES

- Department of Greek Language and Literature
- Department of Languages, Philology and Culture of the Black Sea Countries
- Department of History and Ethnology

SCHOOL OF SOCIAL, POLITICAL & ECONOMIC STUDIES

- Department of Economics
- Department of Social Administration and Political Science

SCHOOL OF HEALTH STUDIES

- Department of Medicine
- Department of Molecular Biology and Genetics

SCHOOL OF EDUCATION STUDIES

- Department of Primary Education
- Department of Education Science in Early Childhood
- Department of Psychology

SCHOOL OF AGRICULTURAL & FORESTRY SCIENCE STUDIES

- Department of Agricultural Development
- Department of Forestry and Management of the Environment & Natural Resources
- Agricultural Biotechnology and Oenology Department
- Department of Natural Environment and Climate Resilience

ADMINISTRATION AT DEMOCRITUS UNIVERSITY OF THRACE

As a Higher Education institution, the University is an institution governed by public law and as such it acts under a regime of full subsidiary. It is supervised and funded by the Greek State via the Greek Ministry of National Education and Religious Affairs.

The Senate, the Rector Council and the Rector are the academic and governing bodies of the University.

The General Assembly, the Deanery and the Dean are the governing bodies of each School while for each Department these are the General Assembly, the Administrative Board and the Head. Additionally, each Sector has the Assembly and the Director as its governing bodies.

The Senate

According to Law 4957/21-07-2022, Article 16, the Senate consists of: a) the Rector, b) the Deans of the Schools, c) the Heads of the Departments, d) one (1) representative from each category of members of the Special Teaching Staff, Laboratory Teaching Staff, and Special Technical Laboratory Staff (E.T.E.P.) of the Higher Education Institution (A.E.I.), provided that such staff categories exist within the institution, elected in accordance with Article 41, and e) the student representatives, comprising ten percent (10%) of the total number of Senate members.

The Rectorate

The Rectorate at Democritus University of Thrace for the four-year period 2022-2026 consists of the following members:

Rector

Fotios Maris, Professor in the Department of Civil Engineering at the Polytechnic School, Democritus University of Thrace

Vice-Rectors

- **Konstantinos Chalioris,** Vice Rector for Finance, Planning and Development, Professor in the Department of Civil Engineering at the Polytechnic School, Democritus University of Thrace
- **Georgios Broufas,** Vice Rector for Research and Innovation, Professor in the Department of Agricultural Development, at the School of Agricultural and Forestry Sciences, Democritus University of Thrace
- **Maria Grigoriou,** Vice Rector for Academic Affairs, Student Affairs & Lifelong Learning, Professor in the Department of Molecular Biology and Genetics, at the School of Health Studies, Democritus University of Thrace
- **Vassileios Gourgoulis,** Vice Rector for Administrative Affairs, Professor in the Department of Physical Education and Sports Science, Democritus University of Thrace

THE DEPARTMENT OF FORESTRY AND MANAGEMENT OF THE ENVIRONMENT AND NATURAL RESOURCES

The science of Forestry originates from the countries of Central and North Europe, due to contemporary and incrementally increasing needs for wood as raw material as well as due to the problems created by the extensive destruction of forests and, generally, of the natural environment.

Such concerns have led to the organization of university departments in Middle Europe and later on in the rest of the continent, Greece included. In this light, the first higher education Forestry School in Greece was founded and operated in 1917 in Athens and was later transferred to Thessaloniki in 1927 to form one of the first educational units of the newly founded Aristotle University of Thessaloniki.

The Department of Forestry and Management of the Environment and Natural Resources of the School of Agricultural and Forestry Sciences in Democritus University of Thrace that resides in Orestiada started its operation in the academic years 1999-2000 with the entrance of the first students. In the current academic year, it will accept approximately 160 students.

According to article 1 of P.D. 208/99, the purpose of the foundation and operation of the new department is the cultivation and promotion of Forestry Science as well as of the Environmental Science with special emphasis on the direction concerning the management of natural resources and on the training of scientists who are able to study, research, comprehend and apply modern methods for the development, improvement, protection and management of forests and woodlands and of the natural environment.

Forestry is a science that is largely based on the principles of sciences such as Physics, Mathematics, Botany, Zoology, Mineralogy, Meteorology and Chemistry. Nevertheless, it also needs the assistance of theoretical science such as Economics and applied sciences such as Topography. In this way, it creates its own edifice with the aid of similar scientific fields. In some areas, the science of Forestry collaborates with scientists of different specialty, mainly with engineers, chemists and biologists.

The Department of Forestry and Management of the Environment and Natural Resources aspires to contribute significantly to the development of Forestry Science, the enhancement of management and exploitation of Greek forests and, in general, of the natural resources as well as to the protection of the natural environment in our country through training, research, publications and the general active participation of its teaching staff and graduates.

More particularly, the presence of Democritus University of Thrace in the outermost prefecture of Evros and in the city of Orestiada has an additionally salient mission, i.e. to act as the Cultural Lighthouse in the wider area and contribute significantly to the development of local cultural and intellectual move.

ORGANIZATION & OPERATION OF THE DEPARTMENT

- Administrative & Organizational Structure of the Department
- Divisions and Laboratories
- Departmental Staff
- Operational Venues
- Entrance Regulations for Students

ADMINISTRATIVE AND ORGANIZATIONAL STRUCTURE OF THE DEPARTMENT

GOVERNING BODIES OF THE DEPARTMENT

The governing bodies of the department for the academic year 2025-2026 are the following:
The General Assembly of the Department consists of the following members:

- **HEAD**

Tsantopoulos Georgios, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

- **VICE HEAD**

Kantartzis Apostolos, *Associate Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

REGULAR MEMBERS

Tsantopoulos Georgios, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Galatsidas Spyridon, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Radoglou Kalliopi, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Drosos Vasileios, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Arabatzis Garyfallos, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Milios Elias, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Manolas Evangelos, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Kyriazopoulos Apostolos, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Kitikidou Kyriaki, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Karanikola Paraskevi, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Paschalidou Anastasia, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Dimou Vasiliki, *Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Orfanoudakis Michail, *Associate Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Korakis Georgios, *Associate Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Papakosta Malamati, *Associate Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Kantartzis Apostolos, *Associate Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Tsatiris Michail, *Assistant Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Andrea Veronika, *Assistant Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Papaioannou, George *Assistant Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Katagis Thomas, *Assistant Professor* in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Katsarou Eirene, *Special Educational Staff*in in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

Rantzoudi Eleni, Special Scientific and Teaching Staff in the Department of Forestry and Management of the Environment and Natural Resources, Democritus University of Thrace.

SECRETARY

Deputy Secretary: Ioanna Batziou
Administrative Staff: Antonia Tilioudi
Administrative Staff: Vasiliki Papadopoulou
Administrative Staff: Evgenia Otemperi

The postal address of the Department is:
DEMOCRITUS UNIVERSITY OF THRACE
SCHOOL OF AGRICULTURAL AND FORESTRY SCIENCES
DEPARTMENT OF FORESTRY AND MANAGEMENT OF THE ENVIRONMENT & NATURAL RESOURCES
ATH. PANTAZIDOU ST., 193
68200 ORESTIADA
Secretariat Phone: (25520) 41171-2-3-4

Indoor University Area for Students' Activities

SECTORS AND LABORATORIES

A. Sector of Ecology, Environmental Protection and Woodland Production

It covers the subject matter of General and Woodland Ecology, Forestry, Forestry Soil Science, Forest Genetics and Improvement of Forestry Plants, Forest Protection, Forest Botany and Geobotany, Protection of Nature and Landscaping.

1. Laboratory of Silviculture
Director: Radoglou Kalliopi

It meets the educational and research needs in this field as it focuses on: (i) the relation between living organisms and environmental factors, (ii) the analysis, structure and dynamic regeneration and treatment of forestry ecosystems, and (iii) issues related to the protection of nature and forest landscaping.

2. Laboratory of Forest Genetics & Improvement of Forest Species
Director:

It meets the educational and research needs in this field as it focuses on: (i) the population, quantitative and developmental genetics and genomics as well as on their applications on populations, forestry species and, generally on wild plants, (ii) the use of molecular indices and adaptive characters, (iii) plant morphometry and anatomy, (iv) statistical and bioinformatics mathematical models which enable the study of genetic diversity in populations of wild plant species, (v) the description of their evolutionary development, (vi) planning process for their adaptability to climatic change, (vii) the protection of genetics resources and of biodiversity in general, (viii) forest production support and environment protection via the improvement of forestry and rangeland plants.

3. Laboratory of Forest Botany
Director: Korakis Georgios

It meets the educational and research needs in this field as it focuses on: (i) the classification of spermatophytes (features, description, taxonomy of spermatophytes, trees and shrubs, morphological traits, biological requirements and geographical distribution of species).

4. Laboratory of Forest Protection
Director: Paschalidou Anastasia

It meets the educational and research needs in this field as it focuses on: (ii) forest pathology, (ii) forest entomology, (iii) forest fires and (iv) forest protection in itself and environmental protection as well as on the impacts of pollution on the environment in general. More specifically, the study of damages caused to trees, shrubs, forests and the urban environment due to biotic (e.g. insects, fungi, bacteria, etc.) and abiotic factors (climatic conditions, fires, inappropriate soil, pollution, etc) and by the man himself is further promoted. The laboratory also focuses on: (i) public's awareness-raising aiming to the protection of forestry ecosystems from forest fires, vandalisms, arbitrary land abuses, etc. In addition, pollution impacts on forestry ecosystems are also examined. Finally, the chemical and biological fight of the most significant biotic factors that cause damage to trees, shrubs, forests and cities is also studied with specific emphasis on the precautionary measures taken for the prevention of such damages.

5. Laboratory of Forest Soil Science
Director: Orfanoudakis Michail

It meets the educational and research needs in this field as it focuses on: (i) the relation between parent rock, soil and forest stands, (ii) the biology of forest soil, humus and forest soils, (iii) the development of forest soils, (iv) physical and chemical properties of forest soils, (v) the relation between forest soil and forest vegetation as well as between soil and forest nurseries, (vi) the relation between soil and artificially-made stands, (vii) use of methods for the improvement of non-productive forest soils and of soil (viii) improvement of harvesting and classification methods of forest soils.

B. Sector of Rangeland and Game Management

It covers the subject matter of Management of Rangelands, Game Management and Freshwater Fisheries.

1. Laboratory of Range Science
Director: Kyriazopoulos Apostolos

It meets the educational and research needs in this field as it focuses on: (i) rangeland ecology and (ii) management and restoration of rangelands.

2. Laboratory of Game Management and Freshwater Fisheries
Director: Papakosta Malamati

It meets the educational and research needs in this field as it focuses on game management and freshwater fisheries and addresses issues related to: (i) the biology, ecology, protection and management of wildlife, freshwater fish and fish farming.

C. Sector of Management and Development of Natural Resources

It covers the subject matter of Forest Biometry, Forest Management, Forest Aerial photography and Remote Sensing, Forestry Policy, Forest Economics, Forest Informatics, Forest Evaluation and Accounting, Forest Law and Forest Extensions.

1. Laboratory of Forest Biometry
Director: Kitikidou Kyriaki

It meets the educational and research needs in this field as it focuses on: (i) methods of forest statistical analysis, sampling methodology, measurement of felled wood and other forest products, measurement of standing trees and evaluation of stand parameters statically (Dendrometry) and dynamically (Growth) and (ii) methods of statistical analysis, of sampling and of measurement and evaluation of biological data that also include ecological data (with respect to clima and climatic change, biodiversity, soil), epidemiological-medical and genetics data.

2. Laboratory of Forest Management
Director: Galatsidas Spyridon

It meets the educational and research needs in this field as it focuses on: (i) Management (key concepts and management principles, functions of management, programming and analysis tools in forestry), (ii) Forest management basics (goals, principles and peculiarities of forestry, models for the analysis of forest production processes, stand maturity and rotation time, spatial distribution and division of forest), (iii) Planning in forestry, (iv) Forest management methods, (v) Sustainable management of forest ecosystems.

3. Laboratory of Forest and Environmental Policy, Education and Communication
Director: Manolas Evangelos

It meets the educational and research needs in this field as it specifically focuses on: (i) the subject of Forest and Environmental Policy, and more specifically, to issues related to the principles, methods and organizational means for the economy of forest wealthy resources, (ii) the economic assessment and evaluation of forest and environment significance as a source of raw material, energy, recreation, ecotourism, and income as well as a factor contributing to the protection of developmental projects, the atmosphere and of water potential in the country, (iii) the study of the theoretical framework and the applications in the field of Forest and Environmental Education, Treatment, Communication and Interpretation aiming to the assessment, comparison, counter-check and monitoring of the characteristics and citizens' environmental identity (environmental sensitivity, knowledge, stance, behavior, participation) as well as the improvement of their relationship with the natural environment. The laboratory also discusses (i) the social and economic development of silviculture in our country, (ii) the forestry cooperative and financial policy, (iii) the developmental trends in forestry production and consumption, (iv) choice of goals and decision-making in national silvicultural procedures, (v) the principles of planning and funding for different sectors of silvicultural activity, (vi) the Forest Administration, (vii) Forest Extensions, (viii) the Forest and Environmental Legislation and the comparative Forest Legislation, (ix) the Management Policies of Protected Areas, (x) the national and public relations and the international and European forest-politics and environmental issues.

4. Laboratory of Forest Economics and Entrepreneurship
Director: Arabatzis Garyfallos

It meets the educational and research needs in this field as it focuses on: (i) the basic principles of forest economics such as: the economics of the contributing factors to forest production, supply and demand in forest products, prices of forest products, social and economic planning in forest forms, planning and management of forest enterprises, micro-economic analysis of forest farms and forest enterprises, macro-economic analysis of forest farms and forest enterprises, Agricultural Forest Cooperatives, Evaluation of Investments, Projects and Programs.

General concepts and historical development of the forest industry in Greece, types of forest industries, economic criteria for the spatial planning of forest industries, planning and control of raw material, production line and human resources, cost of production, analysis of economic outputs and improvement and optimization measures, optimization of the economic output of forest industries, economic-technical studies.

Market of forest products and their environment, study and analysis of the purchase of raw and manufactured forest products, basic principles of marketing, consumer behavior, market segmentation, market survey, marketing survey, Greek and international market of forest products, Green products and services, Green marketing, marketing of Green products and services.

Key concepts, birth and development of entrepreneurship, foundation and organization of business, business liabilities, entrepreneurship and innovation, the role of small and medium enterprises, development of business plans, business opportunities expansion, polices for entrepreneurship and support agencies, human resource management, economic management and succession. Entrepreneurship stands and networks, interconnections among agencies, product and services development. Funding, pricing, costing, development of ideas for new products and services, assessment of ideas, trademarks management, advertisement, green entrepreneurship, Corporate Social Responsibility, study and analysis of selected entrepreneurship case studies.

5. Laboratory of Forest Informatics
Director:

It meets the educational and research needs in this field as it focuses on: (i) the introductory IT concepts, (ii) structure and architecture of the computer system, (iii) information systems, (iv) the IT use and on the instruction of key modern operational systems, (v) use of up-to-date software in forest research and practice, (vi) the introduction to and use of Geographic Information Systems (GIS), (vii) the use of spreadsheets, word processing and statistical analysis software, (viii) the use of databases software and software for the design and organization of databases, (ix) the use of forestry databases, (x) the instruction of programming languages, (xi) the introduction to basic data structures, structured programming, object-oriented programming and visual programming, (xii) the development of computer programs that aim to offer solutions to forestry problems in practice, (xiii) the use of computer networks in project management, (xiv) the basic principles of artificial intelligence, (xv) the theoretical description of experienced systems, (xvi) use of shells in the development of experienced systems and of fuzzy logic experienced systems, (xvii) use of network applications, project management and experienced systems in Forestry.

6. Laboratory of Forest Remote Sensing and Geospatial Analysis
Director: Katagis Thomas

It meets the educational and research needs in this field as it focuses on the area of forest remote sensing that includes methods for remote sensing data processing and analysis in order to extract information considering forest ecosystems and the natural environment. It also focuses on the field of geospatial analysis that involves the gathering, storage, processing, analysis, management and presentation of geographical (spatial) data to enable our understanding of the procedures and the dynamic of spatial changes that occurs in the environment via the innovative use of geospatial methods and tools such as geographical information systems.

D. Sector of Forest and Water Engineering

It covers the subject matter of Mountain River Training and the River Basin Management, Forest Constructions, Forestry Roads and Forestry Transportation, Topography and Forest Cadastre.

1. Laboratory of Mountain River Training and Risk Management
Director: Papaioannou, George

It serves the educational and research needs in this field as it focuses on (i) the laws governing the movement of water and the erosion processes that occur within mountainous areas and their prevention, (ii) the principles for the construction of hydraulic works that deal with the torrential flow of mountainous streams, (iii) regulation and management of watersheds and river basins and manipulation of river basin vegetation to regulate water resources management and risk management of flooding, landslides, and drought.

2. Laboratory of Engineering Sciences and Topography
Director: Drosos Vasileios

It meets the educational and research needs in this field as it focuses on: (i) forest constructions, (ii) forestry roads and forestry transportation, (iii) topography and forest cadastre.

3. Drawing Room

E. Sector of Forest Products Harvesting and Technology

It covers the subject matter of Forest Products Harvesting, Wood Properties, Chemical and Mechanical Wood Processing and its Products and Operation of Wood Industries.

1. Laboratory of Forest Technology
Director: Dimou Vasiliki

It meets the educational and research needs in this field as it focuses on: (i) the process of forest products harvesting, (ii) forestry work, (iii) wood structure and properties.

2. Laboratory of Wood Technology and Bioenergy
Director: Tsatiris Michail

It meets the educational and research needs in this field as it focuses on the area of Wood Technology that involves: (i) the chemical substance of wood and its chemical products, (ii) wood technology and its products, (iii) operation of wood industries. The field of Bioenergy refers to the area of forest energy.

DEPARTMENTAL STAFF

RESEARCH AND TEACHING STAFF

The Teaching and Research Staff of the Department consist of 12 Professors, 4 Associate Professors, and 4 Assistant Professors. In addition, the Department covers some of its teaching needs with Scientific Personnel hired as Adjunct Lecturers. Specifically, the Scientific Personnel of the Department consists of:

PROFESSORS

Radoglou Kalliopi, Professor. Specialization Area: Forest Eco-physiology.

Drosos Vasileios, Professor. Specialization Area: Forest Cadastre, Forest Constructions, Forest Opening-Up

Arabatzis Garyfallos, Professor. Specialization Area: Investments and Regional – Forest Development.

Milios Ilias, Professor. Specialization Area: Silviculture.

Tsantopoulos Georgios, Professor. Specialization Area: Forest Extensions.

Manolas Evangelos, Professor. Specialization Area: Sociology and Environmental-Forest Education.

Galatsidas Spyridon, Professor. Specialization Area: Forest Management – Management of Non-Timber functions of forest.

Kyriazopoulos Apostolos, Professor. Specialization Area: Range Management and Improvement -Silvopastoral Systems.

Kitikidou Kyriaki, Professor. Specialization Area: Forest Biometry

Karanikola Paraskevi, Professor. Specialization Area: Forest Protection – Forest Entomology.

Paschalidou Anastasia, Professor. Specialization Area: Meteorology-Atmospheric Pollution

Dimou Vasiliki, Professor. Specialization Area: Forest Products Harvesting and Forest Work

Orfanoudakis Michail, Associate Professor. Specialization Area: Forest Soil Science.

Korakis Georgios, Associate Professor. Specialization Area: Forest Botany

Papakosta Malamati, Associate Professor. Specialization Area: Wildlife Ecology and Management

Kantartzis Apostolos, Associate Professor. Specialization Area: Forestry Projects – Forest Road Construction

Tsatiris Michail, Assistant Professor. Specialization Area: Forest Energy-Models and Perspectives of Forest Resources

Andrea Veronika, Assistant Professor. Specialization Area: Forest Policy

Papaioannou, George, Assistant Professor, Specialization Area: Mountain River Training - Forest Hydrology

Katagis Thomas, Assistant Professor, Specialization Area: Remote Sensing of Forest Resources and Geographic Information Systems

EMERITUS PROFESSORS

Efstathios Tsachalidis, Subject of Specialty: Ecology and Game Management.

Konstantinos Soutsas, Subject of Specialty: Regional Environmental Policy: Forest Resources and Quantitative Methods

SPECIAL EDUCATIONAL STAFF

Katsarou Eirene, English Language & Literature, Ph.D.

SPECIAL SCIENTIFIC AND TEACHING STAFF

Rantzoudi Eleni, Forester – Environmentalist, M.Sc
Chatzilazarou Georgios, Forester – Environmentalist, M.Sc
Daoutis Christodoulos, Forester – Environmentalist, M.Sc
Simeonidis Aggelos, Forester – Environmentalist, M.Sc

SPECIAL TECHNICAL AND LABORATORY STAFF

Ioannis Gkougkourelas,
Forester – Environmentalist, M.Sc

TECHNICAL SERVICE

Deligianni Pemanthoula, Civil Engineer, M.Sc

SECRETARY STAFF

Batziou, Ioanna
Tilioudi, Antonia
Papadolpoulou Vasiliki
Otemperi, Evgenia

LIBRARY STAFF

Zelidou, Eleni

Outdoor Area of the School

FUNCTIONAL SPACES

The two Departments that reside in Orestiada, i.e. the Department of Forestry and Management of the Environment and Natural Resources and the Department of Agricultural Development are housed in three buildings whose total surface of infrastructures reaches 5.486 square meters. More specifically, this includes: the Central building with a surface of 2.826 square meters, the Amphitheater building with a surface of 791 square meters, the Laboratories building with a surface of 1.800 square meters and the canteen with a surface of 69 square meters. The University is located within the city of Orestiada.

Voluntary Blood Donation at the School Amphitheatre

The building infrastructure of the University also includes a 200-seat Ceremony Room, four 50-seat Teaching Rooms and two 150-seat Amphitheatres. The Laboratory infrastructure includes three Laboratory Rooms and one Drawing Room equipped with modern logistical infrastructure. The laboratories have been organized into a type of 'multi-laboratories' where similar courses are taught together. Additionally, there is also a modern Computer Laboratory. The Laboratories building was added to the university infrastructure in 2003 and includes nine (9) laboratories with auxiliary space and twenty-five (25) offices.

Theatrical Performance at the Ceremony Room of the School

Furthermore, there is a Reading Room and a Computer Room that facilitate further our students' study and research as well as a modern Library which holds 8.500 books and is continually updating its material. Finally, the availability of the Student Residence and the Student Club meet our

students' needs, while the University Nursery and outdoor teaching spaces are currently being organized.

Student Residence Facilities

Student Dining Hall

ENTRANCE REGULATIONS FOR STUDENTS

ENTRANCE – REGISTRATION

Students' entrance to the Department of Forestry and Management of the Environment and Natural Resources can be achieved:

- through participation in the system of nationwide entrance exams: according to the currently applicable national entrance examination system of the Ministry of Education (for high school graduates or those falling under special categories).
- based on special arrangements (Health Reasons, Athletes, Greeks residing abroad, Foreigners)

The students who enter the Department based on their results in the Panhellenic university entrance examinations are asked to register within a certain time period set out by the Greek Ministry of Education and Religious Affairs in the form of a ministerial order that is published in the daily press. In all other cases, registration is completed based on what applies in the current legislation for each case. In case registration is not completed within set deadlines, the student loses his/her right to register.

The process of registration can be successfully achieved when either the student him/herself or a legally authorized person submits to the Departmental Secretariat all necessary documents following relevant legislation. While registering, it is necessary that prospective students display their Identity Card to the Departmental Secretariat or whichever other legal documentation can equally serve as a proof of impersonation.

TRANSFER

Students who belong to certain categories as set out by current legislation have the right to apply for transfer to another University in the country.

Transfers are allowed to other Schools or Departments equivalent to the Schools or Departments where a student has initially entered, from one University to another University and on condition that the host institution resides in another prefecture. In any case, no student transfers are approved to an equivalent Department within the same University.

Candidates' applications are electronically submitted within certain deadlines set out by the Ministry of Education, Research and Religious Affairs only for an equivalent Department by students themselves.

Candidates' documentation is submitted to the equivalent Department by students themselves or by his/her legally authorized representative.

Transfers are carried out by the University Senate with a decision after having been approved by the General Departmental Assembly.

PLACEMENT EXAMINATIONS FOR GRADUATES OF HIGHER EDUCATIONAL AND HIGHER-LEVEL SCHOOLS OF OVER TWO-YEAR AND TWO-YEAR CYCLE OF STUDIES

The placement of graduates of higher education (A.E.I.), technical and higher-level schools of over two-year and two-year cycle of studies are realized through examinations at a percentage of 12% on the number of new entrants to the Department. The application for the placement of candidate graduates to the Department is submitted to the Secretary of the Department from 1 until 15 November.

Examinations are carried out on three courses within the first 20 days in December. To secure a place in the Department, a candidate must achieve a passing grade in all three courses. The placement is carried out in a descending order.

UNDERGRADUATE COURSE SYLLABUS

- General Principles
- Learning Outcomes
- Elective Courses by Direction
- Course Categories
- Curriculum

GENERAL PRINCIPLES

The course syllabus is approved by the General Assembly of the Department and is governed by the following general principles:

1. All 'Compulsory' courses are taught between 3 – 6 hours per week while all 'Optional' courses are taught 3 hours per week. The only exception is the course of Foreign Language which is taught 4 hours per week throughout the first 2 academic semesters.
2. The student is obliged to have successfully attended nine (9) elective compulsory courses up until the completion of his studies, out of which six (6) will be from the direction he attends and three (3) from the same or another direction.
3. In the 3rd, 4th, 5th, 6th and 9th semester, students choose one elective compulsory course while in the 7th and 8th semester they choose two elective compulsory courses. It is possible to change an elective compulsory course up to up to one year after their course registration.
4. The grade of the above elective compulsory courses will be calculated for the final grade of the degree. Students are given the opportunity to choose more than nine elective compulsory courses up to one additional elective compulsory course in each semester, as an elective course, but its grade will not be taken into consideration for the final grade of the degree.
5. Students of past semesters that have not been registered in any elective compulsory course or they have registered in a smaller number of elective compulsory courses of their direction, they have the right to register in the appropriate number of elective compulsory courses of the semester they attend following paragraph 3 above so that they can register in nine (9) elective compulsory courses as it is required for the completion of their studies.
6. The minimum number of students attending the elective compulsory courses is twelve (12) students per course, according to the Regulation of the DUTH.
7. It is mandatory that students choose the direction of studies they wish to pursue in the 3rd semester, and they have the right to change their initial decision at the beginning of the 6th semester and only once.

All the above changes take effect from the Academic Year 2021-2022 and will apply to students who are admitted this academic year. Following the decisions of the Assemblies of the Department, all the previously approved Curricula apply for the already registered students.

LEARNING OUTCOMES

Upon completion of his studies, the Graduate of the Department acquires the necessary scientific knowledge to practice the profession of Forester and is able to:

• understands and explains the natural and biological processes that make up the forest ecosystem and evaluates the impact of human activities on it

• understands and explains the financial analysis framework applicable to natural resource management and applies it in given cases

• understands and explains the social factors that affect the use of natural resources and evaluates their relative importance in specific cases

• understands and interprets the changes that occur, both temporally and spatially, in the natural ecosystem but also in the economic and social field and seeks the rational balance for the sustainable management of the ecosystem

• applies modern methods, making rational decisions for the development, improvement, protection and sustainable management of forests, forest areas and the natural environment

DIRECTIONS AND ELECTIVE COURSES

1ST DIRECTION
ECOLOGY – ENVIRONMENTAL PROTECTION AND FOREST PRODUCTION

1. Soil Microbiology
2. Sampling – Experimental Designs
3. Forest Phyto-sociology and Pytho-geography
4. Forest Growth and Yield
5. Forest Soil Fertility
6. Energy and Environment
7. Enemies of Trees & Shrubs in the Urban Environment
8. Forest Informatics
9. Renewable Energy Sources
10. Ornamental Trees and Shrubs
11. Molecular Markers and Plant Genetics
12. Hydroinformatics
13. Environmental Remote Sensing – Digital Image Processing
14. Evolutionary Biology and Biodiversity
15. Environmental Physics –Pollution of Natural Environment
16. Urban Forestry
17. Chemical and Biological Control of Diseases and Insects
18. Digital Geo-spatial Analysis and Natural Resources Mapping
19. Principles of Edible Fungus Utilization
20. Climate change scenarios – Adaptation and Vulnerability
21. Technical projects and Environmental Impact Studies

2ND DIRECTION
RANGELAND AND GAME MANAGEMENT

1. Rangeland Plants
2. Forest Phyto-sociology and Phytho-geography
3. Wildlife Biology
4. Ornamental Trees and Shrubs
5. Fish Farming
6. Management of non-Timber Forest Functions
7. Wetland Management and Protection
8. Rangeland Development Systems
9. Agroforestry

3RD DIRECTION
MANAGEMENT AND DEVELOPMENT OF NATURAL RESOURCES

1. Forest Recreation
2. Green Entrepreneurship and Innovation
3. Sampling – Experimental Designs
4. Public Relations and Management of Environmental Crises
5. Forest Growth and Yield
6. Didactics of Environmental Science
7. Energy and Environment
8. International Environmental Relations
9. Forest Informatics
10. Forest Extensions
11. Renewable Energy Sources
12. Environmental Remote Sensing – Digital Image Processing
13. Management of non-Timber Forest Functions
14. Spatial Planning and Regional Development
15. Wetland Management and Protection
16. Waste Management and Recycling
17. Digital Geo-spatial Analysis and Natural Resources Mapping
18. Forest Valuation and Accounting
19. Applied Forest Management
20. Management Policies of Protected Areas
21. Climate change scenarios – Adaptation and Vulnerability

4TH DIRECTION
FOREST AND WATER ENGINEERING

1. Green Entrepreneurship and Innovation
2. Water Resources Management
3. Building and Structural Materials
4. Soil Mechanics – Machinery Applications in Forest Works
5. Topographical Instruments and Surveying of Forest Areas Hydroinformatics
6. Hydro-meteorological Disaster Management
7. Digital Geo-spatial Analysis and Natural Resources Mapping
8. Technical works and Environmental Impacts Assessment
9. Hydroinformatics

5TH DIRECTION
FORESTRY PRODUCTS HARVESTING AND TECHNOLOGY

1. Forest Ergonomics
2. Energy and Environment
3. Forest Informatics
4. Renewable Energy Sources
5. Measurement and Classification of Raw Timber
6. Forest Industries
7. Technical Projects and Environmental Impact Assessments

COURSE SYLLABUS

General Background Courses

These are the courses that, although not directly related to the science that the Curriculum treats, nevertheless provide necessary pre-existing scientific knowledge so that students will be able to understand topics directly included in it.

Courses that belong to this category are the following:

1. General Botany – Morphology
2. Technical Drawing – Geo-informatics
3. Soil Science
4. Environmental Communication and Environmental Awareness
5. Sociology
6. General Botany – Physiology
7. Informatics
8. Foreign Language I
9. Foreign Language II

Scientific Area Courses (Special Background)

These are courses that refer to cognitive fields that are directly related to the scientific subject of the Curriculum. Courses that do not belong to any of the other categories belong here.

Computer Knowledge Certification Courses

1. Technical Drawing – Geo-informatics, compulsory course (1st semester)
2. Informatics, compulsory course (1st semester)
3. Digital Design of Road Construction -Forest Engineering, compulsory course (4th semester)
4. Forest informatics, elective compulsory course (5th semester)
5. Elements of Topography – Forest Cadastre, compulsory course (4th semester)
6. Geographic Environmental Information Systems, compulsory course (7th semester)
7. Hydro-informatics, elective compulsory course (7th semester)
8. Environmental Remote Sensing – Digital Image Processing, elective compulsory course (7th semester)
9. Digital Geo-spatial Analysis and Natural Resource Mapping, elective compulsory course (8th semester)

DEMOCRITUS UNIVERSITY OF THRACE
SCHOOL OF AGRICULTURAL AND FORESTRY SCIENCES
DEPARTMENT OF FORESTRY AND MANAGEMENT OF THE ENVIRONMENT AND OF NATURAL RESOURCES
UNDERGRADUATE COURSE SYLLABUS
Courses, Laboratory Training hours and Credits

1st Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Sociology	2	1	3	3	2
2.General Botany - Morphology	2	2	4	3	4
3.Informatics	3	2	5	4	4
4.Technical Drawing – Geo-informatics	2	2	4	3	4
5.Ecology	3	-	3	3	2
6.Soil Science	3	2	5	4	5
7.Environmental Communication &Environmental Awareness	2	2	4	3	5
8.Foreign Language I	4	-	4	4	4
TOTAL	21	11	32	27	30

2nd Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.General Botany - Physiology	3	2	5	4	5
2.Environmental Education	3	2	5	4	5
3.Forest Soil Science	3	2	5	4	5
4.Biostatistics	3	2	5	4	7
5.Forest Remote Sensing – Aero-photography	3	2	5	4	4
6.Foreign Language II	4	-	4	4	4
TOTAL	19	10	29	24	30

3rd Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Forest Constructions – Technical Mechanics Engineering	4	1	5	5	5
2.Forest Botany I	3	2	5	4	6
3.Forest Biometry	4	2	6	5	7
4.Meteorology	3	2	5	4	5
5.Forest Pathology	3	1	4	4	5
XXX** ECTS in Optional Courses					
TOTAL	**19**	**9**	**28**	**25**	**30**

4th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Forest Botany II	3	2	5	4	6
2.Digital Design of Forest Road Construction - Forest Engineering	3	2	5	4	6
3.Forest Entomology and Zoology	3	1	4	4	4
4.Elements of Topography – Forest Cadastre	3	2	5	4	6
5.Hydrology – Hydraulics of Mountainous Watersheds	3	2	5	4	6

XXX** ECTS in Optional Courses					
TOTAL	**17**	**10**	**27**	**23**	**30**

5th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Rangeland Ecology	3	2	5	4	5
2.General Silviculture – Forest Ecology	4	1	5	5	5
3.Forest Genetics and Protection of Forest Resources	3	2	5	4	5
4.Wood Structure and Properties	3	2	5	4	5
5.Forest Ecophysiology	3	2	5	4	4
6.Freshwater Fish Farming	3	2	5	4	4
XXX** ECTS in Optional Courses					
TOTAL	**21**	**12**	**33**	**28**	**30**

6th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Applied Silviculture	5	1	6	6	7
2.Rangeland Management and Improvement	3	2	5	4	6
3.Wildlife Ecology and Management	3	2	5	4	6
4.Chemistry and Chemical	3	1	4	4	6

Wood Products					
5.Traineeship in the Field	-	-	-	-	3
XXX** ECTS in Optional Courses					
TOTAL	**16**	**7**	**23**	**21**	**30**

7th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Mountain River Training	3	2	5	4	5
2.Forest Management I	3	2	5	4	6
3.Forest Products Harvesting	3	1	4	4	5
4.Forest Economics	3	2	5	4	5
5.Geographic Environmental Information Systems	3	2	5	4	5
XXX** ECTS in Optional Courses					
TOTAL	**19**	**11**	**30**	**25**	**30**

8th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Protection and Architectural Landscaping	3	1	4	4	3
2.Investments and Forest Resources Development	2	2	4	3	4
3.Environmental Policy and Decision Making	3	1	4	4	4
4.Forest Management II	3	2	5	4	4

5.Wood Technology	3	1	4	4	3
6.Climate Change	3	1	4	4	3
7.Traineeship in the Field	-	-	-	-	3
8.Traineeship in Forestry Agencies	-	-	-	-	2
XXX** ECTS in Optional Courses					
TOTAL	**21**	**10**	**31**	**28**	**30**

9th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Climate Change and Forest Ecosystems	3	1	4	4	4
2.Nurseries - Reforestations	3	1	4	4	5
3.Forest Energy	3	2	5	4	5
4.Forest Policy	3	2	5	4	6
5.Forest Law	3	-	3	3	4
6.Forest Fires	2	1	3	3	4
XXX** ECTS in Optional Courses					
TOTAL	**19**	**8**	**27**	**25**	**30**

10th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Undergraduate Thesis	-	-	-	30	30
TOTAL	**-**	**-**	**-**	**30**	**30**
			Teaching credits	**ECTS**	
TOTAL OF UNDERGRADUATE COURSES			**256**	**300***	

Optional Courses

3rd Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Rangeland Plants	2	1	3	3	2
2.Soil Microbiology	2	1	3	3	2
3.Green Entrepreneurship and Innovation	2	1	3	3	2
4.Forest Recreation	2	1	3	3	2
5.Sampling – Experimental Designs	2	1	3	3	2

4th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Didactics of Environmental Science	2	1	3	3	2
2.Forest Soil Fertility	2	1	3	3	2
3.Forest Phyto-sociology and Phyto-geography	2	1	3	3	2
4.Public Relations and Management of Environmental Crises	2	1	3	3	2
5.Forest Growth and Yield	2	1	3	3	2
6.Wildlife Biology	2	1	3	3	2
7.Forest Ergology	2	1	3	3	2

5th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Energy and Environment	2	1	3	3	2
2.Water Resources Management	2	1	3	3	2

3.International Environmental Relations	2	1	3	3	2
4.Enemies of Trees & Shrubs in the Urban Environment	2	1	3	3	2
5.Building and Structural Materials	2	1	3	3	2
6.Forest Informatics	2	1	3	3	2

6th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Forest Extensions	2	1	3	3	2
2.Renewable Energy Sources	2	1	3	3	2
3.Soil Mechanics – Machinery Applications in Forest Works	2	1	3	3	2
4.Ornamental Trees and Shrubs	2	1	3	3	2
5.Molecular Markers and Plant Genetics	2	1	3	3	2

7th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Topographical Instruments and Surveying of Forest Areas	2	1	3	3	2
2.Hydro-informatics	2	1	3	3	2
3.Farm Fishing	2	1	3	3	2
4.Environmental Remote Sensing – Digital Images Processing	2	1	3	3	2
5.Management of non-Timber Forest Functions	2	1	3	3	2
6.Measurements and	2	1	3	3	2

Classification of Unprocessed Timber					
7.Spatial Planning and Regional Development	2	1	3	3	2
8.Wetlands Management and Protection	2	1	3	3	2
9.Evolutionary Biology and Biodiversity	2	1	3	3	2

8th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Urban Forestry	2	1	3	3	2
2.Rangeland Development Systems	2	1	3	3	2
3.Waste Management and Recycling	2	1	3	3	2
4.Chemical and Biological Control of Diseases and Insects	2	1	3	3	2
5.Forest Industries	2	1	3	3	2
6.Digital Geo-spatial Analysis and Natural Resources Mapping	2	1	3	3	2
7.Environmental Physics - Air Pollution	2	1	3	3	2
8.Hydro-meteorological Disaster Management	2	1	3	3	2
9.Forest Valuation and Accounting	2	1	3	3	2
10.Applied Forest Management	2	1	3	3	2

11.Principles of Edible Fungus Utilization	2	1	3	3	2

9th Semester	Theory (hr)	Lab / Exercise (total hrs)	Teaching hrs (total)	Teaching credits	ECTS
1.Agroforestry	2	1	3	3	2
2.Technical Works and Environmental Impacts Assessment	2	1	3	3	2
3.Management Policies of Protected Areas	2	1	3	3	2
4.Climate change scenarios – Adaptation and Vulnerability	2	1	3	3	2

OUTLINE OF TAUGHT COURSES

- Summary of Compulsory Courses
- Summary of Optional Courses

SUMMARY OF COMPULSORY COURSES

1st Semester

♦ Sociology

The course covers the following points:

Key concepts and theoretical approaches in sociology; family; divorce; socialization; religion; education; political sociology: power and state; racial relations; deviant behavior; population; natural environment; ecological villages.

♦ General Botany – Morphology

The course covers the following points:

Plant cell structure, cell membranes, nucleus and major cellular organelles; primary and secondary cell wall; plant tissues; meristems, plant growth and development; epidermal tissue, parenchymal tissue, supporting tissue, conductive tissue, secretory tissue, periderm; monocotyledonous and dicotyledonous shoot; shoot of perennial woody plants; stem metamorphoses; leaf and leaf metamorphoses; root and root metamorphoses.

♦ Informatics

The course covers the following points:

Introduction to operating systems; operating system structure; central processing unit management; memory management; file directories and program and data files; description of the main commands of the UNIX operating system; principles and objectives of programming; structured programming; flowcharts and algorithms; data structures, files and file types; chains, rings, trees; record tracking techniques; visual programming with Visual Basic.

♦ Technical Drawing - Geoinformatics

The course covers the following points:

Design methods and procedures; use of design tools; general rules for designing a topographic plan; introduction to electronic design - presentation of the AutoCAD program; methods and rules for creating and editing the topographic plan in a digital environment; technical drawing scales, definition of design scales; dimensioning, dimensions and rules of their placement, methods of indicating dimensions; views –sections; grid, frame, memorandum of forestry plan and topographic diagram; forestry map, digital mapping, map categories, projection systems; presentation and printing of drawings; geo-referencing files in mosaic format, geographic data structure; conversion of mosaic models to vector.

♦ Ecology

The course covers the following points:

Key principles of ecology; autecology; relationships between living beings; population ecology, synecology, definition of ecosystem; analysis of the structure and function of ecosystems, factors that affect the stability of ecosystems; biochemical cycle; characteristics of disturbances and their effect on forest ecosystems; development and evolution of ecosystems.

♦ Soil Science

The course covers the following points:

The course covers the following points:

Introduction to the soil science; description of minerals and rocks; soil genesis processes and parameters; description of the main soil restoration processes; physical properties of soils; organic and inorganic soil colloids, soil ion exchange capacity; chemicals properties, soil reaction.

♦ Environmental Communication and Environmental Awareness

The course covers the following points:

The process of communication; definitions of environmental communication; correlation of environmental communication and education; models for the design and implementation of environmental communication and education programs; environmental interpretation; environmental interpretation program design; techniques for creating messages and short programs of environmental interpretation; the operation of the media; Mass Media and environmental education; Mass Media as environmental educators; Mass Media and environmental awareness; Mass Media and environmental information; environmental journalism; the role of journalists in the coverage of environmental issues; Social media; information - awareness campaigns; citizens' participation in decision-making processes; environmental risk; risk communication; case studies; citizens' awareness-raising on issues of energy - energy saving; utilization of renewable energy sources and climate change issues.

♦ Foreign Language I (English)

The content of the course 'English 1' covers key issues in the field of forestry and environmental using appropriate material that enable students to expand their technical vocabulary in the area of their studies, enhance their academic reading and writing skills and use the language effectively in diverse communicative contexts to further their academic and scientific potential in a foreign language.

2nd Semester

♦ General Botany - Physiology

The course covers the following points:

Plant and cell architecture; cell wall structure; growth and development in higher plants; signals from sunlight; photosynthesis light reactions; photosynthesis; the reactions of carbon; photosynthesis; physiological and ecological investigation; respiration and lipid metabolism; water and plant cells; water intake and transport; Water Balance in plants; regulation of plant growth, external factors, internal factors, plant hormones; assimilation of inorganic nutrients; dormancy and seed germination.

♦ Environmental Education

The course covers the following points:

Historical development of environmental education/education for sustainable development; international declarations on environmental education/education for sustainable development; the concept of sustainable development; educational ideologies for environmental education; pedagogic characteristics of environmental education (e.g. inter-disciplinarity, critical thought, clarification of values);ways of integrating activities of environmental education in the school (e.g. vaccination model, interdisciplinary model);locating resources and utilizing material for planning learning activities.

♦ Forest Soil Science

The course covers the following points:

Description of forest soils; soil organic matter, description, origin and role of soil organic compounds; nutrients, description availability; soil organisms, fungal microorganisms, larger

organisms, their ecological role in forest soil groundwater distribution of nutrients in the soil-forest ecosystem nutrient uptake, conditions and mechanisms soil classification.

♦ Biostatistics

The course covers the following points:

Descriptive statistics: collection presentation processing of biological statistical data; form dispersion site measures; probability data; theoretical distributions (Bernoulli, binomial, Poisson, hypergeometric, normal, standard normal, x^2, t, F); applied statistics: parameter estimation (point estimation, confidence interval estimation);hypothesis tests (tests of mean equality, equality of variance, good fit, x2 independence, correlation, randomness, homogeneity); analysis of variance; regression.

♦ Forestry Remote Sensing – Aero-photography

The course covers the following points:

Introduction - historical development; key concepts of remote sensing; technical characteristics of satellite technology; electromagnetic radiation, spectral behavior of objects; passive, active systems and super spectral systems; satellites; data from aerial remote sensing platforms; aerial photography and unmanned aerial remote sensing systems (UAVs); aerial photography design; geometry of aerial photography; deformations; stereoscopic observation; types of stereoscopes; roadmap for remote sensing digital image processing and information retrieval; principles of visual interpretation; photo interpretation of forest areas; recognition of forest parameters; measurements of various parameters of the tree and the stand; mapping from aerial photographs; orthophotos; orthophoto maps; special applications of remote sensing and forest aerial photography in the monitoring, management, protection and development of forest ecosystems and the environment.

♦ Foreign Language II (English)

The content of the course 'English 1' covers key issues in the field of forestry and environmental using appropriate material that enable students to expand their technical vocabulary in the area of their studies, enhance their academic reading and writing skills and use the language effectively in diverse communicative contexts to further their academic and scientific potential in a foreign language. English II is a continuation of the course 'English I" taught in the first semester.

3RD SEMESTER

♦ Forest Constructions – Technical Engineering

The course covers the following points:

General principles and construction methods of elements and constructions of wood, masonry, reinforced concrete and stones. Dimensioning of forest road construction works, such as small technical works (ditches, grooves, passages, culverts), retaining walls, bridges (of road construction and recreation areas) and analysis of their financial data. Dimensioning of wooden building forest structures (roofs, prefabricated houses, constructions of recreation areas). Design and construction of small bridges, static calculations of forest technical works and control of their stability. Interaction between forest technical works and the natural environment. Basic concepts and axioms of Engineering. Force systems. Composition and balance of forces. Static moments of lines, surfaces and bodies. Isostatic linear vectors. Cross-sectional loads and plane trusses. Basic principles of strength of materials, moments of inertia and moment of resistance. Calculation of normal stresses. Calculation of the shear stresses of a bending beam of rectangular cross-section.

♦ Forest Botany I

The course covers the following points:

Introduction to systematic classification; classification, nomenclature, phylogeny; morphology and reproduction of sperm plants; naked sperm –angiosperm; reproduction of angiosperms; flower, fruit and sperm of angiosperms; angiosperm classes; dicotyledons-monocotyledons; identification, description and classification of the main families of angiosperms.

♦ Forest Biometry

The course covers the following points:

Measurement of standing trees forest products, standing trees and estimation of stand parameters both statically (Dendrometry) and dynamically (Growth).

♦ Meteorology

The course covers the following points:

Introduction to atmospheric sciences, composition of the atmosphere, structure of the atmosphere, solar and terrestrial radiation, temperature, atmospheric pressure, wind, water in the atmosphere (hygrometric parameters, evaporation, transpiration, cloudiness, small-scale condensations, precipitation), atmospheric disturbances (gas masses, fronts, recessions, anticyclones, tropical cyclones, thunderstorms, land and sea siphons.

♦ Forest Pathology

The course covers the following points:

General concepts of phytopathology; history and importance of phytopathology; symptoms; effect of pollution on forest trees and damage to forests in Europe; damage to forest trees by adverse weather conditions (high temperatures, drought, frost, etc.) and unsuitable soil (chlorosis, malnutrition, etc.); description of the most important plant pests (Viscumalbum, Loranthuseuropeus, moss, lichens, mycorrhiza. etc.; morphology, biology and classification of the most important parasites (fungi, bacteria, viruses, etc; nursery diseases - melting of artichokes and ways to control them; root diseases: Almillariamellea, Fomitopsis (Fomes) annosus (description - symptoms - control); fir and spruce diseases; diseases of pine; diseases of cypress and juniper; diseases of oak and beech; diseases of chestnut and elm; shades - wet wood of living trees; rot and their control in the forest; rot of live coniferous and deciduous trees; rot of dead trees, wood and timber in use, buildings and structures.

4TH SEMESTER

♦ Forest Botany II

The course covers the following points:

General overview of the arboreal flora of the Greek forests; classification of forest vegetation in zones; native genus and species of coniferous and deciduous trees and shrubs; nomenclature, morphological characters, biological requirements, geographical distribution, uses; regime of abundance, conservation and protection of species.

♦ Digital Design of Forest Road Construction – Forest Engineering

The course covers the following points:

Design of a comprehensive opening-up plan depending on the economic, technical and environmental conditions of an area, analysis and evaluation of the environmental impact of the opening-up; fundamental principles, and regulations for the construction of a forest road, design,

organization and management of a forest road network; protecting forest roads and reducing their vulnerability to natural disasters; mapping, schematic depiction and spatial design of an integrated forest road system; forest road budget and cost; design and maintenance methods of the road network, maintenance cost, improvement techniques of existing forest road network fully harmonized with environmental principles; location of small forestry projects in the context of construction options in an integrated forest road network; applications and software programs for the management of small forestry projects.

♦ Forest Entomology and Zoology

The course covers the following points:

Key definitions, history and significance of entomology; symptoms - damages from forest insects; ecology of forest insects; insect populations and causes of their overgrowth; atmospheric pollution and forest tree infestations; phyto-pathological infestations and infestations of forest insects; environmental resistance; infection, vulnerability, attractiveness, endurance of forest trees; systematics of insects; morphology and external anatomy of insects; internal morphology of the insects; development and transformation; nurseries, soil and root insects; insects that infect fir, pine, cypress, oak and beech; insects that infect Vitiligo; insects that infect willow, chestnut and hazelnut; insects that infect wood in use; other animals (birds, rodents and mammals) that cause damage to forest trees.

♦ Elements of Topography – Forest Cadastre

The course covers the following points:

Subject of Topography. Geodetic system. General principles of error theory. Subject of Forest Cadastre, definition and general principles. Types of integrated cadastral systems and their basic principles. Methods and instruments for measuring - laying-out angles; Laying-out instruments of fixed size angles, goniometer, compasses, clinometers, optic mechanical or digital level with horizontal circle. Theodolite. Measurement of distances (Mechanical, Optical, Electromagnetical). Measurement of horizontal and vertical angles with the Tacheometer (Measurement in two positions of the telescope, iterative method, method of bearing). Protractor. Methods and instruments for measuring and laying-out instruments of length. Units for measuring lengths (distances). By directly (direct) measurements. By indirect measurements. Calculation of horizontal coordinates N, E (applications). Problem-solving is useful in intermediate computing processes. Fundamental problems of Topography. Solving independent, dependent and closed polygonal traverses and method of correcting the errors. Altimetry. Marking – Marking out. Methods and instruments for the calculation of the differences in altitude. Geometrical leveling. Trigonometrical leveling. Tachymetric leveling. Electrooptical leveling. Electrophotogrammetrical leveling. Satellite leveling. Barometric altimetry (barometers, altimeters). From the contour lines of the map. Surveying methods (Optical, Semi-electronic, Electronic or Mixed method). Area computation (analytical and graphical methods). Real area of the surface. Topographical drawing. Mechanical design. Digital design. Perspective design. Laying out. Laying out of a straight line with a slope. Laying out of an angle. Plotting an arc of a circle. Layout of longitudinal sections and cross sections of a road. Laying out of technical work. Cadastral offices. Organizational structure, databases and compliance of environmental information. Structure, organization and management of a spatial and non-spatial data bank. Data of G.I.S. applications in cadastral issues. Cadastre Legislation. Cadastre and land value assessments. Modern trends and methods in the Cadastre. Structure - evolution and development - regulation of the forest space. Organization and siting of “land uses” and land uses changes in forest areas and addressing the operational and environmental problems that arise. Interaction of legal, technical and financial dimensions of the Cadastre - Applications.

♦ Hydrology – Hydraulics of Mountainous Watersheds

The course covers the following points:

Introductory concepts; precipitation; evaporation and transpiration; hydrological losses; runoff; infiltration; flood routing; introduction to open channel flow; open channel flow types; continuity equations of mass and Bernouli energy equation in open channel; uniform flow; the boundary layer in open channels; cross section that results in maximum flow or minimum flow resistance; critical shear stress; flow in closed channels under partial filling; special energy, critical flow, weirs.

5TH SEMESTER

♦ Rangeland Ecology

The course covers the following points:

General principles and definitions; rangelands relations with forests and agricultural crops; classification of rangelands and pastures; elements of vegetation and flora of rangeland ecosystems; organization and structure of the rangeland ecosystem; photosynthetic function of rangeland ecosystems (leaf area index, C3 and C4 plants);climatic and other factors that affect forage production; dynamics of rangeland vegetation and competition between plants; grazing effects on morphological and growth characteristics and physiological parameters in rangeland plant species; grazing effects on the structure, function and productivity of the ecosystem.

♦ General Silviculture - Forest Ecology

The course covers the following points:

Definition of forest; types of forests and their distribution; forest autecology; forest and biotic and abiotic environmental factors (light, water, soil, physiographic factors, biotic factors, fire, etc.); ecology of tree growth (bio-silvicultural properties of forest species, flowering, fruiting and germination of seeds, formation and growth of underground and aboveground part of forest trees, etc.); vegetative propagation; forest synecology, structure of forest ecosystems, energy trap, biomass production and accumulation; stability, balance and self-regulation of forest ecosystems; survival strategies and interactions; intrapopulation and interpopulation relationships; dynamics of forest ecosystems, the interaction of competition and facilitation in forest ecosystems.

♦ Forest Genetics and Forest Resources Protection

The course covers the following points:

Introduction to genetic; Mendelian genetics; population genetics; gene frequencies; equilibrium; genetic diversity; evolution; adaptation; diversion; homogeneity; gene flow; quantitative genetics; cumulative model; dominance and emphasis; inheritance coefficient; forest genetic diversity; origin; origin test; forest genomics; forest species DNA sequences; databases; genetic experimentation; progeny experiments; combinatorial capacity; improvement of forestry species; mass selection; seed gardens and stands; hybridization; management of genetic resources in productive forests; forest plantations; genetic diversity in naturally managed stands; forest species biotechnology; protection of genetic resources in forests; in situ/ex situ; gene banks; adaptation of forests to climate change.

♦ Wood Structure and Properties

The course covers the following points:

Physics of wood; micro-structure of wood; macroscopic and microscopic characteristics of wood; wood production mechanism; structural defects of wood and their effect on the appearance and properties of wood; properties of wood, density, hygroscopicity, shrinkage and swelling of wood; mechanical properties of wood; mechanisms of wood deterioration with the effect of biotic and

abiotic factors; microscopic and macroscopic identification of wood of the main conifers and broadleaves in Greece.

♦ Forest Ecophysiology

The course covers the following points:

The role and importance of forest ecophysiology; fundamental concepts: adaptation - adaptability, strategy, adaptive mechanisms, natural selection; the abiotic environment of forest ecosystems; solar radiation, light quality, photoperiod, intensity, CO2 concentration, water deficit, high and low temperatures); the ecophysiology of photosynthesis; the biochemical, physiological and ecological framework of photosynthetic types C3, C4 and CAM; adaptive advantages and disadvantages of each type in different habitats; reactions of trees to environmental conditions; ecophysiology of environmental stress; movement of water on the trees; water loss and storage; water availability and productivity; water deficit (drought); floods; salinity; high temperature; low temperature; common plant response mechanisms to environmental stress; eco-physiology of seeds and germination; eco-physiology in forest practice.

♦ Freshwater Fish Farming

The course covers the following points:

Introduction to inland water ecology; geographical distribution and migration of fish; food habits; population abundance methods; external morphological characteristics of fish; systematic classification of fish; description and biology of the most important fish found in the inland waters of our country; inland water management principles.

6TH SEMESTER

♦ Applied Silviculture

The course covers the following points:

Forest stand knowledge, management and silvicultural forms of forest; stand establishment techniques, natural regeneration technique; forest treatment (basic principles, treatment measures, treatment of the different age stages of even-aged stands forest (selection forest), secondary stand, pruning); conversion of coppice forests; stand structure manipulations, special Silvicultural manipulations.

♦ Rangeland Management and Improvement

The course covers the following points:

Aims and census methods of rangelands; significance and indices of sustainable use of rangelands, methods for the determination of palatability and productivity of rangeland vegetation; grazing factor and measurement of the forage utilization percentage; determination of grazing capacity and stocking rate; rangeland condition assessment; reasons for rangeland degradation; adaptation of grassland ecosystems to climate change; rangeland restoration and designed grazing systems, control of undesired plants, seeding of rangeland species, genetic improvement of grassland plants to increase yield, quality and adaptation to climate change; rangeland fertilization, improvement of the grazing conditions for livestock in the rangelands; rangeland management and improvement plans.

♦ Wildlife Ecology and Management

The course covers the following points:

Key concepts-definitions of wildlife ecology; introduction to wildlife management; estimation of population abundance; population growth rate; methods of assessing food habits; impact of climate change on wildlife; protection of endangered species; management of foreign invasive species;

management of game species; design and operation of a game farm; control of undesired species; anthropogenic effects on wildlife; identification of the main mammals, birds, reptiles and amphibians in Greece.

♦ Chemistry and Wood Chemical Products

The course covers the following points:

Chemical composition and wood analysis; characteristics, properties and chemical reactions of cellulose; hemi-cellulose, lignin and scents; chemical properties of wood and its utilization (chemical products, wood pulp, paper, polymer products of cellulose, hydrolyzation products of wood, lignin, scents and energy).

♦ Traineeship in the Field

7TH SEMESTER

♦ Mountain River Training

The course covers the following points:

Key concepts –introduction; torrential streams; water in the area of streams; production of sediments; erosion, degradation-transportation of sediment and sedimentation; torrential streams morphological evolution; the principles of hydrogeonomic management; protective management; hydrological management; mountainous watershed management works; gravity dams; arch dam; other types of dams.

♦ Forest Management I

The course covers the following points:

The subject of forest management and its place in forestry; historical development, principles and functions of management; planning and analysis tools; problem solving process; linear programming; forest management planning; principles (sustainability - sustainable development) and peculiarities of forestry; key concepts of forest management; even-aged stand growth; the model of normal forest; forest stand maturity and rotation time; uneven-aged stand growth and management; division of forest compartments.

♦ Forest Products Harvesting

The course covers the following points:

Types and means of forest work, shaping, classification and distribution of forest products Wood harvesting systems; wood harvesters in Greece; machinery and equipment used for harvesting, handling and primary processing of wood in the forest in Greece and worldwide; construction and operation of harvesters; technical and economic parameters of machines; range of technical use and technical limits, etc.; ecological criteria for evaluating working methods and equipment; selection criteria of certain types of equipment, according to needs, power, average hourly productivity; work time studies.

♦ Forest Economics

The course covers the following points:

Key principles of forest economics; economics of forest production rates; supply and demand of forest products; economic mathematics in economic analysis; costing of forest production; prices of forest products; social and economic planning in forest holdings; planning and management of forest

enterprises; microeconomic and macroeconomic analysis of forest holdings and forestry enterprises; social economy; marketing of forest products and services; economics of forest industries.

♦ Environmental Geographic Information Systems (GIS)

The course covers the following points:

Introduction; historical evolution; key concepts of Geographic Information Systems (GIS);space analysis; benefits and applications from the use of GIS; GIS instruments and software; data categories in a GIS; data input; projection systems; coordinate transformation; structure, organization and management of spatial and non-spatial data-Topology; Thematic level correlations; Geographical Analysis-part I; Geographical Analysis-part II; Principles of mapping; GIS in decision making process for the management, protection and development of the environment

8TH SEMESTER

♦ Protection and Architectural Landscaping

Key principles and modern research trends; protected natural areas, protected species of flora and fauna; biodiversity protection; architectural landscaping, human activities and their effects on the natural landscape; natural landscape management and restoration; vegetation and its handling for the aesthetic improvement of the landscape.

♦ Investments and Forest Resources Development

The course covers the following points:

Key concepts, principles and means of financing; public expenditure and forest resources; financing, investments in forestry and the environment; investment and development plans and their evaluation methods; EU financial tools; evaluation techniques and contribution of EU programs, regulations and initiatives to the development of forest resources, forestry and the environment; social and economic consequences of the use of natural and forest resources; spatial planning and development of forest resources; forest resources and forest development; design, analysis, management and evaluation of development projects, environmental protection projects and development programs; investments, forest resources and integrated rural development with special emphasis on disadvantaged and mountainous areas; natural and forest resources development strategies.

♦ Environmental Policy and Decision Making

The course covers the following points:

The content of the course deals with the way environmental policies are formulated with the aim to address modern environmental problems. Such problems are mainly related to population growth, accidents and climate change. The sources of the problems and the policies for dealing with them through environmental decision-making processes are analyzed. Issues of environmental justice, ethics and education are also emphasized while future challenges for the environment that are directly related to the quality of life of citizens are presented.

♦ Forest Management II

The course covers the following points:

Planning in forestry - introduction to management methods; annual area cut method; periodic wood harvesting method; periodic area cut method; combined method; age class methods; normal timber stock and growth methods or mathematical formulas; control methods; modern management methods – multifunctional forestry; Pan-European Criteria and Indicators for Sustainable Forest Management; Pan-European Operational Level Guidelines for SFM; modern technology in forest management planning; the contents of management plan.

♦ Wood Technology

The course covers the following points:

Technology production (raw material, machinery, production stages, technological conditions) and wood product processing (sawn lumber, parquet panels, veneer sheets, plywood, laminated wood, particle boards, fibre boards, paper and other compound products);product properties and uses; wood energy production.

♦ Climate Change

The course covers the following points:

Introduction to the atmosphere and radiation; natural mechanisms of climate change; climate change; anthropogenic climate intervention; climate change in the Anthropocene: exposure, adaptation and vulnerability, global climate trends, climate change scenarios and forecasts for the future, climate change and public health, climate change and food security, climate change and impacts on forest ecosystems, policies for the climate and mitigation strategies of climate change. Application: an example of a climatic epidemiological study.

♦ Traineeship in the Field

♦ Traineeship in Forestry Agencies

The course provides the opportunity for a link between education, the professional environment of a forester and the labor market, practice in professional working conditions and an acquaintance with the real social and forest environmental problems. It enhances the prospect of experience, cooperation and the skills required to deal with real-life professional issues.

9TH SEMESTER

♦ Climate Change and Forest Ecosystems

The course covers the following points:

Impact of climate change on forest ecosystems; expected phenological changes (Leaf development, flowering, pollen dispersion, appearance of flowers, fruit ripening, yellowing and fall of leaves); changes in physiology and metabolism (changes in the rate of photosynthesis, transpiration and respiration); effect on growth (reduction of forest tree growth, carbon sequestration and aboveground biomass, differentiation by forest species); adaptive capacity of forest species (different by species plasticity of photosynthetic function, adaptation of functions, drought resistance); silvicultural manipulations and climate change; the impact of climate change on forest biodiversity - manipulations to protect biodiversity; sprouting as a reaction of forest species and ecosystems after disturbances - the case of climate change and the use of sprouting ability of species by forest practice; the process of facilitation as a tool to address the problems that arises in ecosystems as a consequence of climate change.

♦ Nurseries-Reforestations

The course covers the following points:

Purpose of reforestation; key principles observed during reforestation; selection and control of sowing material; methods of artificial establishment of stands; artificial establishment of stands via sowing; artificial establishment of stands by planting; reforestation and biodiversity; reforestation plan; selection of the location of the forest nursery; forest nursery design; forest nurseries and seedling production; production of bare root seedlings; irrigation of forest nurseries; cultivation and protection of seedlings; extraction, packaging and transportation of seedlings; seedling storage;

production of containerized seedlings; vegetative production of plantlets and saplings; fertilization of nurseries.

♦ Forest Energy

The course covers the following points:

Principles, methods and means of evaluation and utilization of forest energy; forest biomass as a raw material for energy production; capacity of forests and woodlands for energy production; current situation and energy needs of the population, problems and prospects for the use of forest energy; forest energy design and models; production of wood fuels and forest residues (harvesting and wood processing); problems and prospects of firewood production and consumption; ways to achieve forest energy adequacy.

♦ Forest Policy

The course covers the following points:

The content of the course deals with the way of organizing a modern Forest Policy, which, via the sustainable management of forests, aims to achieve social prosperity. The relations between the forest and the social, economic and cultural environment are presented, as well as the challenges of the national forestry, especially in a changing climate. The criteria and means of forest policy in the decision-making process of forest policyare analyzed, for a transition to an effective forest administration and environmental governance, in the light of the international and European commitments of the country. The reinforcement of resilience towards climate change, the increase of forest production, the development of forest cooperatives, the integration of research and innovation, are all strategic objectives for national forest policy.

♦ Forest Law

The course covers the following points:

The content of the course deals with key concepts of forest law that are necessary for the implementation and development of foresters' research and professional activities while in action. The complexity of Forest Legislation is essential for the consolidation of key theoretical concepts of Law and of the principles of Civil Law.

♦ Forest Fires

The course covers the following points:

Introduction to the phenomenon of forest fires; reference to forest fires in the world and the largest forest fires in our country; frequency of forest fires during the year and their distribution by geographical department; forest fires in Greece (statistics);number and area burned; frequency of forest fires over time; frequency of fires during the week; onset of fires within 24 hours; analysis of the causes of forest fires; social, economic, political conditions and forest fires; time interval between the onset of the fire and the onset of the fire extinguishing; employment of personnel and machines in firefighting; impact of fires and damage to people, homes and property; house precautions against fires; impact and damage of forest fires on the phyto-social association (Climax); effect on microflora and microfauna; beneficial effects of fires; inventory, measurement, and mapping of forest fuel; types of forest fires; ecology and fires of forest species and plants in Greece; behavior and properties of fire; intensity of fire; moisture of the fuel; fire risk assessment; fire risk meters; meteorological factors and forest fires; forest fire management; forest fire prevention; causes of forest fires; personnel training; service and friendship with neighbors, employees, visitors, etc; punishment of the guilty; detection of forest fires; citizen awareness and volunteering; forest fire management; risk reduction; roads and fire zones; fire zones (strips) or areas free of vegetation; fire line; logging residues; management and regulation of forest fuel; prescribed (controlled) burning;

type of forest or burning vegetation and extinguishing fires; substances and extinguishing of forest fires; tools, machinery and personnel used in extinguishing forest fires; personnel, machines and means of extinguishing forest fires in Greece; extinguishing forest fires in practice; organization of forest firefighters; fire extinguishing methods; principles of first fire suppression; ways to extinguish small and large fires; planes and helicopters in extinguishing forest fires; the role of forest firefighters.

10TH SEMESTER

- **Undergraduate Thesis**

SUMMARY OF ELECTIVE COURSES

3RD SEMESTER

♦ Rangeland Plants

The course covers the following points:

Botanical, ecological and economic characteristics of the most important and most widespread rangeland species in Greece; contribution of rangeland plants to the production of forage for domestic and wild herbivores; use of rangeland plants on lawns and in restorations of disturbed areas; alternative uses of rangeland plants; biodiversity in rangeland ecosystems.

♦ Soil Microbiology

The course covers the following points:

Description of the soil environment; contribution of microorganisms to soil formation; categories of soil microorganisms, and mechanisms of their operation in the soil environment; the role of microorganisms in plant growth; contribution of microorganisms in the formation of plant communities; contribution of microorganisms to the availability of nutrients; biological nitrogen fixation, mycorrhizal symbiosis; interactions between mycorrhizal fungi and plants at the individual and ecological level.

♦ Green Entrepreneurship and Innovation

The course covers the following points:

Key concepts, birth and development of entrepreneurship; business foundation and organization; business obligations; entrepreneurship and innovation; conceptual approaches and innovation distinctness; innovation assessment and new products development; the role of medium-sized businesses; business plans development; investigation of business opportunities; entrepreneurship policies and support institutions; human resource management, financial management and succession; business stands and networks; interrelations among institutions; product and service development; funding, billing, costing, development of ideas for new products and services; ideas evaluation; trademarks management; advertisement; financial analysis; Green economy; Green development; Green entrepreneurship; Green products and services; environmental performance of enterprises; Corporate Social Responsibility; Study and analysis of selected entrepreneurship case studies.

♦ Forest Recreation

The course covers the following points:

Introductory concepts; recreation-life quality; social, financial and spatial characteristics of forest recreation; offer and demand in areas of forest recreation; forest recreation activities; design of recreation areas; administration of recreation areas; relations of forest recreation with various other uses of natural resources; recreation perspectives; awareness-raising of institutions in issues of tourism, recreation in urban parks and protected natural areas.

♦ Sampling - Experimental Designs

The course covers the following points:

Simple random sampling; stratified simple sampling; systematic sampling; sampling of unequal probabilities; multistage sampling; multiphase sampling; sampling in consecutive cases; other sampling methods; pre-experimental, false, true experimental designs.

4TH SEMESTER

♦ Didactics of Environmental Science

The course covers the following points:

Theoretical foundation of teaching; didactics as a science; the problem of teaching theory; the curricula; concept and content of curricula; curricula and educational reforms; the purposes of teaching; the concept of objective in teaching; levels of educational objectives; content of educational objectives; classifications of teaching objectives; the means of teaching; the concept of teaching aids; types of teaching aids; teaching forms; the concept of teaching forms; direct and collaborative forms of teaching; teaching models; the evaluation of the trainee; general evaluation principles; ways and techniques of evaluation.

♦ Forest Soil Fertility

The course covers the following points:

Soil fertility nutrients, origin and their relationship with physical and chemical properties; macro and micronutrients; detailed description, uptake mechanisms use nutrient efficiency at plant and at forest stand level; symptoms of nutrient deficiency; fertility assessments; fertilizers, forms of fertilizers and soil conditioners; soil properties enchantment applications.

♦ Forest Phyto-Sociology and Phyto-Geography

The course covers the following points:

Evolution and field of phyto-sociology; vegetation units with physiognomic criteria, physique; biotic forms, biotic spectra; plant stand research – plant sampling; vegetation units according to Braun Blaquet; classification of vegetation units, characteristics and differential species; vegetation dynamics; plant society scale; classification of the forest vegetation in Greece; habitat types; habitat types and nature protection in Greece and the European Union; plant geonemy, phytogeography; distribution areas- development centers; cosmopolitanism and endemism, plant shelters; flora kingdoms and areas; history of flora and vegetation, fossils, palynology.

♦ Public Relations and Management of Environmental Crises

The course covers the following points:

The notion and content of public relations; principles of public relations; mission of public relations and application prerequisites; means of public relations; communication techniques; public relations design and the emergence of natural resources; public relations programs for the protection and sustainable development of natural resources and natural environment; public relations of non-profit organizations – Non-profit Environmental Organizations; public relations of business clubs; the notion of crisis; crises characteristics; environmental crises (degradation and environmental destruction, climatic change, soil degradation, globalization);key information in crises management (prevention, risks analysis, response, readiness, information dissemination, training, communication, rehabilitation).

♦ Forest Growth and Yield

The course covers the following points:

Age determination: tree and stand growth; site quality and yield tables.

♦ Wildlife Biology

The course covers the following points:

Introduction to wildlife biology; elements of general ecology; wildlife habitat; movement, reproduction and mortality of species; biology of the main vertebrates in Greece (mammals, birds, reptiles, amphibians).

♦ Forest Ergology

The course covers the following points:

The legal framework for work hygiene and safety; harmful factors (physical, chemical and biological) e.g. noise, thermal environment, ventilation, pollutants; man-work-ergonomics; work environment; work areas; elements of work physiology; work environment factors; design and configuration of work systems; work studies (time); ergonomic and psychological factors, security conditions for job performance and accident prevention; sampling protocols.

5TH SEMESTER

♦ Energy and Environment

The course covers the following points:

Key concepts, energy, natural resources and the environment; energy evolution and perspectives at a global level and in Greece; possibilities of utilization of energy sources and their environmental effects, measures to deal with the environmental impact due to fossil fuel use.

♦ Water Resources Management

The course covers the following points:

Introduction – water resources management – definitions; integrated and sustainable water resources management; institutional protection framework -part 1; institutional protection framework part 2; water demand; water in agriculture-part 1; water in agriculture part 2; surface water budget – part 1; surface water budget – part 2; management model part 1; management model part 2; management techniques part 1.

♦ International Environmental Relations

The course covers the following points:

The subject of international environmental relations; theoretical approaches to international environmental relations; shared resources; science and uncertainty; international systems for environmental protection; environment and international governmental organizations; environment and international non-governmental organizations; development and environment; overpopulation; climate change; acid rain; overfishing; deforestation.

♦ Enemies of Trees & Shrubs in the Urban Environment

The course covers the following points:

With the appropriate formation and maintenance of green spaces and the selection of appropriate plants and good practices. Their protection from biotic and abiotic harmful factors is achieved, instructions for good practices (e.g. proper pruning), use of insecticides and fungicides in urban green. The most important entomological problems in urban and suburban green in our country: pine trees, aphids, root soil insects, nematodes, species of the family Curculionidae that infect conifers, insects of palm trees, *Marchalina hellenica, Blastophagus piniperda, Lymantria dispar* (biology ways to treat these species), insects of poplar and of the most important ornamental shrubs in the urban green.

♦ Building and Structural Materials

The course covers the following points:

Key principles and characteristics of construction projects; various building materials and their properties; categories of construction materials; forest road materials- pavements; utilization based on economy and environmental friendliness; natural and artificial aggregates; wood as a building material; wood products; masonry, insulation, materials and calculation of building structures; earthworks.

♦ Forest Informatics

The course covers the following points:

Introductory concepts, computer structure and architecture; theory, analysis and design of information systems; principles of information collection techniques and databases; methodology and data processing; introduction to computer networks and project management; the contribution of information technology in the forestry sector.

6TH SEMESTER

♦ Forest Extensions

The course covers the following points:

Introductory concepts; historical development of forestry; forest extensions and development programs; connection of Forest extensions with research; models for the development of forest extensions; prerequisites for the success of forest extensions; methods and means of vocational training; dissemination and implementation of forest improvements; trade unionism and cooperation; development of a program of forest extensions; decision making tools for forest extensions; forest extensions in environmental protection and development.

♦ Renewable Energy Sources

The course covers the following points:

Key concepts, categories and characteristics of renewable energy sources; current situation and exploitation perspectives of renewable energy sources, globally and in Greece; technologies for the exploitation of renewable energy sources; legislative framework and measures for the rapid dissemination of renewable energy sources in Greece.

♦ Soil Mechanics-Machinery Applications in Forest Works

The course covers the following points:

Characteristics of building material-basic concepts; properties of rocks; building blocks; natural building blocks; artificial building blocks; quarries; natural and artificial aggregates; categories of building materials, binders, mortars; ferrous concrete (materials, machining), steel parts, iron structures; cement: general description –production; cement components; basic cement types; cement properties; masonry, insulation, elements, materials and calculation of building structures; insulation against humidity, temperature and sound; wood as a building material; wood products -wooden prefabricated houses; earthworks; materials for pavements.

♦ Ornamental Trees and Shrubs

The course covers the following points:

Systematic classification, identification and description of morphological characters of the main foreign (exotic) ornamental species; geographical origin, biological requirements and durability; deciduous and evergreen ornamental; foreign ornamental species used: a) in open spaces and tree

lines, b) in high hedges, c) in low hedges and borders, d) on slopes and quarries, e) in riparian and lakeside areas, f) in coastal zones, g) in sand dunes; thermophilous and subtropical plant species-palms; aromatic and medicinal plants.

♦ Molecular Markers and Plant Genetics

The course covers the following points:

Introductory concepts of molecular biology; DNA; RNA; replication; transcription; translation; DNA organization; introduction to Genomics; DNA and RNA sequences; databases; sequence alignment; blast; phylogenetic trees; genetic markers in forest plants; types of markers; applications; basic principles of laboratory operation; safety, protocol, reagent handling; protection and handling of plant material; DNA extraction from forest tree tissues; PCR; electrophoresis; processing of genetic data from laboratory analyses in forest species; special software, calculation of genetic diversity and differentiation in forest populations; phylogenetic relationships and genetic distances between forest tree species and populations; genetic biotechnology; laboratory methods; transgenic plants; forestry applications, concerns, perspectives.

7TH SEMESTER

♦ Topographical Instruments and Surveying of Forest Areas

The course covers the following points:

General principles of Topography. The forest topographic area and its representation. Developments in instrumentation and measurement technology for planimetric and altimetric representation of forest areas. Determination of topographical points with classical topographical instruments. Frontal section problem. Resection problem. Hansen problem. Sidecuts. Obtaining derivative data from the primary data (angles and distances). Sketch and topographic symbols. Topographic diagrams. Cadastral, hydrographic and soil surveying. Utilization of the topographic diagram for the calculation of areas, for management purposes, for recreation purposes, etc.

♦ Hydro-informatics

The course covers the following points:

Introductory concepts of water resources management; water resource management software, water resource management systems; geospatial data for hydrology; spatial detail and map scale; datum coordinate systems; data representation; metadata; digital terrain representation; data formatting, homogeneity control, completion and extension of data time series, example of homogeneity control application; surface creation, geo-spatial data production as a result of point measurements, methods of surface creation, Spatial variability, Evapo-transpiration modeling; methodology, software application for evapo-transpiration modeling; infiltration modeling; procedure, calculation with the aid of various models; hydraulic roughness; runoff hydraulics; Digital Elevation Model; modeling of hydrologic procedures using Arc-Hydro, software application example; geo-referencing of topographic maps, digitization and determination of river network characteristics, Digital Elevation Model export, surface analysis, map production.

♦ Fish Farming

The course covers the following points:

Key concepts of fish farming; design, organization, management of fish farms and optimization of interactions with the environment; inland fish farming elements; breeding of Trout, Carp, Eel.

♦ Environmental Remote Sensing-Digital Images Processing

The course covers the following points:

Principles of digital processing of telescopic multifaceted images; land observation data; remote sensing software; radiometric corrections; geometric deformations; spectral image enhancement; vegetation indices; analysis of main components; spatial improvement of remote sensing data; digital image classification methods; methodological issues of classifications; supervised and unsupervised classifications; parametric and non-parametric classification methods; mechanical learning algorithms in remote sensing-advantages disadvantages; object-oriented classification image fragmentation; automated detection of time changes; estimation of accuracy; natural disaster and risk management issues.

♦ Management of non-Timber Forest Functions

The course covers the following points:

Non-timber production operations and non-timber products; the importance and characteristics of non-timber forest functions; methods of evaluating the benefit that results from a function; relationships between functions and ways of quantifying them; utilization of non-wood products - Circular economy; management of non-wood products (individual use - industrial production); management of non-timber operations (management plans); non-timber management applications in Greek forests; river basin management; management of resinous forests; recreational forest management; management of protected areas; habitat management.

♦ Measurements and Classification of Unprocessed Timber

The course covers the following points:

Measurement and classification of coarse wood products in the forest; measuring the volume of a standing log and a stack of timber; terminology - defects in wood structure; recognition of the quality of rough wood products; criteria for classification of raw wood before its sale in the forest based on its dimensions, type of use and quality.

♦ Spatial Planning and Regional Development

The course covers the following points:

Key concepts and historical evolution of land uses; organization and analysis of space; space categories; planning in general; the spatial planning process; planning forms; evaluation in spatial planning; dimensions of spatial planning; adjustment strategies; spatial dimension of development; location of productive activities; methodology and specifications for the preparation of spatial programs and plans; regional and Special Frameworks for Spatial Planning and Sustainable Development; rural and mountainous area; the development of mountainous and disadvantaged areas in the European and international context; the concept of region and the regionalization of space; regional problem and regional context; theories of location and regional development; definitions, content, planning and growth indicators; regional inequalities; regional development strategies; methods and techniques of regional analysis; planning, implementation and evaluation of regional and development programs; the role of natural resources in spatial and regional development; the modern institutional framework of regional development in Greece and internationally.

♦ Wetlands Management and Protection

The course covers the following points:

Introduction to wetlands, types of wetlands; the legal framework for the protection of wetlands; the functions of wetlands; adaptations of living in wetlands; wetland values; natural changes and anthropogenic alterations of wetlands; water status and habitat of wetlands; management bodies of protected wetlands; wetland management principles and management plans.

♦ Evolutionary Biology and Biodiversity

The course covers the following points:

Introduction to evolutionary thought history of pre-Darwinian, Darwinian travels, modern composition, problems; introduction to evolutionary biology, heredity, genetic diversity,natural selection and adaptation, evolutionary ecology, genetic divergence, foundational phenomenon, alley, homogeneity, reproduction, self-incompatibility, speciation, extinction, short evolutionary history of earth organisms, conservation biology, biodiversity, concept, levels, measurement problems, biodiversity evolution, value, biodiversity and man, threats, biodiversity policy, CBD, European Union, national and regional policies, biodiversity and society, communication, awareness, debate, compromises, protected areas, legislation, management, participation of social groups, biodiversity mapping, biodiversity and climate change.

8TH SEMESTER

♦ Urban Forestry

The course covers the following points:

General concepts of urban forestry; ecological and environmental problems of residential areas; impact of green on the urban climate and the urban environment; tree growing in the city; tree and shrub selection criteria for the creation of Green areas in cities; measures for the improvement of the growing conditions of the trees in the cities and their cultivation; measures after tree planting in the city, evaluation of trees in cities.

♦ Rangeland Development Systems

The course covers the following points:

Grazing systems and factors affecting the exploitation of rangeland; structure of sheep, goat and cattle farming in Greece; systems design and financial implications of their implementation; agencies and ways of exploiting rangelands; livestock grazing and forests; livestock grazing and agricultural lands; integrated land uses; ecosystem services of rangeland ecosystems.

♦ Waste Management and Recycling

The course covers the following points:

Introductory concepts-waste management policies – National& European Framework; types and characteristics of waste; ways of waste collection; organization of waste collection; separate collection and alternative management systems; waste recycling - Plastics - the case of coasts; waste treatment methods- landfilling; environmental impact study-disposal management; production, recovery and utilization of biogas; leachate treatment –pollution; landscaping after the end of the use of disposal and treatment areas - restoration of natural environment; composting; waste incineration-modern methods of waste management.

♦ Chemical and Biological Control of Diseases and Insects

The course covers the following points:

General introductory concepts of toxicology; plant protection methods; plant protection products; forms and types of pesticides; introduction to biological control; parasitism - hyperparasitism - excessive and multiple parasitism; environment and host finding; harmful insects found in forest ecosystems; predators; parasites; the biological control in Greece and worldwide; Bacillusthurigiensis and its use in the control of Lepidoptera; protection measures before, after and during the application of pesticides; symptoms of poisoning; first aid.

♦ Forest Industries

The course covers the following points:

Types and characteristics of forest industries; choice of location for forest industry; current situation of forest industries in Greece and problems; development of Greek forest industries and effects on the natural environment; trends and perspectives; utilization of forest industry residues for the production of forest products and forest energy; forestry industries in the European Union.

♦ Digital Geo-spatial Analysis and Natural Resources Mapping

The course covers the following points:

Introductory concepts; projection systems; spatial analysis/definitions/basic concepts/types of spatial phenomena, relationships and elements; elements of spatial analysis; procedures in space analysis; available resources and data for the mapping of natural ecosystems; general technical issues of map design; digital recording of point, surface, volumetric and morphological elements; thematic cartography; cartographic composition in digital environment; methods and systems for classification and mapping of forest and natural ecosystems; mapping accuracy; map correlation methods; extraction and publication of cartographic information.

♦ Environmental Physics – Air Pollution

The course covers the following points:

Heat and radiation, hygrometric parameters of the atmosphere, elements of thermodynamics and statics of the atmosphere, motion in the atmospheric fluid, the atmospheric boundary layer, scales of motion, atmospheric dispersion and diffusion, air pollution - sources and sinks of major air pollutants, airborne particles, carbon compounds, nitrogen compounds, sulfur compounds, noise pollution

♦ Hydro-meteorological Disaster Management

The course covers the following points:

The terms and theoretical tools in the field of hydro-meteorological risk and disaster management; risk assessment – vulnerability; GIS and cartography in risk management; erosion – desertification; floods; drought; heat waves; climate change; usage of satellite remote sensing for hydro-meteorological risk management; sea level rise; hurricane and storm wave; human geography disasters; training for natural hazards response.

♦ Forest Valuation and Accounting

The course covers the following points:

Key concepts of forest valuation and relationships between them; bills and securities in general; capitalization of revenue expenditure; calculation of income value; rants; loans and loan repayment; value of forest land and forest stands; valuation of forests and forest holdings; assessment and evaluation of the value of natural resources (direct and indirect evaluation methods); assessment of non-market environmental impacts and goods; damages and indemnities; expertise; fundamental accounting concepts and principles; inventories; national accounts, balance sheets and natural resources; estimation and accounting of the financial result of the use of natural resources; calculation of the contribution of forestry to the national product; assessment and evaluation of the contribution of natural resources to the national product; strategic environmental assessment.

♦ Applied Forest Management

The course covers the following points:

Review of the main forest management methods; peculiarities of Greek forests; application of age classes method with stand management; forest management models(even-aged, uneven-aged);integrated growth and yield models of Greek forests; auxiliary management tools (yield

tables, site index curves); databases and GIS in forest management; current developments in management inventory technology; specifications of forest management;drafting a forest management plan (case study): gathering of wood production data and data for other functions, data processing, data analysis and evaluation of study area, proposals for management measures, implementation and monitoring plan.

♦ Principles of Edible Fungus Utilization

The course covers the following points:

Description, anatomy and physiology of edible fungi; importance of fungal utilization; cultivation and ecology of fungi; wild mushrooms collection, ecological protection of wild mushrooms; their importance in medicine, diet, poisonings; morphological characteristics of the most numerous species tiny features; keys and species description.

9TH SEMESTER

♦ Agroforestry

The course covers the following points:

Introduction to agroforestry - classification of agroforestry systems - categories of agroforestry systems, ecological principles for the management of agroforestry systems; ecosystem services of agroforestry systems; interactions between woody and herbaceous vegetation in agroforestry systems; livestock in agroforestry systems; Agroforestry and biodiversity; Agroforestry systems advantages.

♦ Technical Works and Environmental Impacts Assessment

The course covers the following points:

Introduction and general principles, dimensioning of technical works for foresters (general principles and construction methods). Opening up of mountain forest area and natural environment. Protection of the environment from projects and activities - legal framework. Key principles of environmental legislation. Categories of projects and activities. Control of compliance with the environmental conditions. Content and publicity of environmental Impact Assessments. Checking compliance with environmental conditions. Valuation of the impacts. Types of environmental impacts. The technical works as elements of landscape disturbance and development of the area. Environmental impact assessments of technical works. Economic and environmental impacts of development projects. Adaptation of the works to the natural environment. Absorption and intensity criteria and contents of studies. Examples (applications) for forest roads. Examples (applications) for forest opening-up projects and development projects. Road improvement measures to restore the environment. Forest technical works of Opening-up and natural environment.

♦ Management Policies of Protected Areas

The course covers the following points:

The content of the course deals with policies aimed at the effective management of protected areas. The institutional and legislative framework for their operation and management is analyzed. Their key principles, which at the same time, aim towards protection and sustainable development, are interpreted. Good practices are examined, as well as challenges that arise, such as conflicting interests between the stakeholders and their interaction with the social, physical and economic environment in general.

♦ Climate Change Scenarios-Adaptation and Vulnerability

The course covers the following points:

Key methods of climate analysis, application of methods of climate analysis, global climate trends, the dimensions of vulnerability, climate models and study of climate scenarios, observed and expected effects on the natural environment, extreme phenomena and their impact on ecosystems, study of possible confounders, risk management as a means of adaptation, the role of technology in mitigating climate change.

STRUCTURE OF STUDIES

Organizational Issues of Studies
at the Undergraduate Level

ORGANIZATIONAL ISSUES OF STUDIES AT THE UNDERGRADUATE LEVEL

GENERAL DIRECTIONS

Educational activities for each academic year is structured into two semesters, with two teaching periods: the academic semesters (winter and spring). Each academic semester consists of a teaching period (instructional semester) and an examination period. Each semester includes at least 13 full weeks of teaching, followed by a corresponding number of weeks for examinations. Each instructional semester includes at least thirteen (13) full weeks of teaching. In each semester, no more than seven compulsory courses are taught, each of which typically includes three hours of theoretical instruction and two hours of laboratory exercises or tutorials per week, with the total number of teaching hours not usually exceeding five hours per week. Elective courses are included in the 30th semester of study and aim to specialize students in relation to the direction they are following in their studies.

During the first four semesters, English or French is taught as a compulsory course.

DURATION OF STUDIES

Out of the total 10 study semesters, five of them (1st, 3rd, 5th, 7th and 9th) are Winter semesters while the rest 4-5 semesters (2nd,4th, 6th, 8th and 10th) are Spring semesters.

The sequence of the courses, within the timeframe just described above, presupposes the student's regular participation in the educational procedure for the completion of his/her studies, which, consequently, lead to the receipt of a bachelor's degree within 5 years after his/her entrance to the department.

Such programs are standard study programs and illustrate students' educational obligations in its entirety.

EXAMINATION PERIODS

There are three examination periods: the Winter Semester Examination Period (January–February), the Spring Semester Examination Period (June), and the Repeat Examination Period (September). At the end of each semester, examinations are held for all courses taught. In September, students may be examined in courses from both semesters (winter and spring).

- During the Winter Semester Examination Period (January–February), students may be examined only in courses from the winter semesters. Students who have exceeded the standard duration of study (>11 semesters) may also be examined in courses from the spring semesters.
- During the Spring Semester Examination Period (June), students may be examined only in courses from the spring semesters. Students in the tenth (10th) semester or beyond the standard duration of study (>10 semesters) may also be examined in courses from the winter semesters.

The final grade for each course is derived from the average performance in the theoretical part and the laboratory or tutorial exercises. Grades are given using the first ten digits and zero. A passing grade is five (5).

The grade for each course is posted by the instructor on the information system within 20 days after the end of the examination period.

COURSE ATTENDANCE

Students must register for the Direction they wish to attend. The registration should be made at the beginning of the 3rd semester, with every student retaining the right to change their initial selection up until the beginning of the 6th semester, and only for once. Out of the total nine (9) elective courses that a student needs to attend, he/she must select six (6) courses from the Direction of his/her choice, while for the remaining 3 courses he can either select from the Direction he/she is registered or from another one.

In each semester 3-9, the student can select **one** elective course, except for semesters 7 and 8 where the number of elective courses selected must be **two**. Students are allowed to change their initial selection for one elective course up until one (1) year after his/her registration.

In the case where a Direction does not provide six (6) elective taught courses and, hence this can be a cause of concern for the students, they will register for the courses of their Direction, and they can also take the rest of the courses from other Directions.

The Direction that a student chooses to follow is written in the Transcript or, alternatively, following an application form to the Departmental Secretary, students can also be provided with a certificate with the Direction of their choice written on it.

With respect to the course instruction, there are exercises (in the labs or outdoors) as well as educational trips.

In reference to the educational trips:

- they can be carried out during the 2nd, 3rd, and 4th year of studies, i.e. during the 4th, 6th, and 8th semester
- their number is confined to one trip per year of study that will take place around May 20th every academic year
- the organization of these trips will the responsibility of a Departmental Committee. Teaching Staff members are asked to state their willingness to participate in the Committee at the beginning of every academic year.

The abovementioned planning does not hinder the undertaking of other short trips that meet the educational purposes of other courses (e.g. Lab courses). In all cases, the planned trips will always be preceded in so far as the distribution of funding resources allocated by the Rectorate for the realization of the Departmental trips.

DISSERTATION

The undergraduate thesis is a mandatory requirement for obtaining a degree. Conducting a thesis at the final stage of studies is considered crucial for shaping the scientific identity of the student, as it provides the opportunity to apply—on a theoretical, practical, or even research level—the knowledge acquired, as well as the skills and competencies developed during their undergraduate studies.

The aim of the thesis is to introduce the student to scientific methods of investigating and presenting specific topics related to forest science, environmental protection, and the management of natural resources.

The topic of the undergraduate thesis must fall within an academic field related to forest science, environmental protection, and the management of natural resources. It is chosen within the student's field of interest under the responsibility of the supervising professor, and the thesis may be either research-based or synthetic in nature.

This guide outlines the framework and procedures established by the Assembly of the Department of Forestry and Management of the Environment and Natural Resources of the Democritus University of Thrace for the preparation of the undergraduate thesis.

EXPECTED LEARNING OUTCOMES

By preparing a dissertation, the student has the opportunity to deal in depth with a topic of interest, to utilize and deepen his relevant knowledge, to develop synthetic skills and to acquire skills that are important for the effective confrontation of the challenges of his/her future professional life.

Upon completion of the dissertation, the student is expected to be able to:

• combine the knowledge, tools and techniques that he has acquired and developed in the context of the courses of the Undergraduate Program, to formulate appropriate questions to be investigated in the field of forestry science, protection and management of the natural environment and natural resources,

• make effective use of scientific data to solve problems, document his/her views, give scientifically sound answers, support interventions and develop an integrated forest thinking.

DISSERTATION ASSIGNMENT AND SUPERVISION

The dissertation is assigned and prepared by individual students (not by groups of students).

The dissertations are prepared under the supervision of the Departmental staff who can supervise a maximum of seven (7) dissertations per academic year.

The dissertation is completed with its presentation before a three-member examination committee.

The minimum duration of the dissertation is one semester, and its workload is equivalent to 30 credits (30 ECTS).

It is compulsory for students in the 7^{th} or 8^{th} semester of their studies that they state their intention to commence their dissertation. In their statement, students must explicitly name the subject of the dissertation and the name of the member of the Departmental academic staff who will act as the supervisor. The statement must be signed both by the student and the supervisor (Appendix I). In case a student is unable to state his intention to embark on his /her dissertation within the period provided above, he/she must submit a request to the General Assembly of the Department for an overdue declaration.

Students can only change their supervisor once in the academic semester after the initial statement at the latest and only when there had been a previous interruption of the dissertation (Appendix II). Otherwise, the approval of the Assembly of the Department is required.

At the beginning of the dissertation, the supervisor and the student form a framework of cooperation, which includes the general plan and the schedule of the work, as well as the frequency of their meetings. These meetings will help the supervisor to be informed about the progress of the work, solve possible problems that may arise during the work and provide guidance on his part for the next steps.

The main role for the supervisor is to first provide some help in the selection of the topic and then, during the preparation of the dissertation, suggest directions and methods of work - either the in theoretical or in the research level – to make corrective suggestions in the draft submitted by the students and to ensure the smooth completion of the dissertation and the reliability of the evaluation process.

DISSERTATION WRITE-UP

The undergraduate thesis is the written presentation of:

a) the implementation of a research project that combines a theoretical study with a relevant experimental component (research-based thesis), or

b) the critical review and analysis of the relevant literature on the subject (synthetic thesis).

The text must adhere to the principles of academic integrity and possess the fundamental characteristics of a scientific paper: structured format, completeness, linguistic clarity, precision, and objectivity.

The thesis document typically consists of the following sections:

1. Cover pages
2. Title page (may include a dedication and/or a quote)
3. Table of contents
4. Abstract in Greek – Keywords
5. Abstract in English – Keywords
6. Preface
7. Introduction – Purpose of the thesis
8. Methodology
9. Results
10. Discussion and Conclusions
11. References
12. Appendices

If the thesis is synthetic and does not include an experimental or research component, the main body of the text after the introduction should be structured based on criteria that serve to answer the scientific questions outlined in the purpose of the study.

Under the responsibility of the supervising professor, the thesis must be submitted to a plagiarism-checking platform—Turnitin or any other platform approved by the Democritus University of Thrace (DUTH)—for plagiarism control. The text must be revised accordingly to ensure that the similarity index is below 20%.

EXAMINATION AND SUBMISSION PROCEDURES OF THE DISSERTATION

Upon completion of the write-up of the dissertation, the supervisor initiates the evaluation process. More particularly, he announces the day and time of its presentation, presides over the thesis examination process and submits the relevant score of the dissertation to the Secretariat of the Department (Appendix V), signed by all the members of the examination board.

All dissertations are examined and graded by a three-member examination committee. The committee is proposed by the supervisor and it consists of the supervisor and two members of the Departmental academic staff or of other departments of DUTH or other universities or researchers of grades A, B, C from research centers under the article 13 A of Law 4310/2014 of the same or related subject.

The dissertations are presented in public. The examination-presentation takes place on the day and time announced by the supervisor and includes the oral presentation of the dissertation before the examination committee. The supervisor, who is appointed as the chairman of the examination committee, is responsible for the smooth development and completion of the presentation: ensures the availability and operation of the necessary technological infrastructure, allocates time as is required - 20 minutes for presentation and 20 minutes for questions posed exclusively by the members of the examination committee - and announces the end of the process.

The members of the dissertation examination committee decide, on the proposal of the supervisor, on the grade. Each member scores separately and the average is the grade of the dissertation. The supervisor ensures the delivery of the scoreboard of the dissertation (Appendix V) with the signatures of the members of the examination committee to the Secretariat of the Department.

The following criteria are considered for the evaluation of the dissertation, which are specified depending on the topic of the thesis:

- ✓ ability to manage the topic and the individual issues that arise during the preparation of the work,
- ✓ thoroughness of the theoretical/bibliographic framework of the study
- ✓ the suitability of methods and tools used for data collection and analysis
- ✓ familiarity with the relevant terminology and ease of use
- ✓ the possibility of autonomous processing of scientific data and drawing conclusions
- ✓ the quality of the presentation and the ability to formulate substantiated answers to the questions of the examination committee.

The supervisor is responsible for checking the final work and approving its presentation on condition that it meets the minimum requirements to obtain a promotional grade (5). A dissertation can be evaluated with a higher score within the predetermined evaluation scale ranging from 5-10.

STANDARDIZATION AND SUBMISSION OF THE DISSERTATION

The following information must be written on the cover of the dissertation in the specific order):

1. The name of the Institution
2. The name of School
3. The name of the Department
4. The words 'Dissertation' to state the type of the project
5. The name of the Author and the number of his ID
6. The Title
7. The name of the Supervisor (name, surname, rank)
8. The Examination Committee (names, surnames, ranks)
9. The place where the dissertation was undertaken
10. The year when the dissertation was completed

The title page in Greek is followed by another title page in English with the same content.

Dissertations must contain a summary in Greek and an abstract in English, as well as keywords in both languages.

Following the title page in Greek, the English title page must appear, containing the same information translated into English.

Theses must include a summary in Greek and an abstract in English, as well as keywords in both languages.

Students are required to submit their thesis in electronic form as a PDF file (saved on a USB drive) to the School's Library, and also to provide an electronic copy to their supervising professor.

Upon submission of the thesis to the Library, students must complete a special form in which they indicate their access preferences regarding their thesis in the Library and in the DUTH Repository, in accordance with Senate Decision 91/6/19 of February 2015.

OTHER ISSUES

Thesis preparation is a complex and creative scientific endeavor, which requires systematic cooperation of the student with the supervising professor and response to intensive study and work.

At any stage of the dissertation preparation, if the student or the supervisor or both parties consider that, despite the effort made, the cooperation and the pace of the work cannot guarantee its successful completion, they inform the General Assembly of the Department with a written reasoned request for termination, which is signed by the supervising professor and the student (s) (Annex II).The student then has to negotiate with another supervisor and start a thesis again with a new topic, which must be completed in six months.

The dissertation should be based on factual data and findings that are presented objectively.

Any falsification or alteration of data, copying data or other material from other sources without reference to them (plagiarism) constitutes a significant breach of ethics and it is considered a serious blow to academic freedom and leads directly to the rejection of work. In case plagiarism issues are identified, after the examination of the dissertation or even after the award of the degree, the Department may request the removal of the degree.

This study guide is valid from the academic year 2021-2022 and is revised based on proposals of the members of the Departmental academic staff, which are submitted and approved by the Assembly of the Department during its annual Curriculum review meeting.

TRAINEESHIP

Students' traineeship is carried out in forest areas and forestry agencies of the country when:

- They have completed the attendance of the 6th semester: in forests areas, forest nurseries and torrents, during the summer months up until 2 months, under the guidance of the Departmental Staff and according to the program approved by the General Departmental Assembly. On completion of the traineeship, the person responsible for the traineeship in a field of study should inform the Departmental Secretary about the successful completion of the traineeship for every student.
- They have completed the attendance of the 8th semester: in forests areas based on the program approved by the General Departmental Assembly, in Forestry Agencies and other forestry services, for a month during summer holidays under direct surveillance of the Heads of these Units, with the primary objective being the students' debriefing about all activities of the forestry profession.

The realization of this traineeship is sent to the Departmental Secretary in the form of a report that is compiled by the Head of the Forestry Agency where the traineeship took place.

Those students who have registered to attend the courses of the traineeship program are the **only ones** who have the right to participate in traineeship. Their participation in these practical exercises is necessary for the award of the Forester's degree.

BACHELOR'S DEGREE (BA) GRADE

The calculation of the final degree grade takes into account the grades of all courses. The degree grade is determined as the average of the weighted grades of the individual courses (Weighted Average Grade of Courses – WAGC), in accordance with Ministerial Decisions Φ141/Β3/2166/1987 and Φ141/Β3/2457/1988.

Specifically, the grade of each course is multiplied by a coefficient, known as the "weighting factor" of the course, and the sum of these products is then divided by the sum of the weighting factors of all courses.

In undergraduate programs that include a thesis with a workload of at least 30 ECTS credits, the final degree grade is calculated using the following formula:

Final Degree Grade = 0.80 × WAGC + 0.20 × Thesis Grade

Based on this grade, the degree is accompanied by a classification as follows:

- "Fair" (Καλώς) for grades from 5.00 to 6.49 (inclusive)
- "Good" (Λίαν Καλώς) for grades from 6.50 to 8.49 (inclusive)
- "Excellent" (Άριστα) for grades from 8.50 to 10.00

The course "Field Application" is not included in the calculation of the final degree grade.

To obtain a degree in Forestry, a student must fulfill the following requirements:

- Successfully complete all Compulsory Courses of the undergraduate program.
- Successfully complete the Elective Courses of the undergraduate program.

- Successfully complete any other educational activity required by the undergraduate program (e.g., thesis, field application, etc.).

AWARD OF DEGREES

When students meet all the requisites (written examinations, dissertation, traineeship), he/she can participate in the Oath and Degrees Awards Ceremony. The ceremony is a public event and takes place in the Ceremony Room of the Institution. After the Oath, degrees are awarded by the Rector himself or by his/her legal representative.

OPERATIONAL SERVICES OF THE DEPARTMENT

- Secretarial Support
- Library

SECRETARIAL SUPPORT

The Secretariat provides administrative support for the operation of the Department. As part of its mission, the Secretariat is responsible for managing the Department's correspondence, maintaining the registry and departmental records, keeping the minutes of the Department's collective bodies, implementing their decisions, maintaining student registries and individual student files, monitoring academic progress (e.g., data entry, grade postings, etc.), and issuing certificates, confirmations, and degree diplomas to students.

It also oversees graduation ceremonies, scholarships, and, more generally, all administrative support for the Department.

The Department's Secretariat is open to students daily from **11:00 to 13:00**.

LIBRARY

The library is housed at the basement of the central building where the Department is located in an area of 150 squares meters and meets the educational and research needs of both Departments that reside in Orestiada. It was founded in 1999 and, nowadays, has more than 8.500 volumes that are related to the field areas that are taught in both Departments. Besides the book collection that is continually enriched, the library also has scientific journals, dissertations, master's and PhD theses as well as audiovisual material (CD-ROM).

The library is equipped with educational technology primarily in the form of computers and aid and complements its users' potential in accessing information and knowledge from various sources and also enhances communication skills.

Both students and the departmental staff are able to borrow books and items from the library, while local teachers and scientists as well as researchers from other higher education institutes who work in collaboration with Democritus University of Thrace, can also attain the right to access its materials. Our students and departmental staff are entitled to borrow a predetermined number of books for one-month period.

The library of the Departments of Agricultural Development and of Forestry and Management of the Environment and Natural Resources consists of the following parts:

- Study room
- Stackroom
- Lending department
- Department of journals, newspapers and maps
- IT department
- Department for the organization and processing of the material

The Library Staff consists of the following members:
Librarian Assistant: Eleni Zelidou

Telephone: (25520) 41181-2

STUDENT WELFARE

- Textbooks
- Student Welfare
- Awards-Scholarships
- Student Union

TEXTBOOKS

Students are granted their textbooks free of charge. These are usually approved by the General Departmental Assemblies following instructors' suggestions. They are published by editors and are available in free commerce or they can be made available by the University via reprinting.

The provision of teaching materials to undergraduate students is carried out in accordance with the applicable regulations in force at the time. The list of teaching materials is prepared every academic year by decision of the Department Assembly, following the recommendation of the course coordinator. It includes, for each course (whether compulsory or elective), all the recommended textbooks that satisfactorily cover the course content.

Students have the right to freely obtain and select **one (1) textbook** for each compulsory or elective course in their study program that is required for the completion of their degree or diploma.

Textbook selection for all courses is done through the **EUDOXUS** Integrated Textbook Management System (https://eudoxus.gr/).

STUDENT WELFARE

FEEDING

Active undergraduate and postgraduate students are entitled to free meals at the Institution's Restaurant. Applications for free meals must be submitted only electronically, along with the required documents, at the website https://students.duth.gr during the periods announced by the Academic Affairs Directorate.

The conditions and required documents are posted on the Department's and University's websites at the beginning of each academic year.

- The right to free meals is suspended when a student's status is suspended for any reason, and for the duration of that suspension.
- The right to free meals is lost upon graduation and when the duration of studies exceeds the standard study period plus half of that period.
- Students who enroll by selection to obtain an additional degree are not entitled to free meals.

ACCOMMODATION

Active undergraduate and postgraduate students are entitled to free accommodation in the Institution's student dormitory. Applications for free accommodation must be submitted only electronically through the platform estia.duth.gr, along with the required documents, during the periods announced by the Academic Affairs Directorate.

The conditions and required documents are posted on the Department's and University's websites at the beginning of each academic year.

TRANSPORT

Both active undergraduate and graduate students can have a reduced-price ticket in short distance and long distance public mass means of transport on the condition that they are holders of an academic identity.

The academic identity is published electronically by the respective office of the Ministry of Education, Research and Religious Affairs, and more specifically, by the Service for the Acquisition of Academic Identity for all undergraduate and graduate students. Those students who study for the

acquisition of a second Bachelor's degree (BA) do not have the right to use their academic identity for a low-cost ticket.

AWARDS - SCHOLARSHIPS

All undergraduates and graduates can be granted Awards and Scholarships by the State Scholarships Foundation in one of the following ways:

AWARDS

For undergraduate students, the following awards are granted by the State Scholarships Foundation (IKY):

- Award for the top admitted students in Higher Education Institutions in the country through the nationwide entrance exams.
- Award for the top graduate who has achieved the highest grade in their degree, provided they have not exceeded the total years of study required for the degree.

The award consists of:

(a) an honorary diploma and

(b) a one-time payment of one thousand euros (€1,000) by IKY.

It is emphasized that students who have failed any of the required courses in the academic year under evaluation for the scholarship award are not eligible for the award, as well as students who have exceeded the normal years of study of their Department.

The Democritus University of Thrace (DUTH) annually awards performance prizes to the undergraduate student of each School who, during the previous academic year:
a) successfully completed all the courses of the previous academic year included in the indicative curriculum of their Department (considering all three examination periods—January, June, and September), and
b) achieved the highest average grade across courses (including the thesis), without weighting coefficients.

The award consists of a special diploma presented at a ceremony held during the celebration of the Three Hierarchs. The names of the awarded students are announced on the websites of the School, Department, and University.

Students are not eligible for the performance award if they have not successfully passed all required courses of the academic year under evaluation, or if they:
a) are outside the regular duration of studies, or

b) were admitted through transfer exams.

For postgraduate students, excellence awards are granted annually by Professor Christos Platsoukas, in memory of his mother Marika Platsouka-Tsonidi.

Each award includes a diploma and a monetary prize of one thousand euros (€1,000).

SCHOLARSHIPS

For undergraduate students, the State Scholarships Foundation (IKY) awards one-time scholarships to students who have excelled in the entrance examinations to Higher Education Institutions, as well as to those with the best academic performance during their semesters. IKY also grants undergraduate scholarships to Vulnerable and other Social Groups.

Additionally, undergraduate scholarships are awarded through the legacies of:
a) "Klearchos Tsouridis" and
b) "Alexandros Chatzopoulos," both managed by IKY.

Scholarships for postgraduate studies are also provided through legacies managed by IKY.

The eligibility criteria and required documents are posted on the Department's and University's websites following relevant announcements from the State Scholarships Foundation (IKY).

STUDENT UNION

The Student Union of the Department of Forestry and Management of the Environment and of Natural Resources was founded on April 13th, 2000.

All students of the department can register and become members of it. The superior body of the Union is the General Assembly of its members that decides on every critical issue of concern for its members.

The aim of the Union is the close collaboration and organization among the student-members of the department for the evaluation and solution of key problems and for the achievement of certain goals of the Union within a spirit of free democratic dialogue, liberal exchange of ideas and fertile confrontation.

COLLABORATIONS

- National Collaborations
- International Collaborations

NATIONAL COLLABORATIONS

The Department of Forestry and Management of the Environment and Natural Resources has pursued vibrant research activity and cooperation with several Higher Educational Institutions across the country such as: the Aristotle University of Thessaloniki, the Agricultural University in Athens, the National Polytechnic School in Athens (Metsovio), the Polytechnic School in Crete, the University of Thessaly, the Aegean University, the International Hellenic University.

INTERNATIONAL COLLABORATIONS

Within the Erasmus/Socrates framework, the Department of Forestry and Management of the Environment and Natural Resources promotes collaborations, and students as well as departmental staff exchange with other Universities abroad such as with: the Forestry Department in Georg-August Universitat in Gottingen, Germany, the University of East London, the Transilvania University of Brasov, the Universita degli Studi del la Tuscia, the Banat University of Agricultural Science and Veterinary Sciences in Timisoara, the Albert-Ludwigs-Universitat Freiburg im Breisgau.