

Department of Forestry and Management of the Environment
and of Natural Resources

School of Agricultural and Forestry Sciences

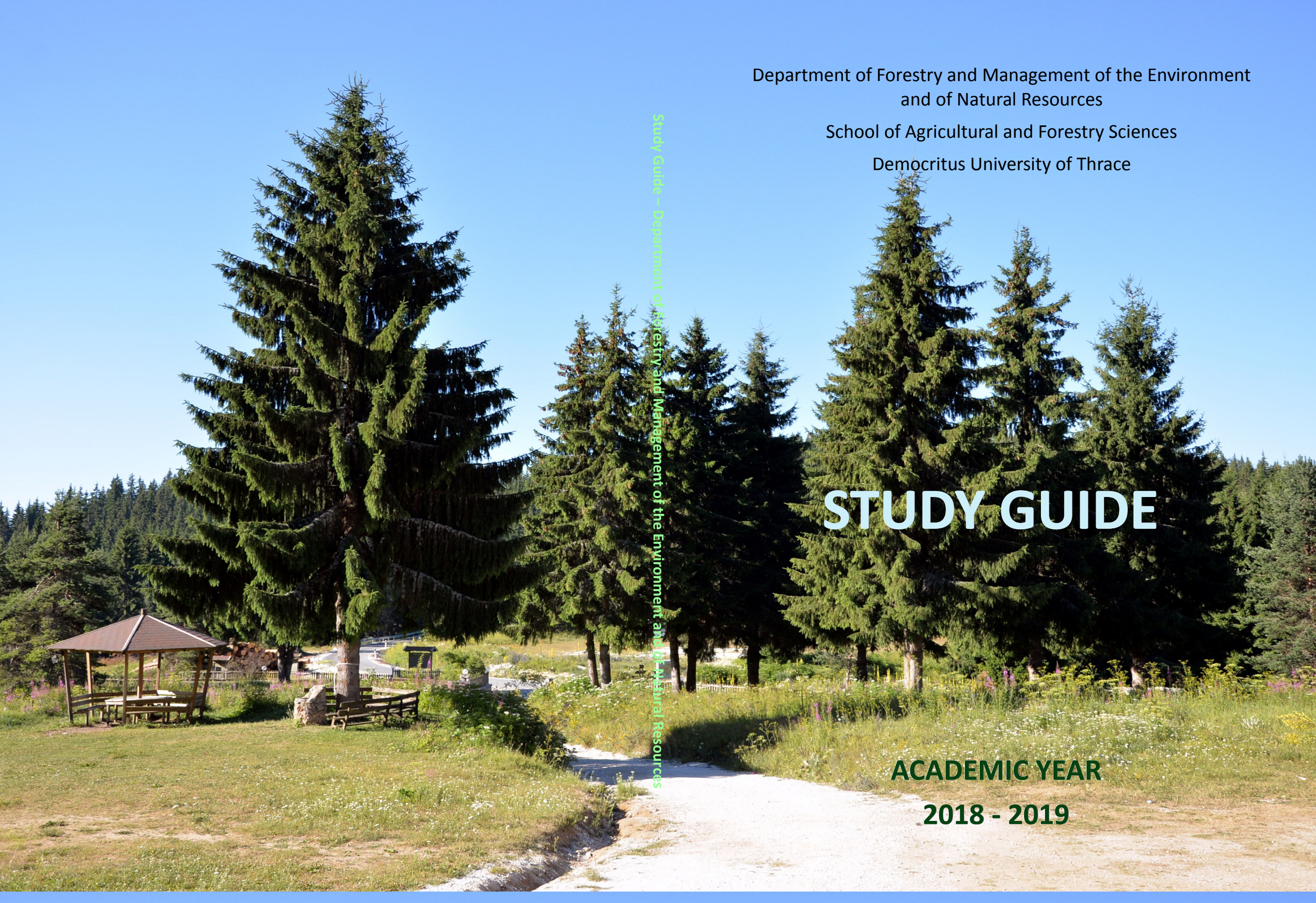
Democritus University of Thrace

Study Guide — Department of Forestry and Management of the Environment and of Natural Resources

STUDY GUIDE

ACADEMIC YEAR

2018 - 2019



Editors:

Garyfallos Arabatzis
Professor

Paraskevi Karanikola
Assistant Professor

Eirene Katsarou
Special Educational Staff

INTRODUCTION

The publication of the study guide seeks to provide valuable information in relation to the academic, administrative and institutional functioning of the Department of Forestry and Management of the Environment and of Natural Resources.

The mission of the Department is as follows:

- a. The provision of training with regard to the science of Forestry and Management of the Environment and of Natural Resources.
- b. The fulfillment of important and innovative research for sustainable management of forests, woodlands and of the environment, for biodiversity, for climate change impact, for the maintenance and protection of the environment.
- c. The improvement of terrestrial ecosystems and wildlife for the benefit of man and nature.

The Study Guide aims to aid students by informing them about the individual modules and the areas of specialization offered in the Department. It provides detailed information for all regulations that come into effect throughout the academic year 2018-2019 while at the same time, it informs students about the educational procedures and activities of the Department.

The implementation of the course syllabus intends to the transmission of knowledge and practice to the students, so that, upon graduation, they can will be in a position to work as professional foresters and contribute thus to the maintenance, restoration and sustainable management of forest ecosystems.

This year, our Department completes 20 years of operation and all efforts and interest of all departmental members are always focused on the provision of high-level education and research to meet the demands of its academic functioning as well as of those of the marketplace.

As the new academic year 2018-2019 begins, I sincerely congratulate our first-year undergraduate students and I wish that the new academic year be a rewarding one for all of our students and our departmental staff members in the fields of education and research.

The Head of the Department

Professor Kalliopi Radoglou

Contents

Introduction	1
Contents	2
Thrace	3
New Orestiada	4
General Information	5
Democritus University of Thrace (DUTH)	6
Administration at DUTH	7
The Department of Forestry and Management of the Environment and Natural Resources	8
Organization & Operation of the Department	9
Administrative & Organizational Structure of the Department	10
Sectors and Laboratories	13
Departmental Staff	12
Functional Spaces	16
Entrance Regulations for Students	18
Undergraduate Course Syllabus	20
General Principles	21
Directions and Optional Courses	22
Undergraduate Course Syllabus	24
Outline of Taught Courses	36
Summary of Compulsory Courses	37
Summary of Elective Courses	58
Foreign Language Teaching	76
Structure of Studies	77
Organizational Issues of Studies at the Undergraduate level	78
Operational Services of the Department	82
Secretarial Support	83
Library	83
Student Welfare	84
Textbooks	85
Student Welfare	85
Awards-Scholarships	87
Student Union	88
Collaborations	89
National Collaborations	90
International Collaborations	90
Postgraduate Programs	91

Thrace

Geographically speaking, the area of Thrace resides in the north east 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 (km²) and its population reaches approximately 350,000 residents nowadays.

Thrace and the area of East Macedonia consists 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 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, MikriDoxipara 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 parks in Greece, the forest of Dadia, where some of the protected and rarest species of predators in Europe find shelter.



Ardas River

New Orestiada

New Orestiada is the northernmost city in Greece and also the capital city of the respective Borough. It is about 2 kilometres 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 64kilometers 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 kilometres. Thessaloniki is 410 kilometers and Athens is 910 kilometres 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 & HUMANITY 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

SCHOOL OF AGRICULTURAL & FORESTRY

SCIENCE STUDIES

- Department of Agricultural Development
- Department of Forestry and Management of the Environment & Natural Resources

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 subsidiarity. 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

The Senate consists of the Rector, the Vice-Rectors, the Deans of the Schools and the Heads of the Departments, one representative of the Research and Teaching Staff from each Department, one representative of the undergraduate students, one representative of the postgraduate students, one representative of the Ph.D.candidates, one representative of the Special Educational Staff, one representative of the Special Teaching Staff, and one representative of the Special Technical Educational Staff.

The Senior Secretary of the University is present during the Senate meetings, but has no right to vote.

The Rectorate

The Rectorate at Democritus University of Thrace for the four-year period 2018-2022 consists of the following members:

Rector

- **Alexandros Polichronidis**, Professor in the Department of Medicine, at the School of Health Studies, Democritus University of Thrace

Vice-Rectors

- **Fotios Maris**, Associate Professor in the Department of Civil Engineering at the Polytechnic School, Democritus University of Thrace
- **Zoi Gavriilidou**, Professor in the Department of Greek Language and Literature, at the School of Classical and Humanity Studies, Democritus University of Thrace
- **Maria Michalopoulou**, Professor in the Department of Physical Education and Sports at the School of Physical Education and Sports Studies, Democritus University of Thrace
- **Raphael Sandaltzopoulos**, Professor in the Department of Molecular Biology and Genetics, at in the School of Health Studies, 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. 203/90, 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 2017-2018 are the following:

The General Assembly of the Department consists of the following members:

- **HEAD**

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

- **DEPUTYHEAD**

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

- **REGULAR MEMBERS**

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

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

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

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

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

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

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

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

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

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

Karanikola Paraskevi, *Assistant 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.

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

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

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

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

SECRETARY

Deputy Secretary: Christos Varsamakidis

Administrative Staff: Ioanna Batziou

Administrative Staff:AntoniaTilioudi
Administrative Staff:EvgeniaOtemperi

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
Secretariat Fax: (25520) 41192



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

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 cultivation of forestry ecosystems, and (iii) issues related to the protection of nature and forest landscaping

2. Laboratory of Forest Genetics & Improvement of Forest Species

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, forest 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

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

4. Laboratory of Forest Protection

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

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

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

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 Biometrics, 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 Biometrics-Biostatistics

It meets the educational and research needs in this field as it focuses on: (i) methods of forest statistical analysis, sampling methodology, measurement of decumbent wood and other forest products, measurement of standing trees and evaluation of cluster 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 climate and climatic change, biodiversity, soil), epidemiological-medical and genetics data.

2. Laboratory of Forest Management

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

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, behaviour, 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 Applications, (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

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 exploitations, 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, Assessment 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 workforce, cost of production, analysis of economic outputs and improvement and excellence measures, optimization of the economic output of forest industries, economic-technical studies.

The market of forest products and their environment, study and analysis of the market of raw and manufactured forest products, basic principles of marketing, consumer behaviour, 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.

General concepts, birth and development of entrepreneurship, foundation and organization of business, business commitments, entrepreneurship and innovation, the role of Small and Medium Business, development of business plans, business opportunities expansion, policies for entrepreneurship and support agencies, human resource management, economic management and succession. Entrepreneurship clusters 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

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

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 Works

It covers the subject matter of Mountain Waters Treatment and the Hydrological Handling of River Basins, of Forest Constructions, of Forest Roads and Forest Transportation, of Topography and Forest Cadastre.

1. Laboratory of Mountain Waters Treatment and Risk Management

It meets the educational and research needs in this field as it focuses on: (i) the laws governing the movement of mountain waters and the corruption of mountain soils and its aversion, (ii) the principles for the construction of engineering work for the treatment of the irregular flow of mountain waters, (iii) the treatment and handling of river basins and manipulation of river basin vegetation to regulate water resources management and handle risk caused by flooding, geological leaks, earthquakes and drought.

2. Laboratory of Engineering Sciences and Topography

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

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

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 Research and Teaching Staff of the Department consists of 3 Professors, 7 Associate Professors and 8 Assistant Professors. Additionally, the Department covers some of its educational needs by hiring part-time Scientific Staff according to the regulations set out by P.D. 407/80 as well as under the scheme ‘Acquisition of Academic Teaching Experience for New PhD Holders’. More specifically, the Scientific Staff of the Department consists of:

PROFESSORS

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

Drosos Vassilios, Professor. Specialization Area: Forest Cadastre, Forest Constructions, Forest Openin-Up

Arambatzis Garifallos, Professor. Specialization Area: Investments and Regional – Forest Development.

Milios Ilias, Professor. Specialization Area: Silviculture.

Papageorgiou Aristotelis, Associate Professor. Specialization Area: Forestry Genetics.

Tampakis Stilianos, Associate Professor. Specialization Area: Forest Policy.

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

Tsantopoulos Georgios, Associate Professor. Specialization Area: Forest Extensions.

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

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

Kitikidou Kiriaki, Associate Professor. Specialization Area: Forest Biometrics

Mallinis Georgios, Associate Professor. Specialization Area: Forest Remote Sensing

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

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

Korakis Georgios, Assistant Professor. Specialization Area: Forest Botany

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

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

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

EMERITUS PROFESSORS

1. **Efstathios Tsachalidis**, Subject of Specialty: Ecology and Game Management.
2. **Konstantinos Soutsas**, Subject of Specialty: Regional Environmental Policy: Forest Resources and Quantitative Methods

SPECIAL EDUCATIONAL STAFF

KatsarouEirene, English Language & Literature, Ph.D.

SPECIAL SCIENTIFIC AND TEACHING STAFF

Kantartzis Apostolos,

Forester – Environmentalist, M.Sc, Ph.D

Rantzoudi Eleni, Forester – Environmentalist, M.Sc

Chatzilazarou Georgios,
Forester – Environmentalist, M.Sc

SPECIAL TECHNICAL AND LABORATORY STAFF

Ioannis Gkougkourelas,
Forester – Environmentalist, M.Sc
Simeonidis Aggelos
Forester – Environmentalist, M.Sc

TECHNICAL SERVICE

Deligianni Pemanthoula, Civil Engineer, M.Sc

SECRETARY STAFF

Varsamakidis, Christos
Batziou, Ioanna
Tilioudi, Antonia
Otemperi, Evgenia

LIBRARY STAFF

Zelidou, Eleni
Biskitzi, Tzoulia



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 facilitates 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

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 Panhellenic system of university entrance examinations
- 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 submit 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 (A.E.I), TECHNICAL EDUCATIONAL INSTITUTES (T.E.I.) AND HIGHER LEVEL SCHOOLS OF OVER TWO-YEAR AND TWO-YEAR CYCLE OF STUDIES

The placement of graduates of higher educational (A.E.I.), technical educational institutes (T.E.I.) and higherlevel 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 in three courses within the first 20 days in December. In order 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
- Directions and Elective Courses
- Course Syllabus

GENERAL PRINCIPLES

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

- All ‘Compulsory’ courses are taught between 3 – 5 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 2 hours per week.
- One teaching hour equals to one teaching unit.
- In the 3rd semester, students select one out of the 5 available directions that appear in the Course Syllabus and they select to attend ‘Optional’ courses of the direction they have selected to follow.
- Students have the right to change direction up until the beginning of 6th semester, if they wish so, and can only do it only for **once**.
- In the 7th and 8th semesters, students have the right to select a topic for their dissertation thesis, irrespective of which direction they attended, on the condition that the topic is approved by the supervisor of the given sector.

DIRECTIONS AND ELECTIVE COURSES

1ST DIRECTION

ECOLOGY – ENVIRONMENTAL PROTECTION AND FOREST PRODUCTION

- ◆ Environmental Chemistry –Pollution of Natural Environment
- ◆ Waste Management and Recycling
- ◆ Environmental Physics
- ◆ Soil Microbiology
- ◆ Forest Plants Sociology
- ◆ Didactics of Environmental Science
- ◆ Forest Soil Fertility
- ◆ Energy and Environment
- ◆ Forest Growth and Yield
- ◆ Geobotany
- ◆ Green Entrepreneurship and Innovation
- ◆ Renewable Energy Sources
- ◆ Ornamental Trees and Bushes
- ◆ Molecular Markers and Plant Genetics
- ◆ Tree and Shrub Enemies in the Urban Environment
- ◆ Urban Forestry
- ◆ Chemical and Biological Control of Diseases and Insects
- ◆ Agro-forestry
- ◆ Climate change scenarios – Adaptation and Vulnerability
- ◆ Evolutionary Biology and Biodiversity
- ◆ Geo-spatial Analysis and Natural Resources Mapping

2ND DIRECTION

RANGELAND AND GAME MANAGEMENT

- ◆ Environmental Chemistry – Pollution of Natural Environment
- ◆ Environmental Physics
- ◆ Rangeland Plants
- ◆ Didactics of Environmental Science
- ◆ Forest Soil Fertility
- ◆ Rangeland Eco-physiology
- ◆ Genetic Improvement of Rangeland Plants
- ◆ Green Entrepreneurship and Innovation
- ◆ Freshwater Fish Farming
- ◆ Rangeland Development Strategies
- ◆ Agro-forestry

- ◆ Climate change scenarios – Adaptation and Vulnerability
- ◆ Game Farming
- ◆ Management Policies of Protected Areas

3RD DIRECTION

MANAGEMENT AND DEVELOPMENT OF NATURAL RESOURCES

- ◆ Forest Recreation
- ◆ Environmental Physics
- ◆ Forest Informatics Public Relations of Environmental Crises
- ◆ Sampling – Experimental Design
- ◆ Didactics of Environmental Science
- ◆ Regional Development
- ◆ Environmental Communication – Environmental Interpretation
- ◆ Forest Growth and Yield
- ◆ International Environmental Relations
- ◆ Green Entrepreneurship and Innovation
- ◆ Special and Alternative Forms of Tourism
- ◆ Environmental Remote Sensing – Digital Images Processing
- ◆ Organization and Administration
- ◆ Spatial Planning and Development of Mountainous and Less-favored Regions
- ◆ Environmental Policy
- ◆ Applied Forest Management
- ◆ Climate change scenarios – Adaptation and Vulnerability
- ◆ Management of non-Timber Forest Functions
- ◆ Management Policies of Protected Areas

4THDIRECTION

FORESTRY AND WATER WORK

- ◆ Building and Structural Materials
- ◆ Environmental Physics
- ◆ Didactics of Environmental Science
- ◆ Water Resources Management
- ◆ Green Entrepreneurship and Innovation
- ◆ Soil Mechanics – Machinery Applications in Forest Works
- ◆ Surveying Instruments and Surveying of Forest Areas
- ◆ Hydroinformatics
- ◆ Planting Techniques Arrangements
- ◆ Geo-spatial Analysis and Natural Resources Mapping
- ◆ Technical Works and Studies of Environmental Impacts

5THDIRECTION

FORESTRY PRODUCTS HARVESTING AND TECHNOLOGY

- ◆ Forestry Ergonomics
- ◆ Environmental Physics
- ◆ Forest Informatics
- ◆ Public Relations of Environmental Crises
- ◆ Didactics of Environmental Science
- ◆ Energy and Environment
- ◆ Forest Machine Engineering
- ◆ Green Entrepreneurship and Innovation
- ◆ Renewable Energy Sources
- ◆ Organization and Administration
- ◆ Forest Industries
- ◆ Management and Classification of Unfinished Wood

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 (General Assembly Decision No. 9/31.5.2017)
Courses, Laboratory Training hours, Teaching Units and Credit Units

1st Semester					
Compulsory Courses					
Course Title		Teaching Hours			
		Theory	Lab	T.U.	ECTS Units
1	Sociology	2	1	3	2
2	Mathematics	3	2	5	4
3	General Botany - Morphology	2	2	4	3
4	Informatics	3	2	5	4
5	Engineering Drawing – Geo-informatics	1	2	3	2
6	Forest Extensions	3	2	5	4
7	Ecology	3	-	3	2
8	General Soil Science	3	2	5	5
9	Foreign Language	2	-	2	2
Optional Courses (Students choose 1 optional course for attendance)					
1	Environmental Chemistry – Pollution of the Environment	2	1	3	2
2	Building and Structural Materials	2	1	3	2
3	Forestry Ergonomics	2	1	3	2
4	Forest Recreation	2	1	3	2

Total of Teaching Units: **38**

Total of Credit Units: **30**

2nd Semester Compulsory Courses					
Course Title		Teaching Hours			
		Theory	Lab	T.U.	ECTS Units
1	Topography	3	2	5	4
2	General Botany - Physiology	3	2	5	5
3	Freshwater Fisheries	3	2	5	5
4	Environmental Education	2	1	3	2
5	Hydrology – Hydraulic of Mountainous Watersheds	3	2	5	5
6	Forest Soil Science	3	2	5	5
7	Foreign Language	2	-	2	2
Optional Courses (Students choose 1 optional course for attendance)					
1	Environmental Physics	2	1	3	2
2	Waste Management and Recycling	2	1	3	2
3	Forest Informatics	2	1	3	2

Total of Teaching Units: **33**

Total of Credit Units: **30**

3rd Semester Compulsory Courses					
Course Title		Teaching Hours			
		Theory	Lab	T.U.	ECTS Units
1	Forest Constructions – Technical Mechanics	4	1	5	5
2	Forest Botany I	3	2	5	5
3	Biostatistics	3	2	5	6
4	Meteorology	3	2	5	5
5	Forest Pathology	3	2	5	5
6	Foreign Language	2	-	2	2
Optional Courses (Students choose 1 optional course for attendance)					
1	Rangeland Plants	2	1	3	2
2	Public Relations of Environmental Crises	2	1	3	2
3	Soil Microbiology	2	1	3	2
4	Green Entrepreneurship and Innovation	2	1	3	2

Total of Teaching Units: **30**

Total of Credit Units: **30**

4th Semester Compulsory Courses					
Course Title		Teaching Hours			
		Theory	Lab	T.U.	ECTS Units
1	Forest Botany II	3	2	5	5
2	Forest Biometry	4	2	6	6
3	Forest Remote Sensing – Air Photography	3	2	5	5
4	Forest Opening-Up – Skidding and Transport of Forest Products	3	2	5	5
5	Forest Entomology and Zoology	3	2	5	5
6	Foreign Language	2	-	2	2
Optional Courses (Students choose 1 optional course for attendance)					
1	Forest Plants Sociology	2	1	3	2
2	Sampling – Experimental Designs	2	1	3	2
3	Didactics of Environmental Science	2	1	3	2
4	Regional Development	2	1	3	2
5	Environmental Communication – Environmental Interpretation	2	1	3	2
6	Forest Soil Fertility	2	1	3	2

Total of Teaching Units: **31**

Total of Credit Units: **30**

5th Semester Compulsory Courses					
Course Title		Teaching Hours			
		Theory	Lab	T.U.	ECTS Units
1	Rangeland Ecology	2	2	4	4
2	General Silviculture – Forest Ecology	4	1	5	5
3	Forest Genetics	3	2	5	5
4	Wood Structure and Properties	3	2	5	5
5	Forest Road Construction – Digital Road Construction Design	3	2	5	5
6	Forest Ecophysiology	3	2	5	4
Optional Courses (Students choose 1 optional course for attendance)					
1	Energy and Environment	2	1	3	2
2	Forest Growth and Yield	2	1	3	2
3	Rangeland Ecophysiology	2	1	3	2
4	Water Resources Management	2	1	3	2
5	Geobotany	2	1	3	2
6	International Environmental Relations	2	1	3	2

Total of Teaching Units: **32**

Total of Credit Units: **30**

6th Semester Compulsory Courses					
Course Title		Teaching Hours			
		Theor y	Lab	T.U.	ECTS Units
1	Applied Silviculture	4	1	5	5
2	Improvement and Protection of Forest Genetic Resources	3	2	5	4
3	Rangeland Management and Improvement	3	2	5	4
4	Ecology and Management of Wildlife Fauna	3	2	5	4
5	ForestCadastre – DigitalCadastreDatabase	3	2	5	4
6	Chemistry and Wood Chemical Products	3	1	4	4
7	Traineeship in the Forest Village (Elatia, Dramas)	-	3	3	3
Optional Courses (Students choose 1 optional course for attendance)					
1	Forest Machine Engineering	2	1	3	2
2	Genetic Improvement of Rangeland Plants	2	1	3	2
3	Renewable Energy Sources	2	1	3	2
4	Soil Mechanics – Machinery Applications in Forest Works	2	1	3	2
5	Ornamental Trees and Bushes	2	1	3	2

Total of Teaching Units: **35**

Total of Credit Units: **30**

7th Semester Compulsory Courses					
Course Title		Teaching Hours			
		Theory	Lab	T.U.	ECTS Units
1	Wetlands Protection and Management	3	1	4	3
2	Mountainous Water Management and Control	3	2	5	5
3	Forest Management I	3	2	5	5
4	Forest Products Harvesting	3	1	4	4
5	Forest Economics	3	2	5	5
6	Environmental Geographic Information Systems (GIS)	3	2	5	4
Optional Courses (Students choose 1 optional course for attendance)					
1	Surveying Instruments and Surveying of Forest Areas	2	1	3	2
2	Special and Alternative Forms of Tourism	2	1	3	2
3	Molecular Markers and Plant Genetics	2	1	3	2
4	Tree and Shrub Enemies in the Urban Environment	2	1	3	2
5	Hydro-informatics	2	1	3	2
6	Freshwater Fish Farming	2	1	3	2
7	Environmental Remote Sensing – Digital Images Processing	2	1	3	2

Total of Teaching Units: **34**

Total of Credit Units: **30**

8th Semester Compulsory Courses					
Course Title		Teaching Hours			
		Theory	Lab	T.U.	ECTS Units
1	Nature Conservation and Landscape Architecture of Natural Areas	3	1	4	3
2	Management of Hydro-meteorological Disasters	3	2	5	4
3	Wood Technology	3	1	4	3
4	Forest Management II	3	2	5	4
5	Forest Valuation and Accounting	3	2	5	4
6	Climate Change	3	1	4	3
7	Traineeship in the Forest Village (Elatia, Dramas)	-	3	3	3
8	Traineeship in Forestry Agencies	-	2	2	2
Optional Courses (Students choose 1 optional course for attendance)					
1	Organization and Management	2	1	3	2
2	Urban Forestry	2	1	3	2
3	Rangelands Development Strategies	2	1	3	2
4	Chemical and Biological Control of Diseases and Insects	2	1	3	2
5	Forest Industries	2	1	3	2
6	Planting Techniques Arrangements	2	1	3	2
7	Spatial Planning of Mountain and Less-favoured Regions	2	1	3	2
8	Geo-spatial Analysis and Natural Resources Mapping	2	1	3	2

Total of Teaching Units: **38**

Total of Credit Units: **30**

9th Semester Compulsory Courses					
Course Title		Teaching Hours			
		Theory	Lab	T.U.	ECTS Units
1	Climate Change and Forest Ecosystems	3	1	4	4
2	Nurseries - Reforestations	3	1	4	4
3	Forest Energy	3	2	5	5
4	Investments and Forest Resources Development	3	2	5	5
5	Forest Policy I	3	2	5	5
6	Forest Fires	3	2	5	5
Optional Courses (Students choose 1 optional course for attendance)					
1	Agroforestry	2	1	3	2
2	Technical Works and Studies of Environmental Impacts	2	1	3	2
3	Environmental Policy	2	1	3	2
4	Applied Forest Management	2	1	3	2

Total of Teaching Units: **31**

Total of Credit Units: **30**

10th Semester Compulsory Courses					
Course Title		Teaching Hours			
		Theor y	Lab	T.U.	ECTS Units
1	Forest Policy II	3	2	5	5
2	Forest Law	2	1	3	3
3	Undergraduate Thesis	-	-	20	20
Optional Courses (Students choose 1 optional course for attendance)					
1	Climate Change Scenarios-Adaptation and Vulnerability	2	1	3	2
2	Game Farming	2	1	3	2
3	Non-timber Forest Functions Management	2	1	3	2
4	Evolutionary Biology and Biodiversity	2	1	3	2
5	Management Policies for Protected Areas	2	1	3	2
6	Management and Classification of Unfinished Wood	2	1	3	2

Total of Teaching Units: **31**

Total of Credit Units: **30**

Table of Teaching and Credit Units

No.	Semester	Teaching Units	Credit Units
1	1 st	38	30
2	2 nd	33	30
3	3 rd	30	30
4	4 th	31	30
5	5 th	32	30
6	6 th	35	30
7	7 th	34	30
8	8 th	38	30
9	9 th	31	30
10	10 th	31	30
Total		333	300

OUTLINE OF TAUGHT COURSES

- Summary of Compulsory Courses
- Summary of Optional Courses
- Foreign Language Instruction

SUMMARY OF COMPULSORY COURSES

1st Semester

◆ Sociology

The course covers the following points:

Value of sociological knowledge, the founders of sociology, sociology as science, society, social cohesion and social instability, social integration and inclusion of the individual, social change, population, groups and organizations, social stratification, rural community, town and city, environment and society, family and kinship, religion, education, gender relations, human rights, international systems, collective behavior and social movements.

Suggested Readings:

- Alexander, J.C., Thompson, K. & Edles, L.D. (2016). Σύγχρονη Εισαγωγή στην Κοινωνιολογία. Δάρδανος.
- Hughes, M. & Kroehler, C.J. (2014). Κοινωνιολογία. Εκδόσεις Κριτική.
- Μανωλάς, Ε. (2017). Περιβαλλοντική Κοινωνιολογία. Δάρδανος.

◆ Mathematics

The course covers the following points:

Basic principles of advanced mathematics, Series, matrices, combinations, integrals, derivatives, totals, maximum and minimum, functions, differential equations.

Suggested Readings:

- Μυλωνάς, Ν. & Σαραφόπουλος, Γ. (2015). Οικονομικά Μαθηματικά. Εκδόσεις: Τζιόλα & Υιοί

◆ General Botany – Morphology

The course covers the following points:

Structure of the Plant Cell, Key Cellular Organelles, Primary and Secondary Wall, Cell division (mitosis, endomitosis, meiosis), Organization and Classification, Protophytes, Thallophyta, Mosses, Tracheophytes and Spermatophytes, Shoot, Flower, Leaf and Root Morphology, Plant Reproduction (ways of reproduction and alternation of generations).

Suggested Readings:

- Raven, P., Ray, F.E. & Eichhorn, S.E. (2014). Βιολογία των Φυτών. Εκδόσεις: UTOPIA EΠΕ.
- Μποζαμπαλίδης, Α. (2015). Βοτανική. (2^η έκδοση). University Press Studio.

◆ Informatics

The course covers the following points:

Introduction to computer programming, Introduction to programming languages, Programming commands and specifications, functions and sub-programmes, Computer applications on forestry, Computer applications on forestry, Applications of modern software on forestry, Object-oriented programming with C++, Development of geographical application systems with Arcview.

Suggested Readings:

- Δημητριάδης, Δ. (2012). Προγραμματισμός με τη Visual Basic. Εκδόσεις: Μούργκος. I
- Σκλαβενίτης, Δ. (2006). Visual Basic. Διάλογος

◆ Engineering Design - Geoinformatics

The course covers the following points:

Key principles of Drawing, Means and Possibilities for Data Graphic Presentation, Drawing Instruments and Materials, Types of Lines – Layout, Line for Letters and Numbers, Geometrical

Constructions, Design Scale and Memorandum, Intersection Lines, Pictorial Representation, Sketch, Draft, Final Draft, Photocopies, Key elements of Building, Structural, Topographic, Engineering and Freehand Drawing.

Suggested Readings:

- Δούκας, Α.-Κ. (2003). Γεωτεχνικό Σχέδιο. Εκδόσεις: Γιαχούδης, Σ & ΣΙΑ.
- Παρασχάκης, Ι., Παπαδοπούλου, Μ. & Πατιάς, Π. (2015). Σχεδίαση με Ηλεκτρονικό Υπολογιστή. Εκδόσεις Ζήτη.

◆ Forest Extensions

The course covers the following points:

Introductory Concepts, Historical Evolution of Forestry, Requirements for the success of forest extensions, Methods and Means for Educational Training, Communication, Interpersonal Communication, Mass Communication, Mass Media, Attitudinal and Behavioral Change, Means for Public Sensitization for the Protection of Natural Environment, Program development for forest extensions, Dissemination and Application of Forest Improvements, Syndication and Co-operation, Forest Extensions on Environmental Protection and Development.

◆ Ecology

The course covers the following points:

Key Principles of Ecology, Autoecology, Relations among living beings, Ecology of Populations, Synecology, Definition of ecosystems, Analysis of Ecosystems Structure and Function, Factors affecting Ecosystems Stability, Biochemical cycle, Forest Ecosystem Impacts caused by Disruption, Ecosystems Development and Evolution.

Suggested Readings:

- Βερεσόγλου, Δ. (2010). Οικολογία. Εκδόσεις: Γαρταγάνης.
- Begon, M., Howarth, R. W. & Townsend, C. R. (2015). Οικολογία. Εκδόσεις: UTOPIA ΕΠΕ.

◆ General Soil Science

The course covers the following points:

Soil Minerals and Rocks and their relations with the forest, Factors of Soil Formation and Key Processes of Soil Formation, Physical and Chemical Soil Properties, Soil Classification and Mapping, Groundwater Identification and Mapping, Groundwater exploitation.

Suggested Readings:

- Αλιφραγκής, Δ. (2010). Το Έδαφος. Τόμος Ι. Γέννηση-Ιδιότητες-Ταξινόμηση. Εκδόσεις: Αιβάζης, Χ.

◆ Foreign Language (English)

Suggested Readings:

- Αναγνώστου, Π. (2015). Useful Notes and Exercises on the Most Commonly Used Chapters of the English Grammar. Εκδόσεις: Γρηγόρη, Χ.

◆ Foreign Language (French)

2nd Semester

◆ Topography

The course covers the following points:

Topographic measurement units, instruments, methods and calculations for the horizontal, vertical and speed mapping, Plan drafting and surface calculations, Distance measurement using electromagnetic methods.

Suggested Readings:

- Δερμάνης, Α. (1991). Αναλυτική Φωτογραμμετρία. Εκδόσεις: Ζήτη.
- Δούκας, Α.-Κ. (2001). Τοπογραφία Αγροτικών και Δασικών Περιοχών. Εκδόσεις: Γιαχούδης, Σ & ΣΙΑ.
- Καλτσίκης, Χ. Ι. & Φωτίου, Α.Ι. (1990). Γενική Τοπογραφία. Εκδόσεις: Ζήτη.

◆ General Botany - Physiology

The course covers the following points:

Cell structure and cellular compartmentalization, Functional distinction of intracellular substances, Hypogonadal reactions and ATP systems, Isolation, specialization, nomenclature and mechanisms of action for enzymes, Activators and inhibitors, Significance of nutrients and cell intake mechanisms, Photosynthesis and oxidative degradation of carbohydrates, Cycle of pentose phosphate, Increase and development in higher plants, Plant hormones.

Suggested Readings:

- Καραταγλής, Σ. (1999). Φυσιολογία Φυτών. Εκδόσεις: Χάρις, Μ ΕΠΕ.
- Ρουμπελάκη, Α.-Κ. (2009). Φυσιολογία Φυτών.
Ίδρυμα Τεχνολογίας & Έρευνας: Πανεπιστημιακές Εκδόσεις Κρήτης.
- Lincoln, T. & Eduardo, Z. (2011). Φυσιολογία Φυτών. Εκδόσεις: UTOPIA ΕΠΕ.

◆ Freshwater Fisheries

The course covers the following points:

Phytochemical Properties of Flowing Waters, Freshwater Fish Physiology, Anatomy and Reproduction, Geographical Distribution and Fish Migration, Fish Food and their feeding habits, Terminology for the Age of Fish, Fish Capture and Population Evaluation, Description of the most important species of Freshwater Fish of Greece.

Suggested Readings

- Νεοφύτου, Χ. (2015). Βιολογία Ιχθύων & Θαλάσσιων Θηλαστικών. University Studio Press.

◆ Environmental Education

The course covers the following points:

Introductory concepts, The Environment as a research topic, Environmental problems, environmental crisis and response measures, Impacts of world population increase, Urbanization, International initiatives in environmental education, Environmental education and curricula, Means for the completion of environmental programs, Pedagogical methods used in environmental education, Environmental – Forest education and protection of the natural environment and its resources.

Suggested Readings:

- Τσαμπούκου-Σκαναβή, Κ. (2004). Περιβάλλον και Κοινωνία. Εκδόσεις: Αλεξάνδρα Κ. Αποστολάκη.
- Γεωργόπουλος, Α. (2014). Περιβαλλοντική Εκπαίδευση. Εκδόσεις: Δάρδανος.

◆ Hydrology - Hydraulics of Mountainous Watersheds

The course covers the following points:

Introduction, The hydrological cycle, object of study and historical development of hydrology, Analysis of hydrologic information, Statistical analysis, Time sequences of hydrological phenomena, Theoretical probability mass function, Suitability testing, Stochastic analysis items, Hydrometeorology items, Atmospheric precipitation, Homogeneity test, completion and analysis of rainfall patterns observations, Geo-morphological elements, morphometric characteristics of water basins, characteristics of the hydrographic network, Evaporation and transpiration, water balance, energy balance, Infiltration – soil moisture, static and dynamic of soil water, Excess rainfall, evaluation methods of rainfall losses, Groundwater hydrology, groundwater simulation models, Runoff, runoff measurement – hydrometry, hydrometric stations and networks, processing of hydrometric observations, runoff fluctuation and changes, Flood runoff, unitary watermark, empirical evaluation methods of flood size, Flood transit, Drought, methodology for the determination of drought indices, hydrological drought, Mathematical models of rainfall-runoff, classification and analytical presentation of selected models, Soil erosion, transfer of sludge materials, Sediment transport rate, categories and measurements of sludge material, calculation methods of sediment transport rate, quality of surface water, climatic change and its impact on water resources, new techniques in hydrology research.

Items of hydraulics of open pipes, Introductory concepts in hydraulics, Forms and geometrical features of cross-section, distribution and speed factors in cross-section, parallel and curvilinear flows, General flow equations in open pipes, mass continuity equation and Bernouli's energy equation in open pipes, momentum equation, transformation of continuity and momentum equations, Holistic and specific energy, specific force, Uniform flow, empirical equations, roughness factor, faces erosion, permissible speeds, Uneven flow, gradually varied uneven flow, rapidly varied uneven flow, Flow control and measurement, speed and flow measurements, Unstable flow in open pipes, uni-dimensional unstable flow, simplified arithmetical solutions, arithmetical solutions of unstable flow equations, wave propagation problem transit, hydraulic methods of wave propagation transit, methods of kinematic wave, propagation method, hydrodynamic models, bi-dimensional unstable flow, bi-dimensional unstable flow equations, arithmetical solution of bi-dimensional unstable flow, Critical shear stress, flow in closed pipes under partial filling, special energy, critical flow, ejectors.

Suggested Readings

- Τσακίρης, Γ.-Ε. Χ. (2009). Υδατικοί Πόροι ΙΙ. Εφαρμογές Τεχνικής Υδρολογίας. Εκδόσεις: Αθανασόπουλος, Σ. & ΣΙΑ.
- Ψιλοβίκος, Α. (2014). Οικουδραυλική. Εκδόσεις: Τζιόλα.
- Μιμίκου, Μ. & Μπαλτάς, Ε. (). Τεχνική Υδρολογία. Εκδόσεις: Παπασωτηρίου, Α. & ΣΙΑ.
- Warren, V. & Lewis, G. (2010). Εισαγωγή στην Υδρολογία. Εκδόσεις: Παρίκου, Σ. & ΣΙΑ.
- Κατσιφαράκης, Κ.Α. (2017). Μόνιμες ροές με ελεύθερη επιφάνεια. Εκδόσεις: Αφοι Κυριακίδη.

◆ Forest Soil Science

The course covers the following points:

Biological traits of forest soils, soil cross-section (forest floor, soil organisms, nutrients in the ecosystem soil-forest), hydrological cycle and forest soils, Impacts of interventions on the forest soil (forestry interventions, grazing, field crops, fire), Forest nursery soil.

Suggested Readings

- Αλιφραγκής, Δ. (2010). Περιγραφή, Δειγματοληψία, Εργαστηριακές Αναλύσεις δασικών Εδαφών και Φυτικών Ιστών. Εκδόσεις: Αιβάζης, Χ.

◆ **Foreign Language (English)**

Suggested Readings:

- Τσαλουχίδου-Λιόλιου, P. (1994).English Through Forestry.University Studio Press.

◆ **Foreign Language (French)**

3RD SEMESTER

◆ Forest Constructions – Technical Engineering

The course covers the following points:

General principles and construction methods of objects and projects from wood, Masonry, Reinforced concrete and agglomerated stones, Calculation for the construction of open ducts, forms and calculation of retaining walls, Study and construction of small bridges, static calculations of forestry projects and stability check, Interaction between forestry projects and natural environment.

Basic concepts and axioms, Force systems, Force synthesis and balance, Static torques of lines, surfaces and bodies, Isostatic linear vector, Loads of cross-section and flat trusses, Basic principles of materials strength, inertia torques and resistive torque, Calculation of forward stress, Calculation of shear stress in a bent beam with rectangular cross-section, Static calculations of forest projects and stability check, Reinforced concrete.

Suggested Readings:

- Nash, W.A. (2009). Στατική και Μηχανική των Υλικών. Εκδόσεις: Τζιόλα.
- Δούκας, Α.-Κ. (2004). Δασικές Κατασκευές και Φυσικό Περιβάλλον. Εκδόσεις: Γιαχούδης & ΣΙΑ.

◆ Forest Botany I

The course covers the following points:

Identification, description and classification of spermatophytes.

Suggested Readings:

- Αθανασιάδης, Ν. (1985). Δασική Βοτανική Μέρος Ι. Συστηματική Σπερματοφύτων. Εκδόσεις: Γιαχούδης & ΣΙΑ.
- Simpson, M.G. (2016). Συστηματική των Φυτών. Εκδόσεις: ΥΤΟΡΙΑΕΠΕ.

◆ Biostatistics

The course covers the following points:

Descriptive statistics: Collection – presentation – processing of statistical biological data, Measures of position – dispersion – form, Probabilities items Theoretical distributions (Bernoulli, binomial, Poisson, hypergeometric, normal, standard normal, χ^2 , t, F). Applied statistics: Parameter evaluation (point estimation, confidence intervals estimate), hypotheses tests, average equality tests, equality of variations tests, good adaptation tests, independent χ^2 , correlation tests, randomness tests, homogeneity tests), Analysis of variance, Regrowth

Suggested Readings

- Δημόπουλος, Π.Γ. (2004). Βιομετρία Βιοστατιστική. Εκδόσεις: Σταμούλη
- Σταυρινός, Β.Γ. & Παναγιωτάκος, Δ.Β. (2007). Βιοστατιστική. Εκδόσεις: Δαρδανός.
- Γελέκης, Ε. (2001). Βιομετρία. Εκδόσεις: Κορδαλή Χ. & Β.
- Τριχόπουλος, Δ., Τζώνου, Α. & Κατσουγιάννη, Κ. (2002). Βιοστατιστική. Εκδόσεις: Παρισιανού.

◆ Meteorology

The course covers the following points:

Meteorological Instruments, Weather Stations, Analysis of Meteorological Element, Atmosphere, Radiation, Surface Temperature, Humidity, Evaporation, Condensation, Precipitation, Fog, Dew, Frost, Ice, Atmospheric Pressure, Winds.

Suggested Readings

◆ **Forest Pathology**

The course covers the following points:

Abiotic factors and forest enemies, Symptoms and diseases, Pollution impacts on the physiology of forest trees, Lesions due to adverse weather conditions, Morphology, classification, physiology and ecology of fungi, Biological control and control with fungicides, Description of the key fungi types that attack forestry species in our country and of the lesions they cause.

Suggested Readings

- Καϊλίδης, Δ.(2004). Ασθένειες των Δέντρων, Δάσων και Πάρκων. Εκδόσεις: Αφοι Κυριακίδη.

◆ **Foreign Language (English)**

Suggested Readings:

- Μαλιβίτση, Ζ. & Περδίκη, Φ. (2014). The Earth in a Nutshell. Εκδόσεις: Αλτιντζής, Α.

◆ **Foreign Language (French)**

4TH SEMESTER

◆ Forest Botany II

The course covers the following points:

General description, morphological traits, biological requirements and geographical distribution of forest trees and shrubs in Greece.

Suggested Readings:

- Αθανασιάδης, Ν. (1988). Δασική Βοτανική Μέρος ΙΙ. Δέντρα και Θάμνοι των Δασών της Ελλάδας. Εκδόσεις: Γιαχούδης & ΣΙΑ.

◆ Forest Biometrics

The course covers the following points:

Measurement of decumbent trees, forest products, standing trees and cluster parameter evaluation statically (Dendrometry) and dynamically (Growth).

Suggested Readings:

- Κιτικίδου, Κ. (2016). Δασική Βιομετρία. Ελληνικά Ακαδημαϊκά Ηλεκτρονικά Συγγράμματα και Βοηθήματα - Αποθετήριο "Κάλλιπος".

◆ Forest Remote Sensing – Air Photography

The course covers the following points:

Introduction, Basic concepts of remote sensing, Electro-magnetic radiation, Objects spectral behaviour, Technical characteristics of satellite technology, Passive and Active Systems, Hyperspectral systems, Satellites, Instruments and Materials of aerophotography, Unmanned aerial systems of remote sensing (UAVs), Historical development, Aerophotography planning, Aerophotography geometry, Displacement, stereoscopic parallax, Stereoscopic observation, Types of stereoscopies, Aerophotography mapping, Ortho-images, Ortho-photomaps, Principles of visual interpretation and photo-interpretation, Various parameter measurements of the tree and the cluster, Guiding instructions for the processing of digital remote sensing images and information extraction, Special applications of remote sensing and forest aerophotography in the tracking, management, protection and development of natural ecosystems and the environment (in hydrology, in gameplay, in meadows, in recreation, in forest protection and in road construction). Forest inventory.

Suggested Readings:

- Καρτέρης, Μ.Α. (1990). Δασική Αεροφωτογραφία. University Studio Press.

◆ Forest Opening Up – Skidding and Transport of Forest Products

The course covers the following points:

General principles, definition, object of study, possibilities, means, types and methods of forest broaching, Factors that influence the forest broaching process (technical, financial, environmental and political), Basic principles of planning and location selection for broaching and soil forestry classification, The optimum broaching and calculations for road density, distance, the broaching percentage, and the translocation distance, Planning and study of forest broaching via roads and other infrastructures, Interactions between road broaching and wood charring, Study, delineation and construction of roadmap through forests, Definition, aim and significance of forest roadmaps and their contribution to the development and enhancement of mountainous and forest areas, Views on forest roadmap construction, factors that influence it, interactions with forestry intensity, delimitation of translocation and wood transportation, characterization and classification of forest roads, Information on the study of forest roads in various landscaping fields, impacts of the forest roadmap construction process and methods for the financial analysis and evaluation of forest roadmap construction.

Object of study, aim, and division of the process of wood transport, Principles, means, methods and systems for wood translocation and transposition over long distances, Contemporary mechanical means for wood translocation and transposition (terrestrial, aerial and aquatic transposition), Wood translocation and transposition with forestry tractors (simple and articulated), Basic functional principles and installment of rope systems, Movable rope grenades, installment and function.

Suggested Readings:

- Δρόσος, Β., Καραγιάννης, Ε. & Δούκας, Α.-Κ. (2013). Διάνοιξη Δάσους. Εκδόσεις: Τζιόλα.

◆ Forest Entomology and Zoology

The course covers the following points:

Key definitions and the significance of entomology in forest ecosystems, Relations of insects with host plants, Specialization in plant species and plant parts, Selection of the plant host, Plant host vitality and stressing, Plant resistance, Direct and indirect insect impacts on plants, Populations of forest insects, density and dynamics, Factors influencing the population, Population fluctuation – exacerbation, Control methods of forest insects (general principles, strategy, criteria, prerequisites), Control with the aid of forestry mechanical and natural means, Biological control, Systematic classification of the most important Phyla of the Animal Kingdom, Description and morphology of key Phyla, Biological description of the most important animals (birds, rodents, nematoids, etc) that cause damage to forest trees.

Suggested Readings:

- Μαρκαλάς, Σ. (2010). Δασική Εντομολογία. Εκδόσεις: Γιαχούδης & ΣΙΑ.
- Αβτζής, Ν., Αβτζής, Δ. & Βιδάκης, Κ. (2013). Δασικά Έντομα της Ελλάδας. Εκδόσεις: Σιγγιρίδου, Σ. & ΣΙΑ.
- Καϊλίδης, Δ. (2016). Εντομολογία των Δέντρων, Δασών και Πάρκων. Εκδόσεις: Αφοι Κυριακίδη.

◆ Foreign Language (English)

Suggested Readings:

- Μαλιβίτση, Ζ. & Περδίκη, Φ. (2014). The Earth in a Nutshell. Εκδόσεις: Αλτιντζής, Α.

◆ Foreign Language (French)

5TH SEMESTER

◆ Rangeland Ecology

The course covers the following points:

General principles and definitions of rangeland science, relations of rangelands with forests and agricultural crops, Rangeland types, Organization and structure of the rangeland ecosystem, Photosynthetic function of rangeland ecosystems and climatic and other factors that influence rangeland productivity, Dynamics of rangeland vegetation and plant competition, Morphological and eco-physiological consequences of grazing on rangeland species.

Suggested Readings:

- Παπαναστάσης, Β. & Νοϊτσάκης, Β. (1992). Λιβαδική Οικολογία. Εκδόσεις: Γιαχούδης & ΣΙΑ.
- Παπαναστάσης, Β. & Ισπικουδής, Ι. (2012). Οικολογία Λιβαδιών. Εκδόσεις: Γιαχούδης & ΣΙΑ.

◆ General Silviculture - Forest Ecology

The course covers the following points:

Forest definition, Analysis of forest bio-community, Forest types and their dispersion, Synecology (ecosystems definition, structure and function), Ecology of tree growth, Forestry species and water, Forest and atmospheric precipitation, Energy engagement, biomass production and accumulation, Inter-population relations and dynamics of forest ecosystems.

Suggested Readings:

- Ντάφης, Σ. (1986). Δασική Οικολογία. Εκδόσεις: Γιαχούδης & ΣΙΑ.

◆ Forest Genetics

The course covers the following points:

Genetics: Introductory concepts, genes and alleles, Introduction to Genomics, Genetic material and the organization of genetic information, Molecular bases of Genetics, DNA, RNA, genes duplication and expression, Proteins formation and structure, Reproduction and recombination, Mendellian principles, chromosomes and cell divisions, Connection, exchange, chromosomal maps, Gene indices and Genetics research methodology, Genetic diversity and biodiversity, Genes in populations, gene frequencies, diversity factors, developmental factors, reproductive system, models, Species evolution and adaptation, climatic change, Applications of the management and protection of forest ecosystems.

Suggested Readings:

- Russell, P. (2013). iGenetics. Επίτομη Έκδοση. Ακαδημαϊκές Εκδόσεις: Μπάσδρα, Ι & ΣΙΑ.
- Πανέτσος, Κ. (1985). Γενετική και Βελτίωση Δασοπονικών Ειδών. Εκδόσεις: Γιαχούδης & ΣΙΑ.
- Klug, W.S., Cummings, M.R., Spencer, C.A. & Palladino, M.A. (2015). Βασικές Αρχές Γενετικής. Ακαδημαϊκές Εκδόσεις: Μπάσδρα, Ι & ΣΙΑ.

◆ Wood Structure and Properties

The course covers the following points:

Physics of wood, Chemical composition and micro-structure of wood, Physical properties – macroscopic characteristics and description methods of wood types, Mechanism for wood production, wood deficits, wood density, wood deliquescence, wood shrinkage and expansion, wood resistance, mechanical, thermal, acoustic, and electric wood properties.

Suggested Readings

- Τσουμής, Γ. (2009). Επιστήμη και Τεχνολογία του Ξύλου. Ακαδημαϊκές Εκδόσεις: Γαρταγάνης.

◆ Forest Road Construction

The course covers the following points:

Basic principles of road construction, materials, means and methods, Forest roads classification, Study and delineation of forest roads, Information on the construction and maintenance of forest roads and on the consequences of their construction on the environment.

Suggested Readings:

- Δούκας, Α.-Κ. & Δρόσος, Β. (2011). Οδοποιία. Ακαδημαϊκές Εκδόσεις: Τζιόλα.
- Τσώχος, Γ.Χ. (1997). Περιβαλλοντική Οδοποιία. UniversityStudioPress.

◆ Forest Ecophysiology

The course covers the following points:

The role and significance of Forest Eco-physiology, Relations between forest species and forest ecosystems and environmental factors and ecosystems (CO₂, drought, high and low temperatures, sunlight), Water movement in trees, Eco-physiology of photosynthesis, Tree reactions to environmental conditions, Impact of climatic changes on trees and forestry eco-systems, Eco-physiology in forestry practice.

Suggested Readings:

◆ Applied Silviculture

The course covers the following points:

Cluster knowledge, natural regeneration of the forest, Cluster formation techniques, Forest cultivation (basic principles, cultivation means, cultivation of new plantations, thick plantations, branches, trunks, planted forest and secondary cluster, pruning).

Suggested Readings:

- Ντάφης, Σ. (1992). Εφαρμοσμένη Δασοκομική. Εκδόσεις: Γιαχούδης & ΣΙΑ.

◆ Improvement and Protection of Forest Genetic Resources

The course covers the following points:

Evolution of Forest populations, Introduction to quantitative genetics, genotype and phenotype, diversity distribution, cumulative action of genes, rates of inheritance, Origin of forestry species, methods of genetic enhancement for forestry species, experiments of origin and of offsprings, combining ability, Plantations, forestry clones, genetic gain, spore-bearing gardens, enhancement programs, speed up growth and ornamental tree species, Genomics, adaptive genes, Biodiversity, levels, approaches, Protection of genetics resources in wild plants, management of genetics resources in productive forests, climate change and atmospheric impacts on forest genetic resources, Protection and enhancement of forest populations' adaptability, International and Greek regulations of forestry reproductive material.

Suggested Readings:

- Πανέτσος, Κ. (1986). Γενετική Βελτίωση Δασοπονικών Ειδών. Εκδόσεις: Γιαχούδης & ΣΙΑ.
- White, T., Adams, T. & Neale, D. (2009). Δασική Γενετική. Εκδόσεις: Βασιλειάδης, Σ.

◆ 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, Stocking rate and grazing capacity, Rangeland restoration and designed grazing systems, Control of undesired plants, Seeding and fertilization of rangeland species, Improvement of the grazing conditions for livestock in the rangelands.

Suggested Readings:

- Νάστης, Α.Σ. & Τσιουβάρας, Κ. Ν. (2009). Διαχείριση και Βελτίωση Λιβαδιών. University Studio Press.

◆ Ecology and Management of Wildlife Fauna

The course covers the following points:

Key concepts – definitions, Elementary information on general ecology, Evaluation of abundance population and experimental design, Population increase rate: birth rate, death rate, strategies for the increase of population, Evaluation methods of eating habits, Introduction to wildlife management: legal framework, historical evolution, values-benefits of wildlife, management aims and analysis of decision-making, Protection of extinct species: problems and causes of wildlife populations extinction, analysis of population sustainability, management of extinct species, Game species yield: yield evaluation and yield systems, Yield impact on wildlife populations and biodiversity, Control of undesired species: aim and control methods, selection criteria for control methods/techniques and their effectiveness, Human-generated effects on wildlife,

Ecology and identification of major mammals, birds, reptiles and amphibians in Greece, Evaluation methods of the population abundance: census, direct/indirect sample methods, Analysis techniques of eating habits.

Suggested Readings:

- Μπακαλούδης, Δ. & Βλάχος, Χ. (2009). Διαχείρισης Άγριας Πανίδας. Εκδόσεις: Τζιόλα.
- Μπακαλούδης, Δ. (2008). Βιολογία Άγριας Πανίδας. Εκδόσεις: Γιαχούδης & ΣΙΑ.

◆ Forest Cadastre

The course covers the following points:

Introductory concepts and key principles of the Cadastre, elementary information on geodetics, trigonometrical networks, photogrammetry and photo interpretation, photogrammetry instruments and their use in land registering, Means and methods for land mapping such as the typical topographic, the photogrammetric (analog, analytical and digital), the ortho-photo-grammetric and a combination of these, assessment and evaluation of these methods in landmapping in relation to land value, the data needed for the registration and safeguarding of the forest land ownership and of natural resources, Formation of soil databases via earth information systems and digital ground models, geographical earth systems and satellite systems (e.g. GPS, etc) aiming towards the development and management of Cadastre data, Legal consolidation (land registration books – land registration agencies), Collection of spatial information via typical, satellite and photogrammetric methods, Potential applications of Cadastre's digital database.

Suggested Readings:

- Αρβανίτης, Α. (2014). Κτηματολόγιο 2020. Εκδόσεις: Ζήτη.
- Ζεντέλης, Π. (2010). Περι Κτημάτων Λόγος και Κτηματολόγιο. Εκδόσεις: Παπασωτηρίου, Α. & ΣΙΑ.
- Δούκας, Α.-Κ. (2002). Δασικό και Αγροτικό Κτηματολόγιο. Εκδόσεις: Γιαχούδης & ΣΙΑ.

◆ 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 wood and its utilization (chemical products, wood pulp, paper, polymer products of cellulose, hydrolyzation products of wood, lignin, scents and energy).

Suggested Readings:

- Φιλίππου, Ι. (2013). Χημεία και Χημική Τεχνολογία του Ξύλου. Εκδόσεις: Γιαχούδης & ΣΙΑ.

◆ Traineeship in the Forest Village (Elatia, Drama)

7TH SEMESTER

◆ Wetlands Management and Protection

The course covers the following points:

Introduction to wetlands and the legal framework for their protection, Wetland ecosystem functions, Types of wetlands and wetland habitats, Wetland ecosystem services, Natural changes and human-induced alterations in wetlands, Principles of wetlands management, Management plans for wetlands.

Suggested Readings:

- Τσιουρής, Σ. Ι. & Γεράκης, Π.Α. (2010). Υγρότοποι και Γεωργία. Εκδόσεις: Κορδαλή, Χ. & Β. Ο.Ε.

◆ Mountainous Water Management and Control

The course covers the following points:

Introductory concepts, torrential streams, water in the field of streams, sludge production, riverbed transport or sediment transport, wind transport, total transport, mass transport and turbid transport, Sediment deposition, General erosion, Degradation, Sediment movement, Desertification, Morphological evolution of torrential streams, The hydro genomic effect of vegetation, The principles of hydro genomic management, Intervention process and preventative measures for the aversion of torrential damage, Protective management: aversion of sediment production via erosions, earth collapse, aversion of sediment transport and deposition, Protective management: flow control for the aversion of floods, torrential rock, erosion in cultivated land, Hydrological management: management of aquatic resources needed for water production, withdrawal, transport, storage of torrential water, ecological configuration and enhancement, management in practice, Torrential types and their management, Hydro genomic management systems and studies, The cost, benefit and effectiveness of work projects, The dams in general, the typical, compact dams, earth-filled dams, special dams, technical-structural works, agrotechnical or geotechnical projects, biotechnical (horticultural and plant technical) works, Construction materials, loading and stability of hydronomic works, forces and tendencies in hydronomic workings, Water-produced forces: the hydrostatic action, the digging power of water and their impacts, Earth-produced forces: earth pressure, rain forces and their action, Hydro genomic forces, seismogenic and thermogenic forces, loading and stability of dams, Gravity dams: static intersection, dimensioning, stability, hydraulic intersection, The dams – beams, arch dams, saddle dams, tailings dams, dams against torrential rock, earth-fill dams, and the companion works of dams, Free informational system for a complete study of water basins management (Torrential - MIK), Introduction to and use of the program, GIS structure, mapping, Hydraulic calculations using the program, Cooperation with other programs, advantages, applications, Design of hydrological procedures, Geodetics of ortho-photo-maps, Static calculation of gravity dams – static viewing, dimensioning.

Suggested Readings:

- Δερμίσσης, Β. (2010). Διευθετήσεις Υδατορρεύματος. Εκδόσεις: Τζιόλα.

◆ Forest Management I

The course covers the following points:

Key concepts and management principles, Management functions, Programming and analysis tools in forestry, Key concepts of forest management, Goals, principles and peculiarities of forestry as a primary production sector of the economy, Sustainability and sustainable management of forests, Models for the analysis of forest production processes, Stand maturity and rotation time, Spatial distribution and division of forest.

Suggested Readings

- Ελευθεριάδης, Ν. (2003). Διαχείριση Φυσικών Χερσαίων Οικοσυστημάτων. Εκδόσεις: Χάρης, Μ. ΕΠΕ.

◆ Forest Products Harvesting

The course covers the following points:

Types and means for forest works, systems, ergonomics and organization of tasks concerning forest products harvesting, Forest products configuration, classification and movement.

Suggested Readings:

- Τσουμής, Γ. (2009). Συγκομιδή Δασικών Προϊόντων. Εκδόσεις: Γαρταγάνης.
- Δήμου, Β.Γ. (2010). Συγκομιδή και Μετατόπιση Ξύλου. Εκδόσεις: Χαρπαντίδης, Ι.Α.

◆ Forest Economics

The course covers the following points:

Key principles of forest economics, Economics of rates for forest production, Offer and demand in forest products, Prices of forest products, Social and financial planning in forestry holdings, Planning and management of forestry businesses, Micro- and Macro-economic analysis of forestry holdings and forestry businesses, Social economy, Marketing of forest products and services, Economics of forestry industries.

Suggested Readings:

- Σπάθης, Π. & Τσιμπούκας, Κ. (2010). Οικονομική των Επιχειρήσεων. Εκδόσεις: Ελληνοεκδοτική.
- Λιανός, Θ., Δαμιανός, Δ., Μέργος, Γ., Ντεμούσης, Μ. & Κατρανίδης, Σ. (2016). Αγροτική Οικονομική. Εκδόσεις: Μπένου, Σ.
- Arnold, R. (2011). Μικροοικονομική. Broken Hill Publishers.
- Σέμος, Α. Β. (2013). Εισαγωγή στην Αγροτική Οικονομία. Εκδόσεις: Ζήτη.

◆ Environmental Geographic Information Systems (GIS)

The course covers the following points:

Introduction, Key concepts of Geographical Information Systems (G.I.S), Benefits from G.I.S. use, Instruments and software, Data categorization in a G.I.S., Structure, organization and management of spatial and non-spatial data, Topology, Principles of mapping, Projection systems, Coordinate transformations, Data input, Correlations of thematic fields, G.I.S. in the decision-making process for the management, protection and development of the environment.

8TH SEMESTER

◆ Nature Conservation and Landscape Architecture of Natural Areas

Key principles and contemporary research trends, Protected natural areas, protected flora and fauna species, Landscape Architecture, Human activity effects on the landscape, Landscape management and restoration.

Suggested Readings:

- Χατζηστάθης, Α. & Ισπικούδης, Ι. (1995). Προστασία της Φύσης και Αρχιτεκτονική του Τοπίου. Εκδόσεις: Γιαχούδης & ΣΙΑ.

◆ Management of Hydrometeorological Disasters

The course covers the following points:

Introduction to disaster management: the notion of disaster, the conceptualization of its critical significance on a global scale, the longitudinal increase of disaster consequences, the interaction between human activity and natural phenomena, the philosophy and framework of international initiatives against natural disasters, Introduction to risk management: The concepts of risk, vulnerability, and hazard that consist the basic principles in disaster management, The dimension of risk, types of risk that threaten both humans and the environment and the risk management framework based on risk analysis and evaluation, The notion of vulnerability in a society and the factors that contribute to its evaluation and reduction, The notion of hazard as a function of risk and vulnerability, hazard management and its contribution to the sustainable development of society, Key principles of Disaster Management: the framework and rationale of disaster management, necessary measures followed by society before and after a disaster intending to minimize the harsh consequences and ensure a speedy and smooth recovery to initial development rates, Preventative measures for disaster aversions, Disasters' unbundling in time phases and distribution zones, Hydro-meteorological Natural Disasters: Landslides, traits, classification and the threat for human societies, Climatic changes, the phenomenon, intensity, statistical data, recorded facts on a global scale, climatic uncertainty, Drought, its notion, its difference from dryness and from other disasters (it afflicts on much more people than any other type of disaster), preventative and urgent measures, rational management, Floods, the notion, the facts, the causes, the way of management in mountainous and urban areas, preventative measures, Extreme weather phenomena and their consequences on developing societies, Disaster preparedness: self-protection measures, management of mountainous environment for the prevention and aversion of hydro-meteorological disasters, disaster management in an urban environment and the urbanization trend as a problem that threaten contemporary urban centers, disasters' dimensions and their management framework on a European Level, Business planning in specific population groups, consultation about the dangers of disasters, evaluation, readiness, prevention, reaction and restoration of hydro-meteorological disaster.

◆ 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.

Suggested Readings:

- Τσουμής, Γ. (2009). Επιστήμη και Τεχνολογία του Ξύλου. Εκδόσεις: Γαρταγάνη.

◆ Forest Management II

The course covers the following points:

Planning in forestry, Evolution of forest management methods in Europe, Contemporary methods in forest management, Multiple uses of forests and forest ecosystems services, The notion and content of sustainable forest management on a national, regional and operational level, Use of contemporary technology in forest management, The forest management plan and other forms of management plans.

Suggested Readings:

- Ελευθεριάδης, Ν. (2003). Διαχείριση Φυσικών Χερσαίων Οικοσυστημάτων. Εκδόσεις: Χάρις, Μ. ΕΠΕ.

◆ Forest Valuation and Accounting

The course covers the following points:

Key concepts of forest evaluation and their interrelationships, Bills and securities, in general, Capitalization of expenditure and turnover, Calculation of the value of turnover, Regular savings deposit, Loans and loan payment, Value of forest ground and clusters, Evaluation of forest value and of forest holdings, Evaluation and assessment of natural resources value (direct and indirect assessment methods), Evaluation of non-marketable environmental consequences and products, Losses and compensation payments, Reports of expert opinion, Fundamental accounting concepts and principles, About Censuses, National accounts, balance sheets and natural resources, Evaluation and account registering of the financial outcome coming from the use of natural resources, Calculation of forestry contribution to the national product, Evaluation and assessment of the contribution of natural resources to the national product, Strategic environmental evaluation.

Suggested Readings:

- Μπίθας, Κ.Π. (2003). Οικονομική Θεώρηση Περιβαλλοντικής Προστασίας. Εκδόσεις: Δάρδανος.
- Χάλκος, Γ. (2013). Οικονομία και Περιβάλλον. Liberal Books.
- Αραμπατζής, Γ. & Πολύζος, Σ. (2008). Φυσικοί Πόροι, Περιβάλλον και Ανάπτυξη. Εκδόσεις: Τζιόλα.

◆ Climate Change

The course covers the following points:

Climatic classifications, The notions of climatic change and climatic variability, Analysis of the energy balance in the Earth-Atmosphere system, The natural and reinforced greenhouse effect phenomenon, Scenarios concerning the greenhouse effect gas emissions and their effect on the global climatic system, The role of changes in land-use, The ENSO phenomenon and its role in the configuration of the global climatic system, The Inter-governmental Panel on Climatic Change, The Kyoto Protocol and the objectives of Greece as an EU member-state.

◆ Traineeship in the Forest Village (Elatia, Drama)

◆ Traineeship in Forestry Agencies

◆ Climate Change and Forest Ecosystems

The course covers the following points:

Climatic Change Impact on Forestry Ecosystems: Anticipated phenologic changes (leaf unfolding, flowering, pollen dispersion, flower appearance, fruit maturation, yellowing and leaf shedding), Changes in Physiology and Metabolism (alterations in photosynthesis, transpiration and respiration rate), Impact on the growth increase (reduction in the growth of forestry trees, in coal absorption, and above ground living biomass, differentiation per forestry species), Adaptive ability of forestry species (different for each species, plasticity of the photosynthetic function, customizable functions, drought-resistance).

Silvicultural manoeuvres and Climatic Change: Climatic change effect on forest biodiversity – manoeuvres for biodiversity protection, The favoritism process as a means of ecosystems protection against problems caused by climatic change, Sprouting as a reaction of forestry species and ecosystems following disturbances – the case of climatic change and of the use of the sprouting ability of species in forestry practice.

Climatic Change and Evolution of the Forestry Species: Climatic change impacts on the genetic diversity of forestry species, anticipated evolutionary alterations, Migration, founding phenomenon, diversion and reproductive system, Adaptive mechanisms of forestry species to Climatic Change, Earlier climatic changes and forestry species movement in Europe, Protection of genetic resources in natural and artificial forests in the era of Climatic Change.

Climatic Change Impact on Insect Fauna of Forest Ecosystems: Insects like the rest of animals and plants in terrestrial ecosystems are affected by temperature increase, CO₂ increase and by the fluctuation in precipitation, Temperature increase impact on insects' biological cycle in temperate areas, changes in species geographical dispersion, increase in the increase rate of insect populations and in the number of generations, Climatic change and risk increase in the invasion of migrating species, Epidemics spread and consequences on the health of forest ecosystems.

◆ Nurseries-Reforestations

The course covers the following points:

Objective of reforestations, Key principles that apply in the process of reforestations, Selection and sowing material control, Cluster artificial foundation methods, Cluster artificial foundation via sowing, Cluster artificial foundation via planting, Location selection for the foundation of a forest nursery, Plan for a forest nursery, Forest nurseries and plantlet production, Production of naked root production, Irrigation of forestry nurseries, Plantlet grooming and protection, Extraction, packaging and transportation of plantlets, Plantlets storage, Plantlet production with root ball, Plantlet and seedling production asexually, Fertilization of nurseries, Reforestation planning.

Suggested Readings:

- Ντάφης, Σ. & Χατζηστάθης, Α. (1989). Αναδασώσεις – Δασικά Φυτώρια. Εκδόσεις: Γιαχούδης & ΣΙΑ.

◆ Forest Energy

The course covers the following points:

Principles, methods, assessment and exploitation means of forest energy, Forestry biomass as raw material for energy production, Forests and forest lands ability for energy production, Current situation and population needs in energy, issues and exploitation perspectives of forest energy, Planning and forest energy models, Production of wood-fuel and forestry residues (wood harvesting and processing), Issues, production perspectives and wood-fuel consumption, Ways for achieving forest energy sufficiency.

Suggested Readings:

- Αλιβιζάτος, Γ.Ν., Στελακάτος, Κ. Κ. & Τορτοπίδης, Α. Α. (1991). Ενεργειακά Πάρκα. Εκδόσεις: Παπαζήση.

◆ Investments and Forest Resources Development

The course covers the following points:

Key concepts, principles and means of subsidy, Public expenses and forestry resources, Subsidies, investments in Forestry and the environment, Investment and developmental plans and assessment methods, EU subsidy means, Assessment techniques and the contribution of EU programs, regulations and initiatives in the development of forest resources, Forestry and environment, Social and financial consequences as a result of natural and forestry resources use, Spatial planning and forestry resources development, Forest resources and forest development, Planning, analysis, management and assessment of developmental enterprises, projects for environmental protection, and development programs. Investments, forest resources, and integrated countryside development with a special emphasis on disadvantaged and mountainous areas. Developmental strategies of natural and forest resources.

Suggested Readings:

- Αραμπατζής, Γ. & Πολύζος, Σ. (2008). Φυσικοί Πόροι, Περιβάλλον και Ανάπτυξη. Εκδόσεις: Τζιόλα.
- Πολύζος, Σ. (2011). Περιφερειακή Ανάπτυξη. Εκδόσεις: Κριτική.
- Αραβώσης, Κ., Καρμπέρης, Α. & Σωτήρχος, Α. (2012). Τεχνικο-Οικονομική Αξιολόγηση Επενδύσεων. Νομική Βιβλιοθήκη ΑΕΒΕ.
- Μέργος, Γ. (2007). Κοινωνικο-Οικονομική Αξιολόγηση Επενδύσεων & Πολιτικών. Τόμος Α'. Εκδόσεις: Μπένου, Ε.Σ.

◆ Forest Policy I

The course covers the following points:

Principles, methods and means for the organization of prolific forestry resources in a variety of different geographic divisions of the country and throughout the whole territory, Study of the relations forest-nation, Forest cooperative and credit policy, Financial evaluation of the significance of forestry and of forest lands as source of raw material, energy, recreation, and income, Aim selection and decision-making of national forestry, Forest statutory law and comparative forestry legislation of developed countries in terms of forestry and, more specifically of EU, Forest Accounting.

◆ Forest Fires

The course covers the following points:

Forest and forest lands fires in Greece and worldwide, Forest fires impact on the environment, Ecology and forest and plant fires in Greece, Burning material, origin, kinds and properties, Behavior – fire properties, Meteorological factors and forest fires, Fire hazard and evaluation, Forest fire causes, Forest fire prevention, Forest fire detection, Forest hazard mitigation measures, Controlled burning, Substances, firefighting tools and means, Firefighting tactics of forest fires, Policies, education and co-ordination of participant parties (General Secretary of Civil Protection, Prefectures, Organizations of Local Administration, Forestry Agency and Fire-protection service, volunteers, etc.) in the fight against forest fires, Dissemination of information for the public, Property protection against forest fires.

Suggested Readings:

- Κωνσταντινίδης, Π. (2016). Μαθαίνοντας να ζούμε με τις δασικές πυρκαγιές. Εκδόσεις: Αφοι Κυριακίδη.

- Καλαμποκίδης, Κ. (2012). Πυρο-Μετεωρολογία και Συμπεριφορά Δασικών Πυρκαγιών σε ένα Μεταβαλλόμενο Κλίμα. Εκδόσεις: Παρίκου, Μ. & ΣΙΑ.
- Καϊλίδης, Δ. &Καρανικόλα, Π. (2005). Δασικές Πυρκαγιές 1900-2000. Εκδόσεις: Γιαχούδης& ΣΙΑ.

10TH SEMESTER

◆ Forest Policy II

The course covers the following points:

Social and financial development of forestry in Greece, Predictions for development trends in forestry production and consumption in the framework of current social and financial changes on a national level, Financial evaluation of the significance of forest and forest lands as a factor of protection of developmental projects, atmosphere, and aquatic resources of Greece, National forestry product in the framework of forestry, Planning principles and subsidy for the different areas of forestry activity, Forestry Administration.

◆ Forest Law

The course covers the following points:

Preliminary law concepts, Principles of Civil Law, Key concepts of forest law, Rights recognition in public and non-public forests, Protection measures of forests and forest lands, Provisions for the management of forests, of natural resources, and of natural environment, Specific provisions for reforestations, forest protection, forest works and the game, Criminal and procedural provisions, Transitional provisions.

Suggested Readings

Προτεινόμενα Συγγράμματα:

- Μακρής,Ι. (2010). Δασικό Δίκαιο. Εκδόσεις: Σάκκουλα.

◆ Undergraduate Thesis

SUMMARY OF ELECTIVE COURSES

1ST SEMESTER

◆ Environmental Chemistry-Pollution of the Environment

The course covers the following points:

General principles of environmental chemistry, chemical water pollution, causes of water and air pollution, Air pollutants analysis, Processing of drinking water, micro-organism removal, Meteorological conditions and their effect on pollution, Pollutant substances and their harmful effect on forest trees and their physiology, Acid precipitation and its effect on the environment, Pollution prevention and combat, Pollution and its effect on the ground, animals, insects, moss and lichens.

Suggested Readings:

Προτεινόμενα Συγγράμματα:

- Αλμπάνης, Τ. (2009). Ρύπανση και Τεχνολογίες Προστασίας Περιβάλλοντος. Εκδόσεις: Τζιόλα.
- Λαζαρίδης, Μ. (2009). Ατμοσφαιρική Ρύπανση με στοιχεία Μετεωρολογίας. Εκδόσεις: Τζιόλα.
- Φυτιάνος, Κ. & Σαμαρά-Κωνσταντίνου, Κ. (2009). Χημεία Περιβάλλοντος. University Studio Press.

◆ Building and Structural Materials

The course covers the following points:

Key design principles of construction and building works, Earthworks, Foundation work, wall construction, insulations, constituents, materials, and constructions calculation (chambers, floors, stairways, roofs) and operation infrastructure (heat, ventilation, irrigation and sewage).

Suggested Readings

- Wendehorst, R. & Spruck, H. (1975). Δομικά Υλικά. Εκδόσεις: Γκιούρδα.

◆ Forestry Ergonomics

The course covers the following points:

Legal framework for work hygiene and safety, Harmful factors (physical, chemical and biological), Environmental factors at work (e.g. noise, thermal environment, ventilation, pollutants). Ergonomic and psychological factors, security conditions for job performance and accident prevention.

Suggested Readings

- Λάιος, Α. & Γιαννακούρου-Σιουτάρη, Μ. (2003). Σύγχρονη Εργονομία. Εκδόσεις: Παπασωτηρίου, Α. & ΣΙΑ.

◆ 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.

Suggested Readings:

- Καραμέρης, Α. (2012). Αναψυχή στη Φύση. Εκδόσεις: Γιαχούδης & ΣΙΑ.

2ND SEMESTER

◆ Environmental Physics

The course covers the following points:

Planet Earth and the origin of the environment, Formation of solid, liquid and gas substances, Earth's Atmosphere, Hydrosphere, Lithosphere, Physical principles that govern the environmental issues, Nature's forces, Air pollution, Aerosols, Chemical reactions of gas pollutants, Pollution consequences on health, plant and animal environment, Ozone in earth's atmosphere, The ozone depletion, Size-based particles' classification, Removal mechanisms of atmospheric pollutants, Atmospheric boundary layer, Mixing length theory, Turbulent flow, Reynolds number, Air pollution and Meteorology, Transportation, dispersion and deposition models, Temperature stratification effect on dispersion, Effects of meteorological parameters, Pollution sinks, Acid rain, Energy and pollution, Environmental consequences, Physics and pollution of ground, Pollution effects on weather and climate, Radioactive pollution, Noise pollution, Physics and pollution of water (sea, lakes, rivers), Dissolved gases, Bacteriological water pollution.

Suggested Readings:

- Βαρώτσος, Κ. & Kondratyev, Κ. (2000). Φυσικοχημεία Περιβάλλοντος. Εκδόσεις: Τραυλός & ΣΙΑ

◆ Waste Management and Recycling

The course covers the following points:

Types of waste, waste collection and transfer, Management methods (waste landfill, composting and burning) and their positive/negative consequences on the natural environment, Analysis of products life-cycle, Recycling and materials reclamation as a way of waste utilization and environment protection, Types of recyclable materials and recycling systems.

Suggested Readings

- Παναγιωτακόπουλος, Δ. (2007). Βιώσιμη Διαχείριση Αστικών Στερεών Αποβλήτων. Εκδόσεις: Μάρκου & ΣΙΑ Ε.Ε.

◆ Forest Informatics

The course covers the following points:

Introductory concepts, Computer structure and architecture, Theory, analysis and design of information systems, Data-collection techniques and data banks, Methodology for data processing, Introduction to computer networks and works administration, The contribution of Information Technology to the forestry field.

Suggested Readings

Προτεινόμενα Συγγράμματα:

- Κύδρος, Δ. & Βρανά, Β. (2009). Εισαγωγικά Θέματα Πληροφορικής - Αλγοριθμικής. Ανώνυμη Εκδοτική και Εμπορική Εταιρεία.
- Καρολίδης, Δ. Α. & Ξαρχάκος, Κ. Ι. (2013). Εισαγωγή στην Πληροφορική και στο Διαδίκτυο. Εκδόσεις: Ξαρχάκου, Π.

◆ Rangeland Plants

The course covers the following points:

Botanical, ecological and financial characteristics of various rangeland plant species in Greece, propagation and their dissemination, Factors that influence the nutritive value of rangeland plant species, forage production, their contribution to soil protection and their disease-resistance.

Suggested Readings:

- Κούκουρας, Α.&Κούκουρα, Ζ. (2006). Βιογεωγραφία. UniversityStudioPress.

◆ Public Relations 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).

Suggested Readings:

- Μαγνήσαλης, Γ.Κ. (2002). Δημόσιες Σχέσεις. Εκδόσεις: Νικητόπουλος, Ε. & ΣΙΑ.
- Πιπερόπουλος, Γ. (2007). Επικοινωνώ άρα Υπάρχω. Εκδόσεις: Μάρκου & ΣΙΑ
- Αρναούτογλου, Ε. (2014). Δημόσιες Σχέσεις. ROSILIEμπορική-Εκδοτική.

◆ Soil Microbiology

The course covers the following points:

Definitions, colonization, adaptation, survival strategies, balanced competition, symbiotic bacteria, bacteria types, biodiversity, Factors affecting colonization, Interactions, Endophytic fungi, Biodiversity of neophyteal fungi, the role of climate, the role of soil, Interactions, Mycorrhiza, Arbuscular Mycorrhizal Fungi (AMF), Symbiotic fungi that form arbuscular mycorrhizal fungi, Root colonization and anatomy of arbuscular mycorrhizal fungi, Interactions between plant cells and fungi on molecular and genetic level leading to the growth of symbiosis, C growth and transfer, Absorption of nutrients, accumulation of toxic metals and aquatic relations, Ectomycorrhiza, Structure and development, C growth and transfer, N mobilization, Nutrition in P, Accumulation bases of heavy metals and aquatic relations, Erricoid mycorrhiza, Ericaceous mycorrhiza, Green Orchid mycorrhiza, Lower plants mycorrhiza, Ecology of mycchoriza, Micro-organism interactions, Mycorrhiza and micro-organisms applications in agriculture, and forestry.

◆ 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 clusters 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.

Suggested Readings:

Προτεινόμενα Συγγράμματα:

- Deakins, D. & Freel, M. (2017). Επιχειρηματικότητα και Μικρές Επιχειρήσεις. ROSILI Εμπορική-Εκδοτική.
- Πιπερόπουλος, Π.Γ.(2008). Επιχειρηματικότητα, Καινοτομία και BusinessClusters. Εκδόσεις: Σταμούλη.
- Σαλαβού, Ε.Ε. (2013). Καινοτομία και Αλλαγή στο Επιχειρείν. ROSILI Εμπορική-Εκδοτική.

4TH SEMESTER

◆ Forest Plants Sociology

The course covers the following points:

Key principles of plant-sociology, Method of analyzing plant communities, Determination of plant-sociology units, Classification of forest vegetation in Greece, Applications of plant-sociology in practice.

Suggested Readings:

- Αθανασιάδης, Ν. (1985). Δασική Φυτοκοινωνιολογία. Εκδόσεις: Γιαχούδης & ΣΙΑ.

◆ 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.

Suggested Readings:

- Καλτσίκης Παντούσης, Ι. (1989). Γεωργικός Πειραματισμός – Παραγοντικά Πειράματα. Εκδόσεις: Σταμούλη.

◆ Didactics of Environmental Science

The course covers the following points:

Notion, content, basic attributes, objectives, Teaching methods: induction, deduction, monologue and dialogue, answers-questions, Significance and prerequisites for lesson plans, types of lesson plans, Contemporary teaching models: instructional models of active, individualized, collaborative-participative learning, teaching models that develop learners' critical thinking and creativity, Definition of learner assessment, objective and subjective tests, the significance of learner assessment and its necessity in the teaching process, Applications: Key concepts and principles of Environmental Science, Structure, organization and function of ecosystems, Man and ecosystems, Man and the structured environment, Human-generated impacts on the environment, Ecological crisis, Renewable energy sources, Environment, development and quality of life.

Suggested Readings:

- Δημητρίου, Α. (1989). Περιβαλλοντική Εκπαίδευση: Περιβάλλον, αειφορία. Εκδόσεις: Επίκεντρο. Α.Ε.
- Μανωλάς, Ε.Ι. (2001). Διδασκαλία και Μάθηση της Κοινωνιολογικής Θεωρίας για το Φυσικό Περιβάλλον. Εκδόσεις: Δάρδανος.

◆ Regional Development

The course covers the following points:

The concept of region and the spatial regionalization process, Regional issues and the regional framework, Layout theories and regional development theories, The spatial dimension of financial activities, Development planning, Definitions, content, and development indices, Regional typologies, Regional inequalities and measurement instrumentation, Regional development strategies, Regional analysis methods and techniques, Planning, implementation and assessment of regional and development programs, The contemporary legislative framework of regional development in Greece and worldwide.

Suggested Readings

- Πολύζος, Σ. (2011). Περιφερειακή Ανάπτυξη. Εκδόσεις: Κριτική.
- Αραμπατζής, Γ. & Πολύζος, Σ. (2008). Φυσικοί Πόροι, Περιβάλλον και Ανάπτυξη. Εκδόσεις: Τζιόλα.

- Λαδιάς, Χ. (2013). Το Σύγχρονο Θεσμικό Πλαίσιο της Περιφερειακής Ανάπτυξης στην Ελλάδα. Εκδόσεις: Παπαζήση ΑΕΒΕ.

◆ **Environmental Communication-Environmental Interpretation**

The course covers the following points:

Definition, types, means and significance of environmental communication, The contribution of environmental communication to the protection, emergence and development of natural resources and natural environment, History of environmental interpretation, Design of a program on Environmental Interpretation, Message formation techniques and organization of short programs in Environmental Interpretation, Communication techniques for message delivery in Environmental Interpretation, Implementation of Environmental Interpretation programs, Program assessment in Environmental Interpretation, Organization and administration of Nature Centres - Centres of Environmental Information Dissemination, Human resource management, Design and management of Environmental Interpretation programs, Promotion of cooperative climate with interested partners in protected areas.

Suggested Readings:

- Τσαμπούκου-Σκαναβή, Κ. (2004). Περιβάλλον και Επικοινωνία. Εκδόσεις: Α.Κ. Αποστολάκη & ΣΙΑ.

◆ **Forest Soil Fertility**

The course covers the following points:

Factors influencing soil fertility, Soil fertility evaluation, Nutrients and plant nutrition, Fertilizers used for the improvement of soil fertility, Fertilization impacts on forestry and environment.

Suggested Readings:

- Αναλογίδης, Δ. (2000). Έδαφος, Θρεπτικά Στοιχεία και Φυτική Παραγωγή. Αγρότυπος Α.Ε.

5TH SEMESTER

◆ Energy and Environment

The course covers the following points:

Key concepts, Energy, natural resources and the environment, Energy evolution and perspectives on a global level and in Greece, Features of renewable and exhaustible energy sources, Exploitation possibilities of energy sources and their environmental impact.

Suggested Readings:

- Τσατήρης, Μ.Ν. (2002). Ενέργεια και Περιβάλλον. Εκδόσεις: Δάρδανος.

◆ Forest Growth and Production

The course covers the following points:

Age determination, Tree and Cluster growth, Location quality and production tables.

Suggested Readings:

- Κιτικίδου, Κ. (2016). Δασική Βιομετρία. Ελληνικά Ακαδημαϊκά Ηλεκτρονικά Συγγράμματα και Βοηθήματα - Αποθετήριο "Κάλλιπος".

◆ Rangeland Ecophysiology

The course covers the following points:

Micro-climate of rangelands, Dynamics of the photosynthetic and hydrodynamic balance in the rangeland, Plant adaptation to drought, Calculation of photosynthetic parameters in various species, Stress drought effect on forage production.

Suggested Readings

- Καραμπουρνιώτης, Γ.Α., Λιακόπουλος, Γ. & Νικολόπουλος, Δ. (2012). Φυσιολογία Καταπονήσεων των Φυτών. Εκδόσεις: Βασιλειάδης, Σ.

◆ Water Resources Management

The course covers the following points:

Introduction: Concept and factors of water resource management, Definitions- Research areas – Basic background, Historical review, Analysis of water demand based on use, Quantitative and qualitative dimensions, Point and non-point sources of pollution, Strategy development for water resources, Management principles based on national and water compartment level, The Direction-Framework for Waters 2000/60, Legal and institutional framework, Management criteria in urban, semi-urban, agricultural, forest, island/coastal areas, Human-generated pressures on the water cycle and evaluation of their impact, Climate role, Potential impacts of climate change, Changes in uses of the Earth and their consequences, Water resources availability, Evaluation of superficial and groundwater potential, Combined management of groundwater and superficial water, Water basin integrated management, Financial assessment of development scenarios, Management techniques – methods of mathematical programming, Business management of water system and infrastructure, Reservoir optimum operation, Treatment of extreme events, Flood and drought management, Evaluation of the consequences as a result of water resources development projects and programs, Water resources on an supranational level, Inter-governmental cooperation and dispute resolution mechanisms, The role of international organizations (European Union, World Bank, United Nations), Instances of water resources management in developed, developing and semi-developed countries.

Suggested Readings:

- Μιμίκου, Μ.Α. (2006). Τεχνολογία Υδατικών Πόρων. Παπασωτηρίου, Α. & ΣΙΑ ΑΕ.

◆ Geobotany

The course covers the following points:

Introduction (Definition and subject of Geobotany, connections with related sciences). Plant chorology (Areas of disperse, floral realms and floral kingdoms, phytogeography of Greece). Endemism (concept and models of endemism, endemism in Greece). Floristics (Methodology, growth forms, chorological analysis, analysis of biotic and ecological forms, important plant taxa criteria and categories. Relations of climate and soil with plant species. Vegetation (formations and ecological significance of vegetation). Zonal and azonal vegetation types in Greece. Protected plant taxa and vegetation types. Historical Geobotany.

Suggested Readings:

- Δημόπουλος, Π. & Πανίτσα, Μ. (2009). Οικολογία Φυτών. Εκδόσεις: Αφοι Τερζή.

◆ International Environmental Relations

The course covers the following points:

The subject of study of International Environmental Relations, Theoretical approaches in International Environmental Relations, Common resources, Science and uncertainty, International systems for the protection of the environment, Environment and international governmental organizations, Environment and international non-governmental organizations, Development and environment, Over-population, Climate change, Acid rain, Overfishing, Biodiversity loss, Deforestation.

Suggested Readings:

- Δούση, Ε. (2014). Η Περιβαλλοντική Διακυβέρνηση σε Κρίση. Εκδόσεις: Παπαζήση ΑΕΒΕ.
- Παπαστάμου, Α. (2014). Η 'Πράσινη' Διπλωματία. Διεθνείς Σχέσεις και Προστασία του Περιβάλλοντος. Εκδόσεις: Πατάκη.

6TH SEMESTER

◆ Forestry Mechanical Engineering

The course covers the following points:

Tools and machinery for forest products harvesting and for other related forest works.

Suggested Readings:

- Κυριάκης, Ν.Α. (2008). Μηχανές Εσωτερικής Καύσης. Ανώνυμη Εκδοτική & Εμπορική Εταιρεία.

◆ Genetic Improvement of Rangeland Plants

The course covers the following points:

Spread, origin, development of key in rangeland plants Greece. Research methods and definition of genetic diversity. Application of methods and means improvement. Artificial selection, hybridism, mutations, introduction of foreign species. Genetics improvement for efficiency improvement. Genetics improvement for endurance in biotic and abiotic stress. Genetics improvement for adaptation to climatic change.

◆ 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.

Suggested Readings:

- Τσατήρης, Μ.Ν. (2002). Ενέργεια και Περιβάλλον. Εκδόσεις: Δάρδανος.

◆ Soil Mechanics-Machinery Applications in Forest Works

The course covers the following points:

Key concepts, categories and characteristics of renewable energy sources, Current situation and soil mechanics principles, Physical soil properties, classification and soil categories, Soil plastic balances, Propulsions, Trend distributions, deformations, soil sedimentations, Bearing capacity and soil liquid phase, Slope stability and soil solidification.

Introduction and key principles, Construction machinery in forestry and protection of the environment, Application methods of excavating machinery, such as land propellers, hydraulic excavators, levelers, loaders, machinery for trench drilling and slope management, forest tractors with freight wagons, accessory and carrying components, Carrying machinery such as level excavators, trucks, milling, machines, drilling machines and machines for rock mining, Processing machines such as crushers, machines for concrete production, Spreading and condensation machines such as levelers, road rollers, Machinery for water pumping and drying systems, contemporary earthworks machinery equipped with electronic devices, machine performance, contemporary application methods, electronic machine guidance and environmental protection, Machines and application methods of contemporary machines for wood displacement and transfer, Machinery selection, machine maintenance, financial factors.

Suggested Readings:

- Γραμματικόπουλος, Ι., Ανδρεάδου-Μάνου, Ν. & Χατζηγώγος, Θ. (2016). Εδαφομηχανική: Ασκήσεις και Προβλήματα. Εκδόσεις: Αφοι Κυριακίδη.
- Γεωργιάδης, Μ. & Γεωργιάδης, Κ. (2009). Στοιχεία Εδαφομηχανικής. Εκδόσεις: Ζήτη.

◆ Ornamental Trees and Bushes

The course covers the following points:

Systematics and description of plant species used in urban open spaces, tree alleys, high-lowhedges, restoration of quarries, river-banks and seaside zones, sand-dunes, biomass production, Thermophilous and subtropical plant species, aromatic and medicinal plants.

Suggested Readings

- Τσαλικίδης, Γ. (2005). Καλλωπιστικά Φυτά για Ελληνικούς Κήπους. Εκδόσεις: Επίκεντρο.
- Καϊλίδης, Δ. (2016). Καλλωπιστικά Δέντρα και Θάμνοι που φυτεύονται στην Ελλάδα. Εκδόσεις: Αφοι Κυριακίδη.

7TH SEMESTER

◆ **Surveying Instruments and Surveying of Forest Areas**

The course covers the following points:

General topography principles, The forest topographic area and its mapping, Developments in instrument technology and in the measurements for the horizontal and altitude mapping of forest lands, Determination of topographic points with intersects, Topographic diagrams, Cadastral, hydrographic and soil mapping, Use of topographic diagram for the calculation of the area, for management purposes, for recreation, etc.

Suggested Readings:

- Δρόσος, Β. (2010). Τοπογραφικά Όργανα και Αποτυπώσεις Περιοχών. Εκδόσεις: Τζιόλα.

◆ **Special and Alternative Forms of Tourism**

The course covers the following points:

Introduction-Key concepts, Key models of development in tourism, Offer and demand of touristic product, Social, financial, developmental, cultural and environmental consequences of special and alternative forms of tourism, Sustainable tourism development, The development of special and alternative forms of tourism on a local, regional, national, European and international level, Tourism planning, strategies and assessment methods, Working and free time, sociology of free time, Travelling as a product, Tourists' motivations and behavior both as a traveler and a consumer, Analysis methodology, market survey and the 'industry' of travelling and tourism, Public relations in tourism, Tourist advertising in private businesses and National Organizations of Tourism, Tourism and communication on a local, regional and national level.

Suggested Readings

- Κοκκώσης, Χ. & Τσάρτας, Π. (2001). Βιώσιμη Τουριστική Ανάπτυξη και Περιβάλλον. Εκδόσεις: Κριτική.
- Βαρβαρέσος, Σ. (2013). Οικονομική του Τουρισμού. Εκδόσεις: Προπομπός.
- Κοκκώσης, Χ., Τσάρτας, Π. & Γκρίμπα Ε. (2011). Ειδικές και εναλλακτικές μορφές τουρισμού. Εκδόσεις: Κριτική.

◆ **Molecular Markers and Plant Genetics**

The course covers the following points:

Genome structure, organization of a molecular laboratory, material collection and storage, regulations for the operation of a molecular laboratory, DNA isolation from a plant tissue, PCR, random molecular indices, Targeted molecular indices, Restriction enzymes, Analysis of chloroplastic DNA, Electrophoresis and length separation of DNA pieces, study of sequences, devices for automatic sequences, Genetic diversity and differentiation measurement, Genetic distances, Genetic data processing.

Suggested Readings:

- Lewis, B. (2013). Genes VIII. Επίτομη Έκδοση. Εκδόσεις: Μπάσδρα, Ι. & ΣΙΑ Ο.Ε.

◆ **Tree and Shrub Enemies in the Urban Environment**

The course covers the following points:

Key entomological issues in urban and suburban green areas in Greece that lead to aesthetics degradation or to the trees and shrubs function devaluation, The most important enemies are: *Thaumtopoeapityocampa*, the melanogenic coccid *Marchalinahellenica*, and other insects belonging to *Coccidae* and *Pseudococcidae* families, The whitefly *Aleurothrixus*, the citrus casebearer moth, *Phyllocnistiscitrella*, *Metcalfapruinosa*, the red bark beetle of palm trees

Rhynchophorus ferrugineus and the butterfly of palm trees *Paysandisia archon* that are the key enemies of palm trees in the Mediterranean region, Woody insects that attack trees within the urban environment are: the Coleoptera *Trochoderus fasciculatus*, *Phloeosinus bicolor* and *Capnodistenebrionis* and the Lepidoptera *Cossus cossus* and *Zeuzerapyrina*, The mites *Tetranychus urticae*, *Panonychus citri*, *Eutetranychus orientalis*, *Monarthropalpus buxi* that causes considerable damage to boxwoods, *Trioza alacris*, a bay enemy and *Xanthogaleruca luteola* that causes considerable damage to elm trees, *Cameraria ohridella* that is an enemy of hippocastan leaves, *Acizzia jamaicensis* is an enemy of *Akacia* of Constantinople, The biological cycle of these insects is described and the key principles for the prevention and control of insect attacks on urban trees and shrubs are discussed among which the following: (a) the proper selection of appropriate plants in the construction of green areas (not only parks) but also in tree rows and road friezes, (b) proper maintenance, (c) plant improvement, and (d) integrated treatment.

Suggested Readings

- Σαββίδου, Μ. (1996). Φυτοπροστασία. Εκδόσεις: Ψύχαλος, Φ. & ΣΙΑ Εκδοτική Ο.Ε.

◆ Hydroinformatics

The course covers the following points:

Key concepts in water resources management, Software used for water resources management, water resources management systems, Geo-spatial data for Hydrology, spatial detail and map scale, datum coordinates, data representation, metadata, relief digital representation, Data formatting, homogeneity testing, completion and extension of time series data, application example of homogeneity testing, Surface creation, geo-spatial data production as a result of point measurements, methods of surface creation, Spatial variability, Evapotranspiration modeling, Methodology, software application for evapotranspiration modeling, Infiltration modeling, Procedure, calculation with the aid of various models, Hydraulic roughness, runoff hydraulics, Soil Digital Model, Modeling of Hydrologic procedures using Arc Hydro, Software application example, Manual modeling of hydrologic procedures using ArcGIS 9.3, Georeferencing of topographic maps, digitization and calculation of hydrographic network traits, extraction of digital soil model, surface analysis, map production, Modeling of unit graph, Free information system for the integrated study of water basins (Torrential-MIK), Introduction, program use, GIS structure, mapping, hydraulic calculations using the program, collaboration with other programs, advantages, applications, hydraulic processes design, ortho-photomaps geodetics, static calculation of gravity dam – static approach, dimensioning.

◆ Freshwater Fish Farming

The course covers the following points:

Design and organization of freshwater fish farming infrastructures, biological description of key fish species that are bred in fish farming infrastructures in Greece (trouts, carps and eels), Artificial reproduction, breeding, nutrition and hygiene measures for fish protection, Diseases.

◆ Environmental Remote Sensing-Digital Images Processing

The course covers the following points:

Digital processing principles of remote sensing multi-spectral images, Remote sensing data Pre-processing, Radiometric corrections, Geometric deformations, Transformations and corrections, Spectral image enhancement, Vegetation indices, Key components analysis, Spatial enhancement of remote sensing data, Methods of image digital classification, Methodological issues of classification, Supervised classifications, Non-supervised classifications, Parametric and non-parametric classification methods, Mechanical learning algorithms in remote sensing, Advantages-disadvantages, Object-oriented classification, image segmentation, change detection, Natural disasters and risk.

8TH SEMESTER

◆ Organization and Administration

The course covers the following points:

General principles of business and organizations administration and organization, Planning as a concept and its nature, Decision-making, Organization principles and activity commissioning, Staffing procedures before and after staff recruitment, Human resource management, Employees' motivation, leadership and effective communication, The necessity of monitoring, The evolution of the theory of quality assurance and certification, The ISO 9000 standard (Quality Assurance Systems) and ISO 4000 (Environmental Management Systems) and their requirements.

◆ Urban Forestry

The course covers the following points:

General concepts of urban forestry, Ecological and environmental issues in inhabited areas, The effect of greenery on urban climate, Tree welfare in the city, Criteria selection of trees and shrubs for the creation of green clusters in cities.

Suggested Readings:

- Ντάφης, Σ. (2001). Δασοκομία Πόλεων. Εκδόσεις: Χάρης, Μ. ΕΠΕ

◆ Rangeland Development Strategies

The course covers the following points:

Grazing systems and factors that affect rangeland development, System design and financial impacts resulting from their application, Institutions related to rangeland development, Relations between livestock farming and forests, Rangeland management plans.

Suggested Readings

- Παπαναστάσης, Β. (2009). Λιβαδοκτηνοτροφική Ανάπτυξη. Εκδόσεις: Γιαχούδης, Σ. & ΣΙΑ Ο.Ε.

◆ Chemical and Biological Control of Diseases and Insects

The course covers the following points:

Plant protection methods, Plant protection products, Ways of application of plant protection products, Rational use of pesticides, Insecticides, acaricides, herbicides, fungicides, Chemical soil disinfection, The resilience issue, Introduction to biological control, Parasitization, hyper-parasitisation, excessive and multiple parasitization, Environment and host finding, Parasites, Biological control in Greece and worldwide, Practical application of biological control, Description of key predators used in biological control, *Bacillus thurigiensis* in the combat of Lepidoptera, Biological control of *Seiridiumcardinale*, *Cryphonectriaparasitica*.

Suggested Readings

- Σαββίδου, Μ. (2009). Φυτοπροστασία. Εκδόσεις: Ψύχαλος, Φ. & ΣΙΑ Εκδοτική Ο.Ε.

◆ Forest Industries

The course covers the following points:

Types and traits of forest industries, Selection of location for the establishment of forest industry, Current situation of forest industries in Greece and related issues, Development of the Greek forest industries and impacts on natural environment – Trends and perspectives, Utilization of forest industries residues for the production of forest products and forest energy, Forest industries in the European Union.

◆ Planting Techniques Arrangements

The course covers the following points:

Introductory and historical evidence, Objective of landscaping works and comparison with technical works, Biotechnical design, Landscaping material, Selection of the landscaping material, Selection of the landscaping method, Change in quality, Landscaping works, Landscaping methods for the arrangement of torrential phenomena, sites of sediment production, secondary river beds, draining of rock slopes and slopes, Arrangement works and methods in the lowlands of currents (lowland riverbeds, silting cones, regulatory tanks), Aims, methods, landscaping arrangement methods in the wider area of water basins of torrential currents, level and moderately inclined surface with mild superficial erosion, Fixation methods of moderately inclined, naked from vegetation surface and of agricultural lands, Landscaping arrangement methods for special cases: in road construction, in traffic safety, in noise disturbance reduction, in landslide protection, in soil expansion or acquisition, in waterfront protection and of their embankments, Dune arrangement methods and works, impacts, aims.

◆ **Spatial Planning of Mountainous and Less-favored Regions**

The course covers the following points:

Key concepts and historical evolution of land use, Spatial organization, Spatial categorization (urban-rural or suburban, structured-unstructured), Spatial analysis, About planning in general, The procedure of spatial planning, Planning forms, Assessment in spatial planning, Dimensions of spatial planning, Regulatory strategies, Spatial dimension of development, Location of productive activities, The historical development of spatial planning in Greece, in European Union and internationally, The Development Plan of Community Space (DPCS), European Observatory of Spatial Planning (ESPON), Strategic spatial planning, Methodology and compilation specifications of spatial programs and plans, Institutional spatial frameworks, Regional Frameworks of Spatial Planning and Sustainable Development, Special Frameworks of Spatial Planning and Sustainable Development, Rural and Mountainous space, Contemporary forms of spatial planning in mountainous and disadvantaged areas, The role of natural resources in the development of mountainous and disadvantaged areas, The development of mountainous and disadvantaged areas within a European and international framework.

◆ **Geo-Spatial Analysis and Natural Resources Mapping**

The course covers the following points:

Introductory concepts, Display systems, Mapping planning and graphic rendition, Color theory and models, Mapping of point, superficial, volumetric and morphological elements, Thematic cartography, Map extraction of quantitative data, Inventories and spatial sampling, Mapping precision, Classification and mapping methods and systems of vegetation, Local correlation and spatial auto-correlation, Correlogramm, Semivariograms, Spatial interpolation, Geographically Weighted Regression (GWR).

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 advantages.

◆ **Technical Works and Studies of Environmental Impacts**

The course covers the following points:

Introduction, Key concepts and definitions, Environmental policy for technical works/projects, Use of Studies of Environmental Impacts (SEI) in project planning, Sustainable Development, Environmental Policy, Impact evaluation, Environmental policy dimensions, Analysis of the Environmental Impacts Evaluation, Public Consultation, Decision-making, etc, Check compliance with Environmental terms, Institutional and legal framework, European and Greek legislation, Current framework, Procedures for the Analysis of the Environmental Impacts Evaluation (AEIE) and for the Check Compliance with Environmental Terms, (CCET) Studies editing, submission and processing, Critical view of an institution, Study design degrees, Study commissioning, Studies content, Studies outline, Works consequences on natural environment, Instances of anticipated impact on nature based on category of works and activities, AEIE and SEI methods, General presentation, Conventional methods for the recording of impact evaluation, Environmental Indices, Contemporary Recording, Evaluation, Decision-Making Methods, Mathematical models, Softwares, Cumulative Impacts, Alternative solutions, Strategic Environmental Impact Evaluation, Case Study, Forestry works.

Suggested Readings

- Schnoor, J.L. (2015). Περιβαλλοντικά Μοντέλα. 2^η Έκδοση. Εκδόσεις: Τζιόλα.
- Θεμέλαρου, Σ., Πανέτσος, Α.Κ. & Πανέτσος, Σ.Α. (2009). Περιβάλλον. Εκδόσεις: Τζιόλα.

◆ **Environmental Policy**

The course covers the following points:

Introductory concepts in environmental policy, Environmental trends and issues in Europe, Analysis of contemporary environmental issues, Contracts, agreements and conditions for the environment, biodiversity, and natural resources, Environmental action programs, Non-Governmental Environmental Organizations, Policies for the protection and enhancement of protected natural areas, Policies for land use, Environmental Law in Greece, in European Union, and internationally.

◆ **Applied Forest Management**

The course covers the following points:

Review of major forest management methods, Distinctive features of Greek forests, Sustainable management of forests under conversion, resin producing forests, recreational forests, national parks and protected areas, Management of forest plantations, Management of other special forms of forests or forest lands.

Suggested Readings

- Ελευθεριάδης, Ν. (2003). Διαχειριστική Φυσικών Χερσαίων Οικοσυστημάτων. Εκδόσεις: Χάρις, Μ. ΕΠΕ

◆ **Climate Change Scenarios-Adaptation and Vulnerability**

The course covers the following points:

Key methods of climatic analysis, Extreme weather conditions: exposure, adaptation and vulnerability, Climatic models and study of climatic scenarios, Observed and anticipated consequences on natural environment, Risk management as adaptation means, The role of technology in response measures.

◆ **Game Farming**

The course covers the following points:

Biology and ecology of key feathered game bred in Greece (pheasant, partridge, quail) and furred game (hare, wild boar), Artificial game breeding, Farm design and organization, Hygiene and protection measures.

Suggested Readings

- Παπαγεωργίου, Ν. (1996). Εκτροφή Θηραμάτων. University Studio Press.

◆ **Management of Non-timber Forest Functions**

The course covers the following points:

Importance and key elements of non-timber functions of forest, Forest ecosystems functions and services, Interactions between natural and financial system, Non-timber functions valuation methods, Interrelations among non-timber forest functions, Ecological, economic and social sustainability of forest ecosystem services, Pilot applications of non-timber functions management in Greece.

◆ **Evolutionary Biology and Biodiversity**

The course covers the following points:

Definition of biological diversity, Significance and distinctive features, The spatial and temporal dimension of biological diversity, The genetic dimension of biological diversity, Genetic and biological forest diversity, Factors influencing genetic diversity in forests, Human impact on biological diversity and, more specifically on its genetic part, Historical evidence of biological diversity protection in forests, Contemporary approaches on an international, European and Greek level, Programs for the protection of genetic biological diversity.

◆ **Management Policies of Protected Areas**

The course covers the following points:

Introduction to management policies of protected areas, Protected areas in Greece, Institutional framework for protected areas, Interaction between the natural environment of protected areas with the socio-economical environment, Protection and maintenance of natural environment via the establishment of protected areas, Environmental information dissemination, education and training in protected areas, Protected areas, perspectives and prerequisites for regional development, Stakeholders and effective management, Protected areas, local community and the attitudes of local population, Local communities participation in the design of environmental protection and of regional development, Visitors and protected areas, Protected areas and non-governmental environmental organizations.

◆ **Management and Classification on Unfinished Wood**

The course covers the following points:

Measurement and classification of untreated timber in the forest, Bulk measurement of a standing trunk, Terminology-Defects in wood structure, Criteria classification of untreated timber prior to sale in the forest based on its dimensions, type of utilization and quality.

One of the prerequisites for graduation is the successful completion of the course of 'Foreign Language' by attending one of the two foreign languages that are included in the course syllabus.

English and French are taught and examined on a compulsory basis throughout semesters 1-4. Their teaching is conducted in two-hour weekly sessions. Only graduates from the Departments of English Language and Literature and French Language and Literature respectively can be exempted from the course in all semesters.

ENGLISH LANGUAGE

The main objective of the English language course is the development of reading writing, listening and speaking skills as well as further practiced with grammatical and syntactic features of the English language so that students will be able to use and process effectively relevant foreign bibliography in the subject of their studies.

Throughout the first two semesters students will be able to:

- revise key points in the English language grammar, syntax and acoustics
- compose essays, paragraphs, summaries, advertisements, short messages, speeches, different kinds of letters
- process authentic texts (literary, scientific), newspaper articles and magazines, etc.

Throughout semesters 3 and 4, the focus lies on the teaching of specialized technical texts relevant to the students' subject of study so that students are enabled in the study of relevant foreign language literature in their future studies and professional life.

FRENCH LANGUAGE

The main objective of the French language course is the development of reading writing, listening and speaking skills as well as further practiced with grammatical and syntactic features of the French language so that students will be able to use and process effectively relevant foreign bibliography in the subject of their studies.

Throughout the first two semesters students will be able to:

- revise key points in the French language grammar, syntax and acoustics
- compose essays, paragraphs, summaries, advertisements, short messages, speeches, different kinds of letters
- process authentic texts (literary, scientific), newspaper articles and magazines, etc.

Throughout semesters 3 and 4, the focus lies on the teaching of specialized technical texts relevant to the students' subject of study, so that students are enabled in the study of relevant foreign language literature in their future studies and professional life.

STRUCTURE OF STUDIES

- Organizational Issues of Studies at the Undergraduate Level

GENERAL DIRECTIONS

The training activities are temporally structured in two semesters every academic year. Each semester is consisted of at least thirteen (13) full weeks available for teaching and a respective amount of weeks for examinations. At least seven (7) compulsory courses are taught every semester, whose instruction usually includes three hours theory and 2 hours laboratory practice or supplementary teaching ('frontisteirio') every week. The total number of teaching hours for these courses should not exceed 5 hours on a weekly basis. Elective courses are an integral part of all study semesters that students attend and they aim at students' further specialization with respect to the Direction that students will finally choose to attend.

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

EXAMINATION PERIODS

There are three examination periods: (i) January-February exam period, (ii) June exam period and (iii) September exam period. There is a provision for a written examination for all taught courses at the end of every Semester. Students can re-sit examinations for all courses taught in both Winter and Spring semester.

- During January-February exam period, students can take examinations for all courses taught in Winter semester only.
- During June exam period, students can take examinations for all courses taught in Spring semester only

The final grading mark for every course is the average of student's performance in theory and laboratory or supplementary practice. Grading is assigned from 0-10, with 5 being the minimum passing grade.

COURSE ATTENDANCE

Compulsory as well as elective courses have been distributed over the 10 study semesters in such a way so as students can be advised over the sequence of courses they are obliged to follow and successfully complete their studies.

Students have to 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 twelve (12) elective courses that a student needs to attend, he/she has to select seven (7) courses from the Direction of his/her choice, while for the remaining 5 courses he can either select from the Direction he/she is registered or from another one.

In each semester 1-10, the student can select **one** elective course, with the exception of 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 seven (7) 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 to complete the maximum 7 of courses they are required to attend.

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 outdoor) 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
- these trips will form part of the course syllabus but without corresponding to teaching units
- the organization of these trips will be 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 completion of a dissertation is a prerequisite for the receipt of the Bachelor's Degree (BA)
- The topic of the dissertation has to coincide with a study area that is related to the fields of forestry science, protection and management of the natural environment and natural resources. It can be either a research or theoretical thesis.
- Dissertation can be undertaken by individual students or by pairs of students (i.e. max. 2), with equally distributed workload among the students.
- Students must state that they wish to undertake a dissertation when they are in the 7th or 8th semester of their studies. In their application form, they should clearly state the field of study and their supervisor's name in the Department. The application form should have both the student's and supervisor's signatures.
- In case a student is not able to submit an application form for his/her dissertation within the abovementioned timeframe, he/she has to submit a request to the General Departmental Assembly to be allowed to do so in the remaining years of his/her studies.
- Change of both the field of study and of the supervisor is possible only once and within one academic semester after the initial application. If otherwise, the approval of the General Departmental Assembly is required.
- All dissertations are examined and graded by a committee that consists of three members, i.e. the supervisor, and two Professors who belong to either the Departmental Staff or are staff members of other Departments in the Democritus University of Thrace and whose research interest are the same or akin to the field of study of this Department.
- The committee members responsible for the examination of the dissertation decide on the final grade after taking into consideration the supervisor's proposal. If a dissertation is characterized as 'inadequate', it is sent back to the student for additional processing and resubmission, and, the whole examination process is repeated.

- Dissertations can be publicly presented, once there is consent by the three-member examination committee.
- Dissertations have to be submitted in four (4) paper copies, three (3) of them for the members of the examination committee and one (1) for the Departmental Library. They should also be submitted in an electronic form but only to the supervisor.
- Every Professor of the Department can supervise seven (7) students maximum per academic year for the completion of dissertation.

TRAINEESHIP

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

- They have completed the attendance of the 6th semester: in University forests, 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 University forests 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 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 considered to be necessary for the award of the Forester's degree.

BACHELOR'S DEGREE (BA) GRADE

The grade for the Bachelor's Degree (BA) is the result of the sum of the product of teaching units in every course against the corresponding passing grade divided by the sum of the teaching units.

Traineeship in the University Forests and forestry agencies is not taken into consideration in the final BA grade.

Finally, if a student wishes to be awarded with a BA degree in Forestry, he/she has to fulfill the following prerequisites:

- He/she has to attend all compulsory and elective courses.
- He/she has to successfully complete his dissertation.
- He/she has to receive traineeship in the University Forests and Public Forestry Agencies.

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 Secretary of the Department is held responsible for students' secretarial service. More specifically, the secretarial staff's responsibilities are the following:

- They issue licenses and certificates that can be used for all legal purposes

- They grant healthcare booklets to students following an application and a statutory declaration on their behalf. The booklet is approved at the beginning of each academic year.

The Departmental Secretary is open to serve students' academic needs daily from 11.00-13.00.

Telephone: (25520) 41171-2-3-4

Fax: (25520) 41192

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 means 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

Librarian Assistant: Julia Biskintzi

Telephone: (25520) 41181

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.

STUDENT WELFARE

FEEDING

Both active undergraduate and graduate students can have access to the University Cafeteria for all meals. The documentation necessary for free of charge feeding should be submitted to the office of Student Welfare in May of every academic year. Freshmen can submit the documents at the same time they register for the first time to the Department.

The requisites and the list of documents are made available on both the Department and University website at the beginning of every Academic Year.

- The right for free meals can be discontinued when students take leave of absence and for as long as their absence from the university lasts.
- The right for free meals is lost after graduation and when study duration exceeds the normal period increased by half.
- Students who have been placed in the department for the acquisition of a second Bachelor's degree do not have the right for free meals.

ACCOMMODATION

Both active undergraduate and graduate students can stay in the student residence of the Institution free of charge. The documentation necessary for free of charge feeding should be submitted to the office of Student Welfare in May of every academic year. Freshmen can submit the documents at the same time they register for the first time to the Department.

The requisites and the list of documents are made available on both the Department and University website at the beginning of every 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.

PROVISION OF HEALTHCARE

All undergraduate and graduate students, natives, expatriates and foreigners have the right to receive healthcare for as long as the study duration doesn't exceed the normal period increased by half. In case of student leave of absence, the right to healthcare can be extended accordingly. A booklet of student healthcare provision is granted by the Departmental Secretary upon receipt of a photograph and is renewed every Academic Year.

If his/her healthcare provision is covered from another insurance Agency (e.g. his parents), then the student can choose the insurance agency he/she wishes via a statutory declaration that is submitted to the Departmental Secretary.

The medical care provided is of second rate (B class), and its cost is calculated by a statement of account that applies on occasions for all public servants.

The healthcare is exclusively provided within the limits of Greek sovereign state, and, more specifically: (a) in the area where the University is located, (b) in the area where traineeship takes place or the dissertation is being undertaken, as well as in the area where educational research is being conducted and an educational trip is in progress and (c) in an area away from the University, in case of an emergency incident that needs urgent medical report.

The medical healthcare provision covers the following points:

- medical examinations
- nursing healthcare treatment
- pharmaceutical healthcare treatment
- paramedical examinations
- home nursing
- dental healthcare

Free of charge medical and pharmaceutical provision is also granted to:

- foreign scholars of the Greek Government, who learn the Greek language and intend to pursue further studies in Greek Higher Education Institutions
- foreigners of the Greek Government, who conduct research in a Greek Higher Education Institution or are attending taught modules in these Institutions as free listeners.

Healthcare expenditure in all these cases will be covered by the respective nursing homes.

AWARDS - SCHOLARSHIPS

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

AWARDS

Awards can be granted to:

- Freshmen who participated in the University entrance examinations for the first time and, they have excelled in their academic performance.
- Students whose average mean of grades throughout two semesters should be higher than 6,51/10.
- A graduate student who has achieved the highest score in his/her class, provided that the duration of his/her studies has not exceeded the total number of years required for the receipt of the Bachelor's Degree (BA).

The awards are granted in the form of a written diploma and the provision of scientific books that correspond to the student's field of study. For their purchase, the amount of 234,87 Euros as a one-off subsidy has been set.

SCHOLARSHIPS

Scholarships can be granted to:

- Freshmen who participated in the University entrance examinations for the first time and, they have excelled in their academic performance.
- Students whose average mean of grades throughout two semesters should be higher than 6,51/10. The amount of scholarship granted has been set to 1,173 Euros for every beneficiary as a one-off subsidy.

The level of the abovementioned amounts are determined by the Board of Council of State Scholarships Foundation.

For the conferment of Scholarships and Awards, the following requisites have to be met:

- Greek Nationality or Citizenship
- Candidate's penal status
- Candidate's personal income does not exceed 8,804,10 Euros and his/her family income does not exceed 4,1085,84 and as that can be increased by 1,467,37 for families with three children and by 2,934,70 Euros for families with four children and above. This applies only in the case of Scholarship award. Personal and family income is calculated on the basis of the net amount of taxable income.

Students who are transferred to other Universities, according to law provisions, can claim the Scholarship or Award from the Department or School he/she has entered.

In case there are candidates with the same average grade, the Scholarship is granted to the one who has the lowest personal and family income.

If a candidate meets the necessary requirements with respect to the required academic achievement and the conditions set for the determination of their financial income, he/she can receive both the Award and the Scholarship. The following categories of students cannot be conferred either a Scholarship or an Award, let alone an honorary title:

- Students in Military and Police Academies
- Graduate students pursuing a second Bachelor's Degree (BA)
- Expatriate students that are already receiving a Scholarship from the State Scholarships Foundation
- Student who do not meet the financial requirements for the calculation of their personal and family income.

All prerequisites and necessary documentation are made available both on the Departmental and University website following the respective announcement made by the State Scholarships Foundation. Scholarship nominees are determined by the Head of the Department who drafts a final list of the candidates for every academic year based solely on their grade ranking per year of studies and on the predetermined number of scholarships as set by the Foundation of National Scholarships.

The list is then sent to the Foundation. Scholars are announced by the Board of Council of the State Scholarships Foundation and the amount of the scholarship is granted directly to each individual student by nominative cheque.

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.

The Board of Council of the Student Union consists of seven members, i.e.:

The President: Vassileios Adamantiou

Vice-President: Ilias Pagio

Secretary: Asimena Chatzivasileiadou

Treasurer: Thanos Moraitis

Member A: Giannis Kollas

Member A: Giorgios Laskaridis

Member C: Antonia Kostoglou

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 a number of Higher Educational and Technological 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 Technological Educational Institution in Thessaloniki, the Technological Educational Institution in Kavala.

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 UniversitadegliStudidellaTuscia, the Banat University of Agricultural Science and Veterinary Sciences in Timisoara, the Albert-Ludwigs-Universitat Freiburg imBreisgau.

Programs for Postgraduate Studies

M.Sc. in:

- Maintenance and Restoration of Terrestrial Natural Ecosystems
- Environmental Education and Communication

PROGRAMS FOR POSTGRADUATE STUDIES

A. MAINTENANCE AND RESTORATION OF TERRESTRIAL NATURAL ECOSYSTEMS

PROGRAM DIRECTOR

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

SECRETARY

Secretary: Christos Varsamakidis

Administrative Staff: EvgeniaOtemperi

OBJECTIVE

The program of postgraduate studies is an integral part of the strategic planning of Democritus University of Thrace, is characterized by scientific cohesion and aims at the post-graduate specialization in the maintenance and restoration of terrestrial natural ecosystems via the development and application of contemporary methods and techniques.

The primary objectives of the program are:

- The understanding of the structure and functions of terrestrial natural ecosystems, of the need for biodiversity protection and maintenance as well as of the impact of climatic changes and of human activities in terrestrial natural ecosystems (knowledge level).
- The utilization of contemporary methods and techniques in the recording and monitoring of ecosystems (skills level).
- The selection of the best management and restoration practices and the utilization of restoration types, methods and techniques in disturbed ecosystems (behaviors level).

POST-GRADUATE CANDIDATE NUMBER

The number of candidates is determined to maximum twenty-five (25) postgraduate students annually. In addition, the maximum number of postgraduate students per instructor in the program amounts to 25/12, the maximum number of which in relation to the number of undergraduate students is 25/563 and in relation to the number of instructors in the Department is 25/18 (article 45 par. 1 of law 4485/2017).

CATEGORIES OF POST-GRADUATE CANDIDATES

Post-graduate candidates should be holders of a Bachelor's Degree from a Greek higher educational (A.E.I.) and/or higher technological educational institute (A.T.E.I.) or from equivalent foreign educational institutes of the following categories:

- Graduates of Department of Higher Education Institutes (A.E.I.), of Science and Technology Studies, Health and Life Sciences.
- Graduates of Department of Higher Technological Education Institutes (A.T.E.I.), of Science and Technology Studies, Health and Life Sciences.
- Graduate of equivalent and recognized by the Greek state foreign university departments.

The Diploma of Post-graduate Studies cannot be awarded to any students whose Bachelor Degree that has been received from a foreign University has not been recognized from the Hellenic National Academic Recognition Information Center (DOATAP), according to law 3328/2005 (A' 80).

University staff members who belong to the categories of (i) Special Educational Staff, (ii) Laboratory Teaching Staff and (iii) Laboratory and Teaching Staff who conform to the prerequisites set out in the first part of paragraph 1, can apply for registration in the program as supernumerary and only one candidate per year and postgraduate program, according to the specific regulations determined in article 45, on condition that they are teaching staff in the Department and their academic studies and services they offer in the Department is consistent with the study area of the post-graduate program.

DURATION OF STUDIES

The regular duration for the completion of postgraduate studies that lead to the Diploma of Postgraduate Studies has been determined to three (3) semesters at minimum, a period that also

includes the time required for the undertaking and submission of the postgraduate dissertation. The final dissertation cannot be completed in less than three (3) months.

Participation in the program ends when the writing-up process of the dissertation is completed and its viva examination (public oral defense) has taken place.

The postgraduate student is required to complete his postgraduate studies within a time span of 2 years maximum upon registration in the postgraduate program.

PROGRAM OUTLINE

The total number of Credit Units (ECTS) that is required for the acquisition of the Diploma of Postgraduate Studies amounts to ninety (90). In addition, regular and compulsory course attendance and successful participation in all course examinations that are delivered in the first two semesters of the program (1st and 2nd) are also required. Throughout the 3rd semester, the postgraduate dissertation is only undertaken whose credit units (ECTS) amounts to thirty (30).

The course outline of the postgraduate program (3 semesters) is as follows:

1ST SEMESTER			
CODE	COURSE TITLE	COURSE TYPE	7CTS
1.	Biodiversity Protection and Management	Compulsory	7,5
2.	Climatic Change: Methods of Climatic Analysis, Consequences and Response of Natural Ecosystems	Compulsory	7,5
3.	Grazing Ecology and Management	Compulsory	7,5
4.	Recording and Monitoring – Data Analysis of Terrestrial Ecosystems	Compulsory	7,5
TOTAL OF CREDIT UNITS FOR 1ST SEMESTER			30

2ND SEMESTER			
CODE	COURSE TITLE	COURSE TYPE	ECTS
1.	Restoration Methods - Forest Works and Maintenance of Soil Resources in Disturbed Ecosystems	Compulsory	7,5
2.	Forest Handling and Rectification of Forest Ecosystems	Compulsory	7,5
3.	Management Measures for the Maintenance and Evolution of Ecosystems, Restoration Studies and Maintenance Plans	Compulsory	7,5
4.	Soils Restoration and Vegetation Re-installing in Disturbed Areas	Compulsory	7,5
TOTAL OF CREDIT UNITS FOR 2ND SEMESTER			30

3RD SEMESTER		
CODE	Course Title	ECTS
1.	POSTGRADUATE DISSERTATION	30
TOTAL OF CREDIT UNITS FOR 3RD SEMESTER		30

B. ENVIRONMENTAL EDUCATION AND COMMUNICATION

PROGRAM DIRECTOR

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

SECRETARY

Secretary: Christos Varsamakidis
Administrative Staff: Evgenia Otemperi

OBJECTIVE

The program of postgraduate studies is an integral part of the strategic planning of Democritus University of Thrace, is characterized by scientific cohesion and aims at the post-graduate specialization in environmental education and communication. It aims at the provision of high level education to postgraduate students so that they will be able to combine knowledge at the theoretical and applied level with experience and academic research in order to improve their professional qualifications and enrich their professional work with new, interdisciplinary approaches in environmental education and communication. More specifically, the specific objectives of this postgraduate program are as follows:

- To provide students with specialized knowledge, to promote critical and analytical thought and develop the scientific approach of key issues in the area of environmental education and communication.
- To offer the maximum possible students' familiarization with contemporary research methodology and new technologies.
- To empower students theoretically so that they will be able to comprehend the diverse research techniques and the different processing and analysis methodologies that are used in the area of environmental education and communication.
- To encourage students to critically process scientific research, studies and data and to develop the scientific methodology in their own research.
- To create executives in the Public and Private Sector who actively participate in sustainable development and the improvement of the quality of life for the citizens of this country.
- To give students the opportunity to practically apply the knowledge they have received throughout their undergraduate studies and reinforce them aiming at their later utilization at a PhD level.

POST-GRADUATE CANDIDATE NUMBER

The number of candidates is determined to maximum ten (10) postgraduate students annually. In addition, the maximum number of postgraduate students per instructor in the program amounts to 10/10, the maximum number of which in relation to the number of undergraduate students is 10/563 and in relation to the number of instructors in the Department is 10/18 (article 45 par. 1 of law 4485/2017).

CATEGORIES OF POST-GRADUATE CANDIDATES

Post-graduate candidates should be holders of a Bachelor's Degree from a Greek higher educational (A.E.I.) and/or higher technological educational institute (A.T.E.I.) or from equivalent foreign educational institutes. The number of candidates is determined to maximum ten (10)

postgraduate students annually.

The Diploma of Post-graduate Studies cannot be awarded to any students whose Bachelor Degree that has been received from a foreign University has not been recognized from the Hellenic National Academic Recognition Information Center (DOATAP), according to law 3328/2005 (A' 80).

Scholars from the Foundation of National Scholarships (I.K.Y.) or from other agency are accepted as supernumerary.

DURATION OF STUDIES

The regular duration for the completion of postgraduate studies that lead to the Diploma of Postgraduate Studies has been determined to three (3) semesters at minimum, a period that also includes the time required for the undertaking and submission of the postgraduate dissertation. The final dissertation cannot be completed in less than three (3) months.

Participation in the program ends when the writing-up process of the dissertation is completed and its viva examination (public oral defense) has taken place.

The postgraduate student is required to complete his postgraduate studies within a time span of 2 years maximum upon registration in the postgraduate program.

PROGRAM OUTLINE

The total number of Credit Units (ECTS) that is required for the acquisition of the Diploma of Postgraduate Studies amounts to ninety (90). In addition, regular and compulsory course attendance and successful participation in all course examinations that are delivered in the first two semesters of the program (1st and 2nd) are also required. Of these, four (4) courses are compulsory and four (4) courses are optional. Every postgraduate course is completed after 40 teaching hours.

Throughout the 3rd semester, the postgraduate dissertation is only undertaken whose credit units (ECTS) amounts to thirty (30).

The course outline of the postgraduate program (3 semesters) is as follows:

1ST SEMESTER			
CODE	COURSE TITLE	COURSE TYPE	ECTS
1.	Didactics of Environmental Science	Compulsory	7,5
2.	Environmental Communication, Mass Media and	Compulsory	7,5

Department of Forestry and Management of the Environment and Natural Resources
SCHOOL OF AGRICULTURAL AND FORESTRY SCIENCES – DEMOCRITUS UNIVERSITY OF THRACE

	Public Opinion		
3.	Environment, Society and Volunteerism	Elective	7,5
4.	Principles and Methods of Environmental Management	Elective	7,5
5.	Ecosystem Services	Elective	7,5
TOTAL OF CREDIT UNITS FOR 1ST SEMESTER			30
2ND SEMESTER			
CODE	ΤΙΤΛΟΣ ΜΑΘΗΜΑΤΟΣ	ΤΥΠΟΣ ΜΑΘΗΜΑΤΟΣ	ECTS
1.	Environmental Policy	Compulsory	7,5
2.	Methodology of Social and Environmental Research	Compulsory	7,5
3.	Sustainable Development	Elective	7,5
4.	Public Relations Strategies and Environment	Elective	7,5
5.	Education for Sustainable Development	Elective	7,5
TOTAL OF CREDIT UNITS FOR 2ND SEMESTER			30
3RD SEMESTER			
CODE	COURSE TITLE		ECTS
1.	POSTGRADUATE DISSERTATION		30
TOTAL OF CREDIT UNITS FOR 3RD SEMESTER			30