



ROMANIA
MINISTRY OF NATIONAL EDUCATION

UNIVERSITY OF CRAIOVA
FACULTY OF HORTICULTURE

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PACKAGE OF COURSES

Bachelor study program: ENGINEERING AND ENVIRONMENTAL PROTECTION IN AGRICULTURE

This is the package of course of bachelor study program of Engineering and environmental protection in agriculture from the University of Craiova/ the Faculty of Horticulture/The Department of Biology and Environmental Engineering.

1ST YEAR OF STUDY

MATHEMATICAL ANALYSIS

Code: D30IMAL101

Credits: 5

Course holder: lecturer dr. Șterbeți Cătălin

Year / Semester: Year I / Semester I

Number of hours per week: 2 hours course, 2 hours seminar

Number of weeks: 14

Type of course: fundamental

Course Objectives:

- ✓ Understanding students of the basic notions of algebra;
- ✓ Understanding the ways to approach algebra problems;
- ✓ Development of students' logical thinking;
- ✓ Educating students in the spirit of more realistic approaches to practical problems in the environment;
- ✓ Managing positive and responsible attitudes towards the mathematical field, which helps to investigate economic or engineering problems

Themes: equations, inequalities, matrix calculus, determinants, linear systems, vector spaces, linear applications, bilinear forms,

Language of instruction: Romanian

Assessment mode: exam

Bibliography:

Brânzănescu, V. & Stănașila, O., Special Mathematics, ALL Publishing House, Bucharest, 1994

Bucur, Liliana Mathematics and Statistics, Sitech Publishing House, ISBN 978-606-11-4322-1 Craiova, 2014

Donciu N., Flondor D., Algebra and Mathematical Analysis, Bucharest, 1978

Procopiuc, Gh., Slabu, Gh., Ispas, M., Mathematics-theory and applications, "Gh. Asachi ", Iași 2001

Udriste C., Algebra, Geometry and Differential Equations, E.D.P., Bucharest 1981

ENVIRONMENTAL PHYSICS

CODE: D30IMAL102

CREDITS: 5

COURSE COORDINATOR: Lecturer dr. PhD. , CIMPOIASU Rodica

YEAR / SEMESTER: 1st Year / 1st Semester

HOURS PER WEEK: 2 hours of lecture, 2 hours of practical work

NUMBER OF WEEKS: 14

COURSE TYPE: domanin

COURSE OBJECTIVES: Knowledge of notions, concepts, laws and principles specific to physics with implications in phenomena that cause environmental pollution. Knowledge of physical monitoring methods, physical techniques of investigation and exploration of the environment. Knowledge of physical activities in assessing and combating environmental pollution. Assumption of knowledge related to physics-specific terms to the phenomena and laws governing the environment, the similarity and the difference between them at all levels of organization of matter, starting at the subatomic level to the biosphere. Knowledge of environment-specific applications and recording and research equipment of importance in physics and applied to environmental engineering. Discipline aims to explain the phenomena, processes, applications and devices according to the main physical parameters, characteristics of the environment. Students should explain the involvement of each process in the correct functioning of the living environment (from the body level to the biosphere) or interpret the evolution of the system based on the evolution of environmental factors.

TOPICS: Introduction to environmental physics. Matter structure and their organization. Quantum Physics. Elements of spectroscopy. Solar spectrum. Interaction of radiation with matter. Molecule, aggregation states. Molecular biophysics. Contact phenomena between liquid and solid. Molecular transport phenomena. Diffusion and osmosis. Water and its role. Introduction in biological thermodynamics. Radiant energy, characteristics of thermal energy.

TEACHING LANGUAGE: romanian

KNOWLEDGE ASSESSMENT: answers to exam 60 %, periodic answers to practical work 10 %, results to periodic control works 30 %.

ASSESSMENT FORM: exam

REFERENCES:

George C. Moisil, 1988. Termodinamica, Ed. Academiei Romane, București.

Al. Nicula, 1982. Electricitate și magnetism, Ed. Didactica și Pedagogică, București.

Cursul de fizică Berkley, C. Kittel et. all., vol.1-5, Ed. Didactica și Pedagogică, București, 1981.

Cimpoiasu Vily Marius, 2008, Elemente si tehnici de biofizica, Editura Universitaria, Craiova.

R.Țițeica, Iovițu Popescu. 1973. Fizica generală, vol.1-3, Ed. Tehnică, București.

Ioan Damian, 1995. Curs de fizică pentru uzul studenților, Universitatea Politehnica din Timișoara.

Cimpoiasu Vily Marius. 2010. Notiuni de fizica mediului, Editura Alma, Craiova.

CHEMISTRY

CODE: D30IMAL103

CREDITS: 5

COURSE HOLDER: Lecturer PhD. Ileana COJOCARU

YEAR/SEMESTER: 1th year/ 1st semester

NUMBER OF HOURS PER WEEK: : 2 hours course, 2 hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES: Familiarize with the concepts of atom structure and classification of elements;

Understanding the electronic configuration of the elements, their valence;

Acquiring knowledge to understand the types of chemical bonds.

Explaining some notions of thermochemistry and chemical thermodynamics in order to establish the conditions of maximum stability and the laws by which they are transformed to reach the chemical equilibrium state;

Interpreting the numerical values of all the most important quantitative parameters determined;

Identifying, respectively recognizing the ions in the sample solutions to be analyzed by using the appropriate specific reagents;

Determination by calculation of the unknown concentration of volumetric and gravimetric samples

THEMES: Atoms. Atomic structure. classification of elements. Molecules. Chemical links. Chemical thermodynamics. Chemical equipment. Solutions. Ionic balancing. Chemical cinematics. Catalysis. Coloidal status of material. Oxidation and reduction.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Final theoretical exam 70%, final practical exam 30%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

V. Popescu, I. Cojocaru, Chimie Generală, Editura Sitech, Craiova, 2009

Cezar Spînu, Maria Pleniceanu, Chimie generală, Editura Universitaria, Craiova, 2007.

M. Pleniceanu, C. Spînu, Chimie generală, Tipografia Universității din Craiova, 2006.

M. Pleniceanu, M. Isvoranu, Analize fizico-chimice, Tipografia Universității din Craiova, 2003.

M. Pleniceanu, Chimie analitică calitativă și cantitativă, Editura Universitaria, Craiova, 1995.

M. Pleniceanu, C. Spînu, Chimie analitică: lucrări practice, întrebări, exerciții și probleme, Tipografia Universității din Craiova, 2007.

Maria Pleniceanu, Anca Gănescu, Chimie analitică. Lucrări practice, întrebări, exerciții și probleme, Tipografia Universității din Craiova, 2008.

Ileana Cojocaru, Chimie Analitică, Lucrări Practice de Laborator, Editura Sitech, Craiova, 2009, ISBN 978-606-530-590-8.

BOTANY AND PLANT PHYSIOLOGY

CODE: D30IMAL104

CREDITS: 5

COURSE HOLDER: Lecturer, PhD, Daniel RĂDUȚOIU

YEAR/SEMESTER: 1st year/ 1st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: The presented botanical notions give students the support of understanding and acquiring the knowledge necessary for the biochemical and systematic approach of the spontaneous plants.

THEMES: General notions. Biology as a science. Branches of biology. Botany development worldwide. Development of botany in Romania. Nomenclature of spontaneous and cultivated species. Plant cell cytology. Theory of vegetal histology. Meristematic, defense, conductive, mechanical, fundamental and secretory tissues. Organography. Study of the vegetative and reproductive organs (morphology, types and anatomy). Systematic plant. Getting Started. Plant classification systems. Systematic units (taxa). Phyl. Pteridophyta and Spermatophyta - general characters, classification, representatives.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Final theoretical exam 70%, final practical exam 30%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Andrei M. 1978. Anatomia plantelor. Edit. D. P. București.

Andrei M. 1997. Morfologia generală a plantelor. Edit. Enciclopedică București.

Andrei M. și colab. 2003. Practicum de Morfologia și anatomia plantelor. Edit. St. Agricole București.

Buia Al. & al. 1965. Botanica agricolă, vol. I și II., Edit. Agro-Silvică, București

Busuioc G. & Răduțoiu D. 2010. Botanica și fiziologia plantelor. Edit. Sitech. Craiova.

Ciocârlan V. 2009. Flora ilustrată a României. Pteridophyta et Spermatophyta. 1038 pag. Edit. Ceres, București.

Deliu C. 1992. Morfologia și anatomia plantelor, vol. I. Edit. Univ. Babeș – Bolyai, Cluj Napoca.

Morariu I. 1965. Botanica generală și sistematică. Ediția a II-a. Edit. Did. și Ped., București

Păun M. & al. 1980. Botanica. Edit. Did. și Ped., București

Popescu GH. 2000. Botanica. Edit. Universitaria, Craiova.

ECOLOGY

CODE: D30IMAL105

CREDITS: 4

COURSE HOLDER: Senior Lecturer, PhD, Dragoș Mihail ȘTEFĂNESCU

YEAR/SEMESTER: first year/ first semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES: Acquiring information regarding the structure and functions of supraindividual biological systems (populations, communities and the entire biosphere). Understanding the structure and functioning of (ecosystem energy, minerals circulation and self-control) natural ecosystems.

THEMES: Introduction to ecology, object and definition, history of ecology. Theoretical bases of ecology; The ecosystem - the concept of ecosystem; Conceptual directions regarding the ecosystem; Ecosystem components - biotope, communities. The structure of the biotope.; The structure of natural communities - the community as a level of organization of living matter; community structure; indices of diversity; similarity indices; functional diversity; interspecific relationships - interspecific competition; competitive exclusion principle.

LANGUAGE OF INSTRUCTION: romanian

KNOWLEDGE ASSESSMENT: exam answers (60% course + 30% practical course) and continuous assessment throughout semester (10%).

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Botnariuc N., Vădineanu A., „ Ecologie,, Ed. Did. și Ped., București 1982

Krebs C. J. „Ecology: The Experimental Analysis of Distribution and Abundance 6th ed. Benjamin Cummings, San Francisco 2009

Molles M. C., „ Ecology- Concepts& Applications,, Mc Graw-Hill Publishing Company, 2008

Pârvu C., „ Ecologie generală,, Ed. Tehnică, București 1999

Stugren B., „ Bazele ecologiei generale,, Ed.: Științifică și Enciclopedică, București 1982

Ștefănescu, D. M. – Elemente de ecologie generală (ecosistemul) – Editura Sitech, 2015.

Ștefănescu, D. M. - Elemente de ecologie generală (populația și comunitatea) – Editura Sitech, 2014.

ENGLISH I

CODE: D30IMAL106

CREDITS: 2

COURSE COORDINATOR: Ph.D, Senior Lecturer, Bărbuceanu Costina Denisa

YEAR / SEMESTER: Ist Year / Ist Semester

HOURS PER WEEK: 2 hours of seminar

NUMBER OF WEEKS: 14

COURSE TYPE: complementary

COURSE OBJECTIVES: Improving the ability to understand spoken English and specific vocabulary texts written in English, using a reference material especially designed for students of the Faculty of Horticulture, but also for those who want to learn ESP vocabulary in context. Practice of important vocabulary and grammar practice, tackle four skills, reading, listening, speaking and writing, explain specific vocabulary, and grammar lessons which are thought in detail, with exercises that give students useful practice in this particular area. True or false exercises, gap filling, matching the words with their definition, translations, in context dialogues and lessons with key bolded words are really selected for students to understand and use it correctly. Deepening the main grammar rules of English in a modern way, problematic, requiring students to learn but also to think.

Consolidation of skills to dialogue, describe, report. Emphasizing the practical nature of learning, the course is ment to stimulate students' interest in written and spoken language, to improve knowledge and communication in English.

TOPICS: Focus on language: Present Tense Simple/ Continuous, Vocabulary: Waste water management. Air pollution control. Recycling, waste disposal, radiation protection. Industrial hygiene. Animal agriculture. Environmental sustainability. Public health and environmental engineering law.

TEACHING LANGUAGE : English

KNOWLEDGE ASSESSMENT: exam answers 80%, theoretical and practical checking 20%

ASSESSMENT FORM: Checking

REFERENCES

Cerăceanu, Denisa-Costina, English for Biology Students, Editura Universitaria, Craiova, 2007

Gălățeanu –Firmoagă, Georgiana; Parks, Debora, Exerciții și teste de gramatică engleză, Editura Paralela 45, București, 2003.

Chilărescu, Mihaela; Paidos Constantin, Proficiency in English, Institutul european, 2001

Pawlowska, Barbara, Kempinski, Zbigniew, Teste de limba engleză, Editura Teora, București, 1997

Nedelcu, Carmen, English Grammar, Editura Universitaria, Craiova, 2004.

LINEAR ALGEBRA, ANALYTICAL AND DIFFERENTIAL GEOMETRY

CODE: D30IMAL107

CREDITS: 4

COURSE COORDINATOR: PhD. Prof. dr. Ing. Fănel IACOBESCU

YEAR / SEMESTER: Ist Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 2 hour Sof seminar

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES:

Knowing the methods of descriptive geometry

Knowing the representation techniques of geometric bodies, plane sections in geometric bodies.

TOPICS A.

Axiomatic bases

Elements of flat geometry

Elements of geometry in space

Conventions, notations, symbols

Point representation; applications

Representation of a straight line; applications

Straight lines on projection planes; applications

Straight lines on bisecting and lateral plane; applications

Particular positions of a straight line

The relative position of a straight line

Representation of a plan; General considerations

Traces of a plan; applications

Particular positions of a plan

Relative position of two planes; applications

The relative position of a straight line to a plane; applications

Perpendicular line to a plan; applications

Perpendicular planes; applications

Seminar theme and project:

Introduction to the technical drawing

General rules used for drawing technical designs

Projection systems

Representation of parts in view and section; theoretical notions

Representation of parts in view and section; applications

Quotation in industrial design; theoretical notions

Quotation in industrial design; applications

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to seminary works 20%

ASSESSMENT FORM: exam

REFERENCES

Precupetu P., Dale C. – Probleme de geometrie descriptiva cu aplicatii in tehnica, Editura Tehnica, Bucuresti 1987

Ene Alexandru Ion - Desen tehnic industrial, Editura Avrameanca, Craiova, 1993.

Nitulescu Th., Precupetu P. - Desen tehnic pentru constructia de masini, Bucuresti, Reprografia Universitatii, 1990.

Ivanceanu, T., etc. - Geometrie descriptiva si desen tehnic, Editura Didactica siPedagogica, Bucuresti, 1979.

PHYSICAL EDUCATION AND SPORTS

CODE: D30IMAL108

CREDITS: 3

COURSE HOLDER: Senior Lecturer, PhD, Daniel Ciocănescu

YEAR/SEMESTER: 1st year/ 1st semester

NUMBER OF HOURS PER WEEK: 1 hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: complementary

COURSE OBJECTIVES: Discipline aims at forming the theoretical, practical and methodical skills for individual or group practice for a healthy lifestyle; Awareness of students about the role and importance of practicing physical exercise.

THEMES: Athletics: school elements of jumping and running; Application paths combined with treadmills; Application paths combined with jumping elements; Application paths combined with equilibrium, escalation, climbing, etc. ; Sports games: volleyball, badminton; Bilateral games under similar competitions conditions.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Assessment through practical tests 80%, continuous assessment throughout semester 20%

ASSESSMENT TYPE: A/R

BIBLIOGRAPHY:

Barbu, D., (2010), Fotbal. Curs de bază pentru studenți. Craiova, Edit. Universitaria

Dragomir, M., Albină, A., (2006), Atletism în școală, Ed. Universitaria, Craiova

Dragnea, A. C-tin. și colab, (2006) - Educație fizică și sport – teorie și didactică - Editura FEST, București.

Ortanesu Dorina, (2008), Gimnastica – componentă a educației fizice școlare, Ed.Universitaria, Craiova

Orțănescu Dorina, 2008, Gimnastica- componentă a educației fizice școlare, Editura Universitaria Craiova

Rață G., Ghe. Rață (2008) – Educația fizică și metodică predării ei – Editura PIM, Iași.

Ungureanu, A. (2009) - Metodica educației fizice și sportului - Editura Universitaria, Craiova.

Țifrea, C., (2002) - Teoria și metodică atletismului - Editura Doreco, București.

CHEMISTRY

CODE: D30IMAL209

CREDITS: 5

COURSE HOLDER: Professor Cristina BĂBEANU

YEAR/SEMESTER: I/ II

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hour practical works

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES:

The course aims to study the main classes of organic compounds, the correlations between their structure and the main properties that determine and influence the pollution of the environment.

THEMES: Structure of organic compounds. Electronic structure and covalent bonds. Stereochemistry. Types of isomerism; Optical isomers, Characteristic aspects (thermodynamic, kinetic, mechanistic) of organic reactions. Hydrocarbons, Halogenated compounds Hydroxylic combinations: mono- and poly-ols: properties, representatives. Organic combinations of sulfur; Organic combinations of nitrogen. Amines, nitro-derivatives. Carbonyl combinations: aldehydes and ketones; Carboxylic acids: Functional derivatives of carboxylic acids.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Written examination 70% + continuous evaluation 20% + report 10%

ASSESSMENT TYPE: exam.

BIBLIOGRAPHY:

Avram M., 1995, Organic chemistry, vol. I, II, The Academy Publishing House, Bucharest

Iovu M., 1982, Organic chemistry, Didactical and Pedagogical Publishing, Bucharest.

Nenitescu C.D., 1988, Organic chemistry, vol. I, II, Didactical and Pedagogical Publishing, Bucharest.

Dragoi M, 2014, Experimental Organic chemistry, Sitech Publishing house, Craiova, Băbeanu C., Badea E., Glodeanu E., Marinescu G., 2000, Practical book on organic chemistry, Reprography of the University of Craiova.

Becker H., 1982, Organicum, Practical organic chemistry, Scientific and Encyclopaedic Publishing House Bucharest

APPLIED INFORMATICS

CODE: D30IMAL210

CREDITS: 4

COURSE COORDINATOR: PhD. Associate Professor ROȘCA DOINA

YEAR/SEMESTER: Ist Year / IInd Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES:

- The use of IT tools to solve problems in the field of specialization
- Making documents in a form as appropriate as possible for the purpose for which they were created
- Approaching, at various levels of complexity, computerized word processing, by way of example;
- Computer modeling of engineering processes;
- Processing and interpreting data using Excel spreadsheets; exemplifying the diversity of areas where Excel can be used

TOPICS:

Microsoft Word: Edit actions: create/save/open/close file; Page Setup: page margins, page sizes, page orientation, header and footer options; View, Print Preview. Move/copy/paste; Select text; Search and replace, move to document. View Document; Header and footer creation, ruler, toolbars. Insert into file: page numbers; Page break/section break; Footnotes; diagram, object, text box. Text Formatting: specifying all formatting attributes; Create lists numbered/with bullets/hierarchies; Applying curbs and shadows. Formatting text in columns, specifying TAB positions and guiding characters. Insert table, work with tables. Drawing toolbar; Inserting equations in the document.

Microsoft Excel: Excel Work Environment; data types; input and edit data. Format spreadsheets.

Working with data: sorting; query/filter; Creating links. Working with formulas. Usage of functions: time and date functions; Mathematical functions; Statistical functions; Financial functions.

Create and edit charts: the Wizard application for chart creation; Types of charts; Editing and formatting charts. Data analysis: pivot tables; scenarios/variants.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, final answers to Laboratory works 30%

ASSESSMENT TYPE: exam

REFERENCES:

Doina Roșca Informatică managerială, Editura Universitaria, Craiova, 2003

Mircea Băduț Informatica în management, Editura Albastră, Cuj apoca, 2003

Steve Johnson, Microsoft Office Word 2007, Editura Niculescu, 2008

SPECIAL MATHEMATICS

CODE: D30IMAL211

CREDITS: 5

COURSE HOLDER: Senior Lecturer, PhD, Cătălin ȘTERBEȚI

YEAR/SEMESTER: 1st year/ 2nd semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES: Knowledge of fundamental problems of differential and integral calculus. Explaining the derivation and integral concepts and their practical interpretation; Knowledge of processes and phenomena described by equations; The use of examples of mathematical models of evolutionary processes in various fields (leading to the notion of differential equation); The perception of mathematics as a method of understanding certain disciplinary engineering processes in order to obtain a useful and performing work tool; Understanding the applicative character of mathematics in the cutting-edge areas of current technology

THEMES: Differential and integral calculation. Examples of mathematical models of evolutionary processes from various domains, leading to the notion of differential equation (the phenomenon of population growth of a species, radioactive disintegration, a mathematical model of epidemics, the harmonic oscillator). Fundamental results regarding the existence and uniqueness, local or global, of the solution of a Cauchy problem. Existence and uniqueness for differential equations of the first order. Differential equations of first order solvable by quadrature (with separable variable, homogeneous, linear of first order, Bernoulli, Riccati, Lagrange and Clairaut). The study of linear differential equations and linear differential equation systems

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 70%, final answers for workshops 10%, continuous assessment throughout semester 10%, activities such as homework/ essays/ papers/projects 10%.

ASSESSMENT TYPE: verification

BIBLIOGRAPHY:

Viorel Barbu, Ecuații diferențiale, Editura Junimea, Iași, 1985
Trandafir Bălan, Matematici speciale. Curs și culegere de probleme, Reprografia Universității din Craiova, 1980
Cătălin Șterbeți, Matematici speciale, Editura Reprograph, Craiova, 2007
George Turcitu, Cătălin Șterbeți, Matematici speciale. Analiză complexă și ecuații diferențiale, Editura Radical, 2001
Stan Chiriță, Probleme de matematici superioare, Editura Didactică și Pedagogică, București, 1989

LINEAR ALGEBRA, ANALYTICAL AND DIFFERENTIAL GEOMETRY

CODE: D30IMAL212

CREDITS: 4

COURSE COORDINATOR: PhD. Prof. Dr. Ing. Fănel IACOBESCU

YEAR / SEMESTER: Ist Year / II Semester

HOURS PER WEEK: 2 hours of course, 1 hour seminar, 1 hour project

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES:

Knowing the methods of descriptive geometry

Knowing the representation techniques of geometric bodies, plane sections in geometric bodies.

TOPICS

A. COURSE

Method of changing projection planes; applications

Rotation method. Overlapping plans; applications

Intersections of geometric bodies with lines; applications

Intersections between geometric bodies; applications

Polyhedra development; applications

Rotary bodies development; applications

Problems specific to the field of specialization

B. SEMINAR and PROJECT

Quotation in industrial design

Representation, quotation and marking of threads ; applications

Noting the materials

Overall drawing

Representation and quotation of geometric bodies specific to the field

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 80%, final answers to seminary works 20%

ASSESSMENT FORM: exam

REFERENCES

Precupetu P., Dale C. – Probleme de geometrie descriptiva cu aplicatii in tehnica, Editura Tehnica, Bucuresti 1987

Ene Alexandru Ion - Desen tehnic industrial, Editura Avrameanca, Craiova, 1993.
Nitulescu Th., Precupetu P. - Desen tehnic pentru constructia de masini, Bucuresti, Reprografia Universitatii, 1990.
Ivanceanu, T., etc. - Geometrie descriptiva si desen tehnic, Editura Didactica si Pedagogica, Bucuresti, 1979.

BOTANY AND PLANT PHYSIOLOGY

CODE: D30IMAL213

CREDITS: 5

COURSE HOLDER: Lecturer, PhD, Buse Dragomir Luminita

YEAR/SEMESTER: I/II

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: Knowledge and interpretation of the physiological processes of plant organisms and acquiring practical skills for the experimental demonstration of the main vital plant manifestations.

THEMES: Introduction to vegetal physiology. Plant cell physiology. Water exchange between the plant cell and the external environment. Plant water regime (The role of water in plants. Absorption and transport of water in plants. Plant water elimination. Methods of studying plant transpiration). Mineral nutrition (Absorption of mineral elements by plants. Transportation, accumulation and excretion of substances by plants, Physiological role of mineral elements in plants).

Carbon Nutrition - General Notions. Photosynthesis - mechanism, influence of external and internal factors, Chemosynthesis, heterotrophic nutrition, mixedotrophy nutrition. Aerobic and anaerobic respiration. Plant growth: growth of plant organs, regulating growth substances, influence of external factors. Development: Development cycle characteristics, influence of external factors. Resting: seminal and bud rest. Plant movements.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: answers to exam course 70 % and answers to Laboratory works 30 %

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Boldor O. and others, 1982. Plant Physiology. Didactical and Pedagogical Publishing. Bucharest.

Boldor O. and others, 1983. Plant Physiology-course practical. Didactical and Pedagogical Publishing. Bucharest..

Burzo I. and others, 1999. Plant physiology of culture. vol. I. The Editorial Poligraphic Science Enterprise. Chişinău.

Buşe Dragomir Luminiţa., 2009. Vegetal physiology. Sitech Publishing. Craiova

Buşe Dragomir Luminiţa., 2011. General plants physiology. Sitech Publishing. Craiova
Miliţă C. and others, 1982. Vegetal physiology. Didactical and Pedagogical Publishing. Bucharest.

Peterfi Şt., Sălăgeanu N., 1972. Plant physiology. Didactical and Pedagogical Publishing. Bucharest.

Simeanu V., Olimid V., 1990. Practical Guide to Plant Physiology. Reprography University of Craiova.

Şumălan R., 2006. Vegetal physiology. Eurobit Publishing. Timisoara.

ECOLOGY

CODE: D30IMAL214

CREDITS: 5

COURSE HOLDER: Senior Lecturer, PhD, Dragoș Mihail ȘTEFĂNESCU

YEAR/SEMESTER: first year/ second semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES: Acquiring information regarding the structure and functions of supraindividual biological systems (populations, communities and the entire biosphere). Understanding the structure and functioning of (ecosystem energy, minerals circulation and self-control) natural ecosystems.

THEMES: Population - characteristics, heterogeneity, spatial structure. Population - rates: natality, mortality, natural growth rate; carrying capacity of the environment; the dynamics of a population's size; exponential and logistic growth of a population; self-regulation - adjustment mechanisms. Ecosphere system - Ecosystem structure (toposfer and biosphere), global circuit of matter, turnover rate, turnover time, global biogeochemical cycles, biogeochemical circuit of carbon.

LANGUAGE OF INSTRUCTION: romanian

KNOWLEDGE ASSESSMENT: exam answers (60% course + 30% practical course) and continuous assessment throughout semester (10%).

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Botnariuc N., Vădineanu A., „ Ecologie,, Ed. Did. și Ped., București 1982

Krebs C. J. „Ecology: The Experimental Analysis of Distribution and Abundance 6th ed.

Benjamin Cummings, San Francisco 2009

Molles M. C., Ecology- Concepts& Applications,, Mc Graw-Hill Publishing Company, 2008

Pârvu C., „ Ecologie generală,, Ed. Tehnică, București 1999

Stugren B., „ Bazele ecologiei generale,, Ed.: Științifică și Enciclopedică, București 1982

Ștefănescu, D. M. – Elemente de ecologie generală (ecosistemul) – Editura Sitech, 2015.

Ștefănescu, D. M. - Elemente de ecologie generală (populația și comunitatea) – Editura Sitech, 2014.

ENGLISH II

CODE: D30IMAL215

CREDITS: 2

COURSE COORDINATOR: Ph.D, Senior Lecturer, Bărbuceanu Costina Denisa

YEAR / SEMESTER: 1st Year / 2nd Semester

HOURS PER WEEK: 2 hours of seminar

NUMBER OF WEEKS: 14

COURSE TYPE: complementary

COURSE OBJECTIVES: Improving the ability to understand spoken English and specific vocabulary texts written in English; using a reference material especially designed for students of the Faculty of Horticulture , but also for those who want to learn ESP vocabulary in context. Practice of important vocabulary and grammar practice, tackle four skills, reading,

listening, speaking and writing, explain specific vocabulary, and grammar lessons which are thought in detail, with exercises that give students useful practice in this particular area. True or false exercises, gap filling, matching the words with their definition, translations, in context dialogues and lessons with key bolded words are really selected for students to understand and use it correctly. Deepening the main grammar rules of English in a modern way, problematic, requiring students to learn but also to think. Consolidation of skills to dialogue, describe, report. Emphasizing the practical nature of learning, the course is ment to stimulate students' interest in written and spoken language, to improve knowledge and communication in English.

TOPICS: Focus on language: Past Tense Simple/ Continuous, Vocabulary: The environmental impact of proposed construction projects. The effect of technological advances on the environment. Hazardous-waste management. Advise on treatment and containment. Municipal water supply and industrial wastewater treatment systems. The effects of acid rain, global warming, ozone depletion, water pollution and air pollution from automobile exhausts and industrial sources.

TEACHING LANGUAGE : English

KNOWLEDGE ASSESSMENT: exam answers 80%, theoretical and practical checks 20%

ASSESSMENT FORM: Checking

REFERENCES

Cerăceanu, Denisa-Costina, English for Biology Students, Editura Universitaria, Craiova, 2007

Gălățeanu –Firnoagă, Georgiana; Parks, Debora, Exerciții și teste de gramatică engleză, Editura Paralela 45, București, 2003.

Chilărescu, Mihaela; Paidos Constantin, Proficiency in English, Institutul european, 2001

Pawlowska, Barbara, Kempinski, Zbigniew, Teste de limba engleză, Editura Teora, București, 1997

Nedelcu, Carmen, English Grammar, Editura Universitaria, Craiova, 2004.

PHYSICAL EDUCATION AND SPORTS

CODE: D30IMAL216

CREDITS: 3

COURSE HOLDER: Senior Lecturer, PhD, Daniel Ciocănescu

YEAR/SEMESTER: 1st year/ 2nd semester

NUMBER OF HOURS PER WEEK: 1 hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: complementary

COURSE OBJECTIVES: Discipline aims at forming the theoretical, practical and methodical skills for individual or group practice for a healthy lifestyle; Awareness of students about the role and importance of practicing physical exercise.

THEMES: Gymnastics: Front and Band Exercises; Gymnastics Aerobics / Fitness; Application trails combined with treadmills; Application paths combined with equilibrium, escalation, climbing exercises; Sports games: basketball; Sports game: football; Bilateral games under similar competition conditions.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Assessment through practical tests 80%, continuous assessment throughout semester 20%

ASSESSMENT TYPE: A/R

BIBLIOGRAPHY:

- Barbu, D., (2010), Fotbal. Curs de bază pentru studenți. Craiova, Edit. Universitaria
- Dragomir, M., Albină, A., (2006), Atletism în școală, Ed. Universitaria, Craiova
- Dragnea, A. C-tin. și colab, (2006) - Educație fizică și sport – teorie și didactică - Editura FEST, București.
- Ortanesu Dorina, (2008), Gimnastica – componentă a educației fizice școlare, Ed.Universitaria, Craiova
- Orțănescu Dorina, 2008, Gimnastica- componentă a educației fizice școlare, Editura Universitaria Craiova
- Rață G., Ghe. Rață (2008) – Educația fizică și metodică predării ei – Editura PIM, Iași.
- Ungureanu, A. (2009) - Metodica educației fizice și sportului - Editura Universitaria, Craiova.
- Țifrea, C., (2002) - Teoria și metodică atletismului - Editura Doreco, București.

2ST YEAR OF STUDY

BIOLOGY II – MICROBIOLOGY

CODE: D30IMAL317

CREDITS: 5

COURSE COORDINATOR: Professor PhD Daniela POPA

YEAR / SEMESTER: IInd Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: Specialized discipline

COURSE OBJECTIVES: Learning morphological, metabolic and reproduction features of important microorganisms (viruses, bacteria, molds) in environmental protection domain.

TOPICS: Characterization of the major groups of microorganisms: viruses, bacteria, yeasts, molds. Chemical composition of microorganisms. Enzymatic equipment of bacteria and yeasts. Nutrition of microorganisms; Forming the skill to execute and interpret microscopic preparations.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: Answers to exam 35%, Active participation in courses 10%, Written assessment (during the semester): questionnaire 10%, Final written assessment (in the exams session) 35%, Active participation in seminars 10%.

ASSESSMENT FORM: exam

REFERENCES

1. Microbiologie generală, Popa Aurel, Popa Daniela, Dragomir Felicia, Ed. Universitaria, Craiova, 2008;
2. Mediile naturale ale microorganismelor, Popa Aurel, Popa Daniela, Dragomir Felicia, Ed. Universitaria, Craiova, 2002;
3. Microbiologie practică, Dragomir Felicia, Popa Daniela, Ed. Universitaria, Craiova, 2008.

MECHANICAL ENGINEERING

CODE: D30IMAL318

CREDITS: 4

COURSE HOLDER: Associate Professor, PhD, Adrian ROȘCA

YEAR/SEMESTER: IInd Year / Ist Semester

NUMBER OF HOURS PER WEEK: 2 hours course, 1 hour practical works

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Knowledge of concepts, theories and basic methods of Mechanics and Materials

Strength for understanding the technological issues needed to operate engineering processes within specific equipment for environment protection engineering in agriculture. Knowledge and application of basic engineering principles and methods of Mechanical Engineering (specific for disciplines Mechanics and Materials Strength) to improve understanding the functional and constructive issues within specific equipment for environment protection engineering in agriculture.

THEMES: Mechanics. Introduction: Classification of mechanical macroscopic bodies; Mechanics divisions; Principles of mechanics. Statics: Free material point; Center of gravity; Friction laws; Technical applications of statics. Kinematics: Trajectory, speed, acceleration; Angular speed and acceleration; Particular movements of material point; rectilinear motion of the material point; Rotational movement of the rigid body; Spur gear analysis movement. Dynamics: Mechanical work, energy and power; Kinetostatics of mechanisms with cylindrical spur gear.

Materials Strength. Traction: External and internal forces; Reaction forces; Simple and complex solicitations; Unitary stress; Deformations and displacements; Relationship between tensile stresses and deformations; Real and conventional characteristic curve; Hooke's law. Bending: Effort diagrams in straight bar; Defining the bending efforts in straight bar section; Signs convention; Relations between efforts in straight bended bars; Analytical effort diagrams for straight bars; Dimensional sizing for bended bars; Bended bars deformations. Torsion: Torsional torque calculation; Unitary stresses and deformations in the circular bar; Torsion for thin-wall tubular bars.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: answers to colloquium 50%; final answers to periodical Laboratory Tests 40%; Laboratory Notebook 10%.

ASSESSMENT TYPE: colloquium

BIBLIOGRAPHY:

Buzdugan GH., 1980. Materials Strength. Technical Publishing House, Bucharest.

Voinea R., 1984. Mechanics. Didactical and Pedagogical Publishing House, Bucharest.

Roșca Adrian, 2010. Mechanics. Materials Strength. Machines Elements. Universitaria Publishing House, Craiova.

Roșca Adrian, 2016. Materials Strength. Laboratory Support.

COMPUTER AIDED GRAPHICS

CODE: D30IMAL319

CREDITS: 4

COURSE COORDINATOR: PhD. Associate Professor ROȘCA DOINA

YEAR/SEMESTER: Ist Year / Ist Semester

HOURS PER WEEK: 2 hours of course, 1 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES:

- using the AutoCAD Graphics Environment
- to present the theoretical principles, the general notions for engineering graphic representations
- to create students the necessary skills to generate two-dimensional (three-dimensional) models for the correct transposition of space objects on the drawing.

TOPICS:

- basic elements; presentation of AutoCAD interface; configuration and use of drawing tools.
- coordinate systems; specifying distances by coordinates; interpreting cursor modes and explaining prompts.
- setting up a working surface; use AutoCAD modes as drawing tools.
- selection of objects; editing using control points.
- presentation of graphical menu Draw, using Drawing Commands
- presentation of graphical menu Modify - editing commands
- hatching; adding text; listing the drawings
- organization of objects with blocks and groups
- managing Layers and Blocks; modeling and creating 3D images

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 70%, final answers to Laboratory works 30%

ASSESSMENT TYPE: exam

REFERENCES:

Bazele proiectării asistate de calculator, Note de curs, Roșca Adrian Sorin, Reprografia Universității, 2001

Aplicații în Mechanical Desktop, Roșca Adrian Sorin, Editura UNIVERSITARIA, Craiova, 2005

AutoCAD pentru ingineri, Ionel Simion, Editura TEORA, 2007

AutoCAD 2006, George Omura, Editura TEORA, Seria EXPERT, 2007

AutoCAD 2007, David Frey, Editura TEORA, 2007

Documentație de firmă Autodesk

WASTE MANAGEMENT

CODE: D30IMAL320

CREDITS: 5

COURSE HOLDER: Senior Lecturer, PhD, Gilda - Diana BUZATU

YEAR/SEMESTER: 2nd year/ 1st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: Theoretical and practical training of students in order to know and observe the strategic principles and objectives regarding waste management, norms and legislative acts, as well as the acquis communautaire. It is also intended to stimulate the

development of an ecological attitude based on the need for selective waste collection and recycling in order to protect natural resources and respect the concept of sustainable development.

THEMES: The purpose, principles and strategic objectives of integrated waste management. Classification and characteristics of the waste. Collection and recycling of waste paper, glass and plastics. Collection and recycling of textile waste, packaging, wood materials and organic waste. Collection and recycling of ferrous and non-ferrous materials, as well as of rubber materials. Managing industrial waste recycled in agriculture, sewage sludge, septic liquids and slaughterhouse waste. Managing special waste streams. Waste transport. Transfer stations. Waste storage. Waste composting. Other waste treatment processes.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 70%, final answers to practical laboratory works - elaboration of statistical surveys in the field of waste management 30%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Antonescu N.N., Antonescu N., Stanescu D.- P., Popescu L. L., 2006. Urban Waste Management and Treatment - Regional Governance. Matrixrom Publishing, Bucharest.

Bold O.V., Mărăcineanu G.A., 2003. Urban and industrial solid waste management. Matrixrom Publishing, Bucharest.

Gavrilescu Elena, Buzatu Gilda-Diana, 2014. Waste management. Sitech Publishing, Craiova.

Popescu I., Atudorei A., 2002. Urban waste management. Matrixrom Publishing, Bucharest.

Ungureanu C., Oprisa-Stanescu P.D., Ionel I., Gruescu V., 2006, Integrated municipal waste management, Politehnica Publishing, Timisoara.

Voicu Ghe., 2007. Equipment for communal household and greening of localities. Matrixrom Publishing, Bucharest.

TOPOGRAPHY I

CODE: D30IMAL321

CREDITS: 5

COURSE HOLDER: Associate Professor, PhD, CĂLINA Jenica

YEAR/SEMESTER: 2nd year / 3rd semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours field work

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Knowledge of the elements of base Topography. Reading and use of topographic maps. Basic competences in planimetric survey. Ability to use main surveying schemes for realising engineering and environmental protection projects. Identifying the advantages and disadvantages of each alternative solution.

THEMES: Basic topography and general concepts; Measurement units in topography. The topographic circle and angular functions. Orientations and axis of coordinates. Marking and signaling points. Surveying Instruments. Measure of distances and angles. The errors in Topography. Planimetric surveying methods: Closed traverse; Closed-loop traverse; Detailed survey; Abscissas and ordinates method. Intersection.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 50%, periodical assessment through practical tests 20%, continuous assessment throughout semester 10%, activities such as homework/papers 20 %.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Calinovici I., Călina Jenica, 2008. Topography. Practical works. Mirton Publishing, Timișoara.

Călina A., și colab., 2010. General and engineering topography. Second Edition, Sitech Publishing, Craiova.

Călina Jenica și colab., 2001. General topography with agricultural cadaster elements. Reduta Publishing, Craiova

Călina Jenica și colab., 2012. Practice notebook for Cadastre and Land Measurements. Universitaria Press, Craiova.

Edited by the Council of the Faculty of Geodesy, 2002. Land measurements – fundamentals. vol.I-III. Matrix Rom Publishing, Bucharest.

Ritt C., Ciolac Valeria., Ciotlăuș Ana, 2001. Topography and technical drawing. Mirton Publishing, Timișoara.

FLUID MECHANICS

CODE: D30IMAL322

CREDITS: 4

COURSE HOLDER: Associate Professor, PhD, Adrian ROȘCA

YEAR/SEMESTER: IInd Year / Ist Semester

NUMBER OF HOURS PER WEEK: 2 hours course, 1 hour practical works, 1 hour project

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Knowledge of concepts, theories and basic methods of Fluid Mechanics for understanding the technological issues needed to operate general engineering processes / facilities within specific equipment for environment protection engineering in agriculture in order to prevent and to reduce the pollution phenomena. Knowledge and application of basic engineering principles and methods of Fluid Mechanics to improve understanding the technological and constructive issues within specific equipment for environment protection engineering in agriculture.

THEMES: Course: General consideration concerning Fluid Mechanics: Physical properties of ideal and real fluids. Fluid Hydrostatics: Considerations hydrostatic pressure; Hydrostatics basic equation of the in the terrestrial gravitational field; Pascal's principle; Euler equation; Hydrostatic force generated by the pressure on flat and curved surfaces. Fluid Dynamics: General hydrodynamics; Classification and defining of fluids movement; Continuity equation in integral form; Fluids flowing in pipes and channel: Basic equation of permanent flowing in pipes and channel. Laminar and turbulent flowing in circular pipe; Fluid leakage through the orifices, nozzles and overflow; Timing drain for reservoir with variable level; Channel optimal cross-section; Silt transport (transport of solid material); Permeability; Fluids flow through porous media. Hydraulic machines: Classification and defining hydraulic machines; Operating regimes for centrifugal pumps; Volumic pumps; Fans. Air hydrodynamics: Air flow in pipes; Air flow equations. Pressure and frictional losses. Filtration considerations. Functional dust filters characteristics; Types of filters; Smell sources; Air deodorizing systems.

Practical works: Fluids parameters measurement (temperature, pressure / vacuum, gas velocity). Bunker dis-charging using pneumatically shock waves. Storing and transporting ISCIR vessels for pressurized gas. Fluids filtration through porous adsorbent powder.

Project: Pumps functional parameters (Q, H, NPSH); Pump calculation for free level aspiration, lower than pump level; Pump calculation for free level aspiration, above than

pump level; Pump calculation for closed tank aspiration, when inside pressure is different from the atmospheric pressure.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 50%; final answers to periodical Laboratory Tests 30%; Laboratory Notebook and Project Notebook 20%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Florea J., Panaitescu V., 1979. Fluid Mechanics. Didactical and Pedagogical Pubsh. House, Bucharest.

Podani M., Dinu G., 2000. Fluid Mechanics. Publisher Sphinx.

Roșca Adrian, 2010. Fluid Mechanics.Course. Universitaria Publishing House, Craiova.

Roșca Adrian, 2010. Fluid Mechanics. Laboratory Guidance. Universitaria Publishing House, Craiova.

Roșca Adrian, 2015. Fluid Mechanics. Project Support.

ORGANIZATION AND ESTABLISHMENT OF THE TERRITORY

CODE: D30IMAL323

CREDITS: 3

COURSE HOLDER: Associate professor, PhD, Dorin Constantin COSTEA

YEAR/SEMESTER: II nd year/ III rd semester

NUMBER OF HOURS PER WEEK: 2 hours course, 1 hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Transfer of knowledge on the development of territorial operational planning under given conditions and efficient and optimal systematization of the agricultural territory, rural and national areal.; Legal awarness on land use; Interpretation of mechanisms by which natural and anthropic factors influence the territorial organization and systematization; Development of capacity to prepare documentation on land use, organization and systematization..

THEMES: Territorial organization and systematization – introductory basis; Structure of agricultural real estate in Romania. Classification of agricultural real estate in Romania. General Land Registry. Use Categories; Particularities of territorial organization depending on business branches; Management of forrestry and real estate, development of rural areas; Components of rural infrastructure; Territorial organization in horticulture farms; Organization and systematization of vine and fruit growing areas, hayfields and grazing lands. Rural tourism; Durable development – basics; action plans; Urban land structure. Urban development metrics. Urban planning; Organization and systematization of green areas.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: written assessment 75%, activities such as homework/ essays/ papers/ translations/ projects 25 %.

ASSESSMENT TYPE: colloquium

BIBLIOGRAPHY:

Alecu I., 2001. Managementul exploatatilor agricole, Editura Ceres, Bucuresti.

Bold I., Crăciun A., 2003. Organizarea teritoriului, Editura Mirton, Timisoara,

Brumar Dragomir, 2006. Organizarea și amenanșarea teritoriului, Editura Sitech,Craiova,

Costea Dorin, 2015. Organizarea și sistematizarea teritoriului– suport de de curs,

Universitatea din Craiova

Petrescu N, Ion Magdalena ,2009. Amenajarea, organizarea si sistematizarea teritoriului, Ed Bibliotheca, Târgoviște.

PHYSICAL EDUCATION III

CODE: D30IMAL325

CREDITS: 1

COURSE HOLDER: Senior Lecturer, PhD, Daniel Ciocănescu

YEAR/SEMESTER: 2nd year/ 1st semester

NUMBER OF HOURS PER WEEK: 1 hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: complementary

COURSE OBJECTIVES: Discipline aims at forming the theoretical, practical and methodical skills for individual or group practice for a healthy lifestyle; Awareness of students about the role and importance of practicing physical exercise.

THEMES: Athletics: Long jump technique; Utilitarian-applicative skills; Exercises for the development of general strength; Exercises for speed development; Exercises for the development of coordination capacity; Sports games: handball, table tennis; Bilateral games under similar competitions conditions.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Assessment through practical tests 80%, continuous assessment throughout semester 20%

ASSESSMENT TYPE: A/R

BIBLIOGRAPHY:

Barbu, D., (2010), Fotbal. Curs de bază pentru studenți. Craiova, Edit. Universitaria

Dragomir, M., Albină, A., (2006), Atletism în școală, Ed. Universitaria, Craiova

Dragnea, A. C-tin. și colab, (2006) - Educație fizică și sport – teorie și didactică - Editura FEST, București.

Ortanescu Dorina, (2008), Gimnastica – componentă a educației fizice școlare, Ed. Universitaria, Craiova

Orțanescu Dorina, 2008, Gimnastica- componentă a educației fizice școlare, Editura Universitaria Craiova

Rață G., Ghe. Rață (2008) – Educația fizică și metodică predării ei – Editura PIM, Iași.

Ungureanu, A. (2009) - Metodica educației fizice și sportului - Editura Universitaria, Craiova.

Țifrea, C., (2002) - Teoria și metodică atletismului - Editura Doreco, București.

BIOLOGY II - ZOOLOGY

CODE: D30IMAL426

CREDITS: 5

COURSE HOLDER: Senior Lecturer, PhD, Anda Felicia BABALEAN

YEAR/SEMESTER: 2nd year/ 2nd semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical classes

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: The capacity to understand the geological evolution of the Romanian fauna, the ways of deterioration of fauna; the knowledge of the protection measures for different faunistic elements.

THEMES: 1. The groups of invertebrates and vertebrates: Protozoa, Porifera, Cnidaria, Ctenophora, Vermes (Platyhelminthes, Annelida, Nematelminthes), Mollusca, Arthropoda, Echinodermata, Cyclostomata, Pisces, Amphibia, Reptilia, Aves, Mammalia – the ground plan and general features, diversity, biology, importance and interactions with the human activities. 2. Fauna – introductory elements, the spatial distribution of the fauna in Romania. 3. The ways of constitution of the faunas – species and speciation; the geological evolution of the Romanian fauna – the cuaternar glaciation. 4. The anthropic factor in changing and deteriorating the fauna 5. Categories of faunistic elements; protected faunistic elements. 6. The role of the natural parks and reserves; measures and laws for animals, habitats and environmental protection. 7. The parasitic pollution.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 50%, continuous assessment throughout semester 50%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Babalean, A., 2001. Zoologia nevertebratelor – noțiuni practice, Ed. Universitaria Craiova

Babalean A, Bălescu C., 2011. Biologie animală (Zoologie), SITECH

Bălescu C., Orzață N., 2007. Elemente de zoologia vertebratelor, SITECH

Bănățean-Dunea I., Corpade A-M., Grozea A., Nicolin A., Corpade C., Osman A., Bostan C., Crista N. G. 2015. Ghid sintetic de monitorizare a speciilor comunitare de pești din România, Ed. Casa Cărții de Știință Cluj Napoca

Biriș I. A., Apostol B., Leca L., Lorentz A., Marin G., Merce O., Teodosiu M., Drăgulescu C., Crăciunaș M., Frink J. P., Matis A., Szabó A., Deák G., Ciubuc F., Frim A., Olteanu M., Török Z. C. 2013. Ghidul sintetic de monitorizare pentru habitatele de interes comunitar: tufărișuri, turbării și mlaștini, stâncării, păduri. Ed. Universitas, Petroșani.

Chiriac, E., Udrescu, M.: Ghidul naturalistului în lumea apelor dulci

Firă, V., Năstăsescu, M., 1977. Zoologia nevertebratelor, 1977, EDP, București

Ionescu O., Cazacu C., Pașca C., Sîrbu G., Attila Ș., Ionescu G., Adamescu M., Popa M., Chiriac S., Deju R., Jurj R., Cotovela A., Mirea I., Pop M. 2013. Ghid sintetic de monitorizare pentru speciile de mamifere de interes comunitar din România, Editura Silvică.

Iorgu Ș. I. (coordonator). 2015. Ghid sintetic pentru monitorizarea speciilor de nevertebrate de interes comunitar din România.

Mihăilescu S., Strat D., Cristea I., Honciuc V. 2015. Raportul sintetic privind starea de conservare a speciilor și habitatelor de interes comunitar din România. Editura Dobrogea, Constanța.

Török Z., Ghira I., Sas I., Zamfirescu Ș. 2013. Ghid sintetic de monitorizare a speciilor comunitare de reptile și amfibieni din România. Ed. Centrul de Informare Tehnologică Delta Dunării Tulcea.

Vlaicu M., Csaba J., Dragu A., Borda D., Goran C., Szodoray-Parádi F., Năstase-Bucur R., Nițu E., Murariu D. 2013. Ghid pentru monitorizarea stării de conservare a peșterilor și speciilor de lilieci de interes comunitar din România. Ed. Advertising București.

MECHANICAL ENGINEERING

CODE: D30IMAL427

CREDITS: 3

COURSE HOLDER: Associate Professor, PhD, Adrian ROȘCA

YEAR / SEMESTER: IInd Year / IInd Semester

HOURS PER WEEK: 2 hours course, 1 hour practical works

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Knowledge and application of basic engineering principles and methods of Mechanical Engineering (specific for discipline Machines Elements) to improve understanding the techno-logical and constructive issues needed to operate general engineering processes within specific equipment for environment protection engineering in agriculture.

Knowledge the principles for dimensioning and verification of mechanical assemblies and mechanical transmission components within specific equipment for environment protection engineering in agriculture.

THEMES: Consideration concerning of dimensional and shape accuracy of constituting parts in mechanical transmission: Tolerances and fits; Surface roughness. Permanent assemblies: Welded joints; Riveted joints.

Removable assemblies: Threaded; Nuts; Shaped. Friction transmission: Belt drive transmission; Geometry of the V-belt transmission; Calculation of V-belt transmission. Spur gear transmission: Classification; Materials for the gears making; Geometry of cylindrical gears; Basic relations for spur gear; Spur gear basic law; Rack reference; Tooth profile; Gears damage; Load cyclogram characteristics; Forces in cylindrical spur gears; Sizing and verification calculation of cylindrical spur gears; General computing for inclined toothed spur gear. Axles and shafts: General; Materials; Shaft resistance calculi. Bearings: Classification; Materials for bearings; Sliding bearings; Rolling bearings; Bearings symbolization; Dynamic load capacity; Equivalent dynamic load. Couplings: Classification couplings; Couplings choosing calculus.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 50%; final answers to periodical Laboratory Tests 40%; Laboratory Notebook 10%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

GAFIȚEANU M., 1981. Machines Elements. Vol. I, II, Technical Publishing House, Bucharest.

ROȘCA ADRIAN, 2010. Mechanics. Materials Strength. Machines Elements. Universitaria Publishing House, Craiova.

ROȘCA ADRIAN, 2010. Machines Elements. Laboratory Guidelines. Universitaria Publishing House, Craiova.

ENVIRONMENTAL CHEMISTRY

CODE: D30IMAL428

CREDITS: 4

COURSE HOLDER: Lecturer PhD. Nicoleta CIOATERĂ

YEAR/SEMESTER: 4th year/ 2st semester

NUMBER OF HOURS PER WEEK: Course – 2 hours/Laboratory – 1 hours

NUMBER OF WEEKS: 14

COURSE TYPE: fundamental

COURSE OBJECTIVES: Students will be able to approach and explain the complex notions and phenomena specific to environmental chemistry.

- Explaining and interpreting a problem of environmental chemistry in clear terms.

- Identification of the processes, concepts and phenomena underlying the specific methods and instrumental analyzes and measures specific to the field of Environmental Science.
- Explaining a concept / phenomenon involved in environmental chemistry using the related field instruments (physical, geology, biology, ecology, mathematics).
- Recognize the scientific significance of the magnitudes, phenomena and processes in environmental chemistry and the size orders associated with the values of the usual concentrations.
- Processing data acquired during the investigation process to solve specific concrete situations specific to the environmental chemistry study program.
- Critical comparison of data acquired, analyzed and processed with theoretical estimates or data provided by the literature.
- Elaboration of data sheets comprising: experimentally measured values or theoretically calculated values, calculation of errors, graphical representation, interpretation of results.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: 40% Written evaluation; 30% project and 30% portfolio.

ASSESSMENT TYPE: colloquy

BIBLIOGRAPHY:

David C. Powers et al, Analysis of Natural Buffer Systems and the Impact of Acid Rain, J. Chem. Education 82 (2) 2005

Frank M. Dunnivant, Environmental Laboratory Exercises for Instrumental Analysis and Environmental Chemistry, Wiley-Interscience, 2004.

Jorge G. Ibanez et al, Environmental Chemistry - Fundamentals, Springer Science, 2007.

Ronald A. Hites, Elements of Environmental Chemistry, Wiley-Interscience, 2007.

Stanley E. Manahan, Environmental Chemistry 7th Edition, CRC Press LLC, 2000.

Metode STAS în vigoare.

TOPOGRAPHY II

CODE: D30IMAL429

CREDITS: 5

COURSE HOLDER: Associate Professor, PhD, CĂLINA Jenica

YEAR/SEMESTER: 2nd year / 4rd semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours project

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Basic knowledge and competence about the survey and representation of the territory. Measuring level differences and calculating points altitudes; Elaboration of quoted plans and drawing of level curves; Integration of specific topographical problems in environmental engineering protection projects. Identification of alternative solutions.

THEMES: Desing- Surveying plan -Area calculation. Detachment of surfaces. Geometric leveling: scheme, instrumentation, accuracy, methodes. Leveling of the surfaces. Methods of relief representation. Slopes. Relief forms. Elements of the topographic and cartographic drawing.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 40%, periodical assessment through practical tests 5%, continuous assessment throughout the semester 5%, activities such as homework/projects 50 %.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Calinovici I., Călina Jenica, 2008. Topography. Practical works. Mirton Publishing, Timișoara.

Călina A., și colab., 2010. General and engineering topography. Second Edition, Sitech Publishing, Craiova.

Călina Jenica și colab., 2001., General topography with agricultural cadaster elements. Reduta Publishing, Craiova

Călina Jenica și colab., 2012. Practice notebook for Cadastre and Land Measurements. Universitaria Press, Craiova.

Edited by the Council of the Faculty of Geodesy, 2002. Land measurements – fundamentals. vol.I-III. Matrix Rom Publishing, Bucharest.

Ritt C., Ciolac Valeria., Ciotlăuș Ana, 2001. Topography and technical drawing. Mirton Publishing, Timișoara.

SOIL SCIENCE

CODE: D30IMAL430

CREDITS: 3

TITULAR OF THE COURSE: Associate Professor PhD. Ana Maria DODOCIOIU

YEAR / SEMESTER: II/II

HOURS PER WEEK: 2 hours course, 2 hours practical works

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Knowledge of formation, composition and evolution of soils, soil and development of human society, preserving soil quality, objective necessity of increasing agricultural production.

THEMES: Soil-definition, role and importance, Pedogenetic factors of soil formation, Formation and composition of mineral and organic part of the soil, Formation and composition of the soil profile, Classification of soils in our country, The main soil types, Soil physics, Hydro-physical properties, Soil colloids, soil solution and its reaction, Soil flora and fauna, Nutrient cycle in the soil.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE EVALUATION: answers to exam 80%, final answers to Laboratory works work 20%

EVALUATION FORMS: exam

BIBLIOGRAPHY

Blaga Gh., et al., 2005- Stiinta solului, Editura Academica, Cluj-Napoca.

Florea N., Dumitru M., 2002- Stiinta solului in Romania.Editura Cartea pentru toti , Bucuresti

Ana Maria Dodocoiu, M. Susinski, R. Mocanu, 2009 – Agrochimie, Editura Sitech, Craiova.

Marinca C. et al., 2009 – Fertilitatea solului si relatiile sale cu sistemul agricol din, EdituraMirton, Timisoara.

Gabriela Neata, 2002- Agrochimie si biologia solului, Editura Printech, Bucuresti.

FUNDAMENTALS OF ENVIRONMENTAL PROTECTION

CODE: D30IMAL431

CREDITS: 3

COURSE HOLDER: Senior Lecturer, PhD, Gilda - Diana BUZATU

YEAR/SEMESTER: 2nd year/ 2nd semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours seminar

NUMBER OF WEEKS: 14

COURSE TYPE: complementary

COURSE OBJECTIVES: Acquiring knowledge about the main laws, notions and concepts specific to environmental protection; The use of logical connections with other related core scientific areas; Optimal environmental characterization of environmental factors and the elaboration of measures to protect them; Identifying optimal alternatives to respect and protect the environment, biodiversity, ensuring a harmonious environment, and conditions for a healthy life.

THEMES: Environment, ecology and social development. Social and economic development and nature protection. General regulation on ambient air quality. Norms regulating the protection of the atmosphere. Atributions and obligations regarding atmospheric protection. Programs to combat atmospheric pollution. Prevention and control of water pollution. Water management. Water legislation. Soil pollution sources. Measures to prevent, reduce and protect soil pollution. Legal measures for the protection and sustainable conservation of soil. Sound pollution. Measures to combat vibration and noise. The ambient noise assessment and management regime. Radioactive pollution. Sources of pollution from nuclear activity. Principles and conditions of the nuclear activity in Romania. The impact of waste on the quality of environmental factors. Traffic control rules of the waste. Biodiversity and biodiversity conservation. Genetically modified organisms. Contesting GMOs. The seizure of agriculture by multinationals. Global climate change. Risk assessment of contamination. Environmental risk assessment. Environmental monitoring. Integrated Pollution Prevention and Control. "Seveso" Directive, IED and EMAS Directive.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 70%, final answers to seminar - 30%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Angelescu A., Ponoran I., Ciubotaru V., 1999. Environment and sustainable development, A.S.E. Publishing, Bucharest.

Balteanu D., Șerban M., 2005. Global environmental changes, Credis Publishing, Bucharest.

Bavaru A., Godeanu S., Butnaru Gallia, Bogdan Al., 2007. Biodiversity and nature protection, Academia Româna Publishing, Bucharest.

Berca M., 2000. General ecology and environmental protection, Ceres Publishing, Bucharest.

Bran F., 2001. Environmental issues and economic risks, A.S.E. Publishing, Bucharest.

Gavrilescu E., Buzatu G. D., 2014. Fundamentals of environmental protection, Sitech Publishing, Craiova.

Munteanu V., 2008. Environmental quality, Fundația Universitara Dunărea de Jos Publishing, Galați.

Rojanschi V., Bran F., Diaconu G., 2002. Environmental protection and engineering, Economica Publishing, Bucharest.

PROTECTED NATURAL AREAS

CODE: D30IMAL433

CREDITS: 3

COURSE HOLDER: Lecturer, PhD, Ion STAN

YEAR/SEMESTER: 2nd year/ 1st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 1 hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Familiarization of master students with the current and varied problems related to the potential of protected areas, with emphasis on the "protection and preservation of the environment" aspects.

THEMES: Conservation of plant diversity at global and regional level (Global Plant Conservation Strategy & European Plant Conservation Strategy). Important areas of protection: the conceptual framework; The European program to identify the most important areas of protection; Identifying the most important areas of protection in Romania. Conservation of Plant Diversity: European and Global Coordinates. Plant diversity in the general context of biodiversity conservation. International instruments created for the purpose of biodiversity conservation. International organizations. Implementation of international standards on biodiversity conservation, infrastructure creation and access to programs. Botanical garden involvement in the overall biodiversity conservation process, strategic directions for the development of scientific research aimed at plant preservation. Classification systems and protected area categories. List of threatened species at global, European, endemic and subendemic level. Special areas for the protection and conservation of plants in Romania. Protected areas from other regions of the globe.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Final theoretical exam 70%, final practical exam 30%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Cristea V. et al. 1996. *Ocotirea naturii și protecția mediului în România*. Edit. Cluj University Pres, Cluj-Napoca.

Ionescu Maria, Condurăteanu-Fesci Simona 1985. *Parcuri și rezervații naturale pe glob*. Edit. Albatros București.

Mohan Gh., Ielenicz M., Pătroescu Maria 1986. *Rezervații și monumente ale naturii din Muntenia*. Edit. Sport-Turism, București.

Mohan Gh., Ardelean A. 1993. *Ecologia și protecția mediului*. Edit. "Scaiul" București.

Mohan Gh., Ardelean A., Georgescu M. 1993. *Rezervații și monumente ale naturii din România*. Casa de Editură și Comerț "Scaiul", București.

**Legea nr. 9/1973 privind Protecția naturii în România

**Legea nr. 137/ 1995 privind Protecția naturii în România.

PHYSICAL EDUCATION IV

CODE: D30IMAL435

CREDITS: 1

COURSE HOLDER: Senior Lecturer, PhD, Daniel Ciocănescu

YEAR/SEMESTER: 2nd year/ 2nd semester

NUMBER OF HOURS PER WEEK: 1 hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: complementary

COURSE OBJECTIVES: Discipline aims at forming the theoretical, practical and methodical skills for individual or group practice for a healthy lifestyle; Awareness of students about the role and importance of practicing physical exercise.

THEMES: Fitness - optimization of physical condition; utilitarian-applicative skills; Exercises for the development of general strength; Exercises for speed development; Exercises for the development of coordination capacity; Sports games: handball, table tennis; Bilateral games under similar competition conditions.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Assessment through practical tests 80%, continuous assessment throughout semester 20%

ASSESSMENT TYPE: A/R

BIBLIOGRAPHY:

BARBU, D., (2010), Fotbal. Curs de bază pentru studenți. Craiova, Edit. Universitaria

DRAGOMIR, M., Albină, A., (2006), Atletism în școală, Ed. Universitaria, Craiova

DRAGNEA, A. C-tin. și colab, (2006) - Educație fizică și sport – teorie și didactică - Editura FEST, București.

ORTANESCU Dorina, (2008), Gimnastica – componentă a educației fizice școlare, Ed.Universitaria, Craiova

ORȚĂNESCU Dorina, 2008, Gimnastica- componentă a educației fizice școlare, Editura Universitaria Craiova

RAȚĂ G., Ghe. Rață (2008) – Educația fizică și metodică predării ei – Editura PIM, Iași.

UNGUREANU, A. (2009) - Metodică educației fizice și sportului - Editura Universitaria, Craiova.

ȚIFREA, C., (2002) - Teoria și metodică atletismului - Editura Doreco, București.

3ST YEAR OF STUDY

THE DEVELOPMENT AND THE MANAGEMENT OF WATER RESOURCES

CODE: D30IMAL538

CREDITS: 5

THE TITULAR OF THE COURSE: University lecturer Doctor of Engineering Costică PĂUNESCU

YEAR/ SEMESTER : the 3rd year/ 1st semester

HOURS PER WEEK: 2 hours for courses, 4 hours for practical works

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE: specialized discipline

THE OBJECTIVE OF THE COURSE: Presentation of the basic elements for the design, construction and operation of water management works in circumstances of environment protection.

THEMES: Water resources, Water management, Harmful water effects, Development and ecological reconstruction of rivers, Large water management.

THE TEACHING LANGUAGE : Romanian

ASSESSMENT OF KNOWLEDGE: 70% exam answers, final answers to practical laboratory work 30%

FORM OF EXAMINATION: exam

BIBLIOGRAPHY

Băloiu V., 1980 – Amenajarea bazinelor hidrografice a cursurilor de apă, Ed.Ceres

Chiriac V., Filotti A., Manoliu I.A., 1980 – Prevenirea și combaterea inundațiilor , Ed.Ceres

Diaconu S., 1999 - Cursuri de apă, Amenajare , Impact, Reabilitare, Ed. H.G.A. București

Dobrot R., 1999 – Modelarea impactului schimbărilor climatice asupra resurselor de apă, Ed. H.G.A. București

Jura N. C., 1984 - Alimentări cu apă, partea I-a și partea a II-a , Institutul Politehnic Timișoara, Facultatea de construcții.

ECOLOGY OF ANTHROPIC SYSTEMS

CODE: D30IMAL539

CREDITS: 4

COURSE COORDINATOR: Professor Dr. Sina Cosmulescu

YEAR / SEMESTER: Year III / Ist Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: Knowledge of the anthropic systems, characteristics, terminology. Evolution of anthropic systems; Dimensions and principles of sustainable development.

TOPICS: Definition, history, terminology, importance of discipline and connection with other sciences. Evolution of anthropic systems. Anthropic fruit tree systems - diversity, characteristics, structural elements. Evaluation of favorable climate levels for tree cultivation – agro-ecological zoning and micro-zoning. Interactions and relationships in fruit tree anthropic systems. Degradation factors of fruit-growing anthropic systems – their nature and importance, technological impact, sustainable development.

TEACHING LANGUAGE: Romanian

ASSESSMENT FORM: Exam (60% written examination, 40% periodic evaluation)

REFERENCES:

Baciu Adrian. 2005. Pomicultura generală. Editura Universitaria.

Botu I., Botu M., 2003. Pomicultura modernă și durabilă. Editura Conphys, Rm. Valcea.

Cosmulescu Sina. 2005. Protecția mediului în ecosisteme pomicele. Editura Sitech, Craiova.

Cosmulescu Sina. 2008. Ecologia sistemelor antropice pomicele. Editura Sitech, Craiova.

Dejeu L., Petraru Corneli, Chira A. 1994. Horticultura și protecția mediului. Ed. D.P. București.

TOXICOLOGY

CODE: D30IMAL540

CREDITS: 4

COURSE HOLDER: Lecturer PhD. Simona Mariana POPESCU

YEAR/SEMESTER: 3rd year/ 1st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: Acquiring basic and specific theoretical knowledge and the practical skills required to conduct work in toxicology laboratories and related fields.

THEMES: General Toxicology, Factors that affect toxicity, Toxicokinetics, Toxicodinamy, Combating toxic effects, Toxic and volatile substances, Toxics of a mineral nature, Toxicity of hydrocarbons, Toxicity of alcohols, glycols, aldehydes and ketones, Toxic of plant and animal nature, Toxicity of phytosanitary substances, Toxicity of drugs and hallucinogenic substances.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 70%, final answers for workshops 10%, periodical assessment through practical tests 10%, activities such as homework/ essays/ papers/ projects 10%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Popescu Simona Mariana, 2015 - Theoretical and practical toxicology elements, Universitaria Publishing;

Balalau D., 1997 – Toxicology, Tehnoplast Company SRL Publishing;

Cotrau M., Popa L., Stan T., Preda N., Kincses-Ajtay M., 1991 – Toxicology, Didactica si Pedagogica Publishing, Bucuresti;

Danila Ghe., 1997 – Pharmaceutical chemistry, vol. I, All Publishing, Bucuresti;

Stan T., Balalau D., 1982 – General Toxicology. Toxicology of inorganic substances, U.M.F. “Carol Davila” Publishing, Bucuresti;

Hayes A. Wallace, 1994 – Principles and Methods of Toxicology, Third Edition, Raven Press, New York,

Cristea A.N., 1991 – Pharmacology, Didactica si Pedagogica Publishing, Bucuresti.

PLANT PROTECTION AND ECOLOGICAL IMPACT I

CODE: D30 IMAL541

CREDITS: 5

THE TITULAR OF THE COURSE: Prof.univ.dr.ing. PARASCHIVU I. AURELIAN MARIUS

YEAR/SEMESTER: the 3th year/1st semester

NUMBER OF HOURS PER WEEK: 2 hours lecture, 2 hours practical laboratory classes

NUMBER OF WEEKS: 14

DISCIPLINE TYPE: specialized discipline

LECTURE OBJECTIVES: Study of main principles and methods used in Phytopathology, description of the methods and keys used for plant pathogens identification, knowledge of the main species of plant pathogens, pathogens biology, ecology and etiology, assessment of yield losses produced by plants pathogens, pathogens forecasting, warning and control in order to design the best integrated management, environmental impact of pesticides and the carcinogenic impact of mycotoxins.

THEME: General information about Phytopathology and plant diseases; plant diseases causes, symptomatology, epidemiology, pathogens key identification, characteristics; plant Mycosis; general characters of Ascomycota fungi and Basidiomycota fungi.

TEACHING LANGUAGE:Romanian

KNOWLEDGE EVALUATION: correct answers for final test 80%, correct answers from practical laboratory classes 20%.

EVALUATION FORM: final examination (test paper/oral exam)

BIBLIOGRAPHY:

Paraschivu, A.M.. – 2010 – Bolile plantelor – simptomatologie, cauzalitate, prevenire si combatere, EUC 2011. ISBN 973-8043-87-5.

Paraschivu, A.M. – 2008 – Combaterea integrata a patogenilor si daunatorilor la principalele culturi de camp, Editura Sitech, Craiova, ISBN 978-973-746-792-8.

Paraschivu, A.M. – 2006 – Fitopatologie generala, Editura Sitech, Craiova, ISBN 973-746-258-8; ISBN 978-973-746-285-5.

Paraschivu, A.M. – 2004 – Ghid pentru recunoasterea bolilor plantelor si a naturii lor cauzale, EUC, ISBN 973-8043-221-1.

Tanase Catalin, Tatiana Eugenia Sesan – 2006- Concepte actuale in taxonomia ciupercilor, Editura Universitatii “Alexandru Ioan Cuza”, Iasi, ISBN (10) 973-703-144-X; ISBN (13) 978-973-703-144-0.

Iacob, Viorica – 2002 – Bolile plantelor cultivate – prevenire si combatere, Editura “Ion Ionescu dela Brad”, Iasi, ISBN 973-8014-70-0.

Ioan Oroian, Viorel Florian, Liviu Holonec – 2006 – Atlas de Fitopatologie trilingv, ISBN 973-27-1311-9, Editura Academiei Romane.

Phytopathology sites

HYDROLOGY AND HYDROGEOLOGY I

CODE: D30IMAL542

CREDITS:5

THE TITULAR OF THE COURSE: University lecturer Doctor of Engineering Costică PĂUNESCU

YEAR/ SEMESTER : the 4th year/ 2nd semester

HOURS PER WEEK: 2 hours for courses, 4 hours for practical works

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE : domain

THE OBJECTIVE OF THE COURSE: Defining the study topic of hydrology and the implications of the branches of hydrology in the system of environmental protection sciences.

THEMES: Elements of rivers and river basins, Morphometric elements of a hydrographic basin, Hydrological regime of rivers, Main morphological and morphometric characteristics of lakes, Pollution and protection of aquatic systems.

THE TEACHING LANGUAGE : Romanian

ASSESSMENT OF KNOWLEDGE: 70% exam answers, final answers to practical laboratory work 30%

FORM OF EXAMINATION: exam

BIBLIOGRAPHY

Boengiu S., (2008) - *Piemontul Bălăciței. Studiu de geografie*, Editura Universitaria, Craiova. (191 pagini), 978-606-510-321-4

Pleniceanu, V., Ionuș, Oana, (2007), *Geografia apelor continentale*, Editura Universitaria, Craiova, ISBN 978-973-742-937-7, 268 pagini

Pleniceanu, V., Ionuș, Oana, Marinescu, Ioan, (2008), *Geografia resurselor de apă ale Terrei*, Editura Universitaria, Craiova, ISBN 978-606-510-133-3, 253 pagini

Pleniceanu, V., (2003), *Lacuri și zone umede*, Editura UNIVERSITARIA, ISBN: 973-8043-484-4, Craiova, 2003, pagini 207

Pleniceanu, V., (2000), *Hidrologie*, (Vol. I), Editura SITECH, ISBN: 973-657-010-X, Craiova, pagini 306.

BIODIVERSITY CONSERVATION

CODE: D30IMAL543

CREDITS: 3

COURSE COORDINATOR: Prof. Dr. Mihai BOTU

YEAR/SEMESTER: 3rd/ Ist

HOURS PER WEEK: 2 hours of course, 1 hour of laboratory

NUMBER OF WEEKS: 14

TYPE OF COURSE: specialized discipline

COURSE OBJECTIVES: Knowledge of the role and importance of biodiversity for the present and future of mankind. Getting familiar with biodiversity structural elements and factors of influence. Knowledge of genetic centers of plant diversity. Knowledge of methods and techniques for conservation of plant and animal genetic resources, improvement of the conservation activities and utilization of biodiversity.

TOPICS: Concept, importance and strategies used in protection and conservation of biodiversity. Structural elements and influence factors of biodiversity. Genetic centers of plant diversity. Management of biodiversity and collection of genetic resources. *In situ* conservation (protected and non-protected areas). *Ex situ* conservation (gene banks, botanical gardens, field conservation - collections). Protection and conservation of animal genetic resources. Plant and animal biodiversity conservation in Romania. Use of genetic resources.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT 75% of the final grade represent the response to the written theoretical questions and 25% of the final grade the answers to laboratory tests.

ASSESSMENT FORM: Exam

REFERENCES:

Botu, I., Botu, M. 2000. *Protecția și conservarea biodiversității*. Ed. Conphys, Rm. Vâlcea.

Cristea, M., 2006. *Biodiversitatea*. Ed. Ceres, București.

Frankel, O.H., Brown, A.H.D., Burdon, J.J., 1995. *The conservation of plant biodiversity*. Cambridge University Press.

Ghidra, V., Botu, M., Sestraș, R., Botu, I., 2004. *Biodiversitate și bioconservare*. Ed. AcademicPres, Cluj-Napoca.

CLIMATOLOGY

CODE: D30IMAL544

CREDITS: 4

COURSE COORDINATOR: Professor, PhD. , CIMPOIASU, Vily Marius

YEAR / SEMESTER: 3st Year / 1st Semester

HOURS PER WEEK: 2 hours of lecture, 2 hours of practical work

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Knowledge of notions, concepts, laws and principles specific to physics with implications in phenomena that determine the state of the atmosphere. Knowledge of physical monitoring methods, physical techniques of atmospheric investigation. Increasing knowledge on specific terms atmospheric physics, meteorology and climatology, phenomena and laws that govern them, similarities and differences between them. Knowledge of applications specific to atmospheric physics, meteorology and climatology and recording and research apparatuses of importance in agricultural meteorology. The discipline aims at explaining the phenomena, processes, applications and

devices according to the main meteorological parameters, characteristics of the environment. Students have to explain the involvement of each process in the proper functioning of the atmosphere (at all levels) or to interpret the evolution of the system based on the evolution of environmental factors.

TOPICS: Diffusion and absorption of radiation. Direct and diffused solar radiation. Terrestrial radiation and atmospheric radiation. The greenhouse effect, the radiation balance of the surface and the atmosphere. The specific radiation regime of some regions. Soil thermal regime. The caloric properties of the soil. Periodic variations in surface temperature. Deep soil temperature variations. The influence of various factors on soil temperature. Water as active surface. The thermal regime of the air. Thermodynamics of the atmosphere. Periodic variations in air temperature. Variation of air temperature with height. Radiation inversions. Thermal properties of the boundary layer. Particularities of temperature distribution. Geographic distribution of temperature. Atmospheric humidity and its sources. Evaporation. Hygrometric sizes. Variations in humidity. Condensation, condensation types. Water vapor condensation products. Clouds and showers. Cloud. Atmospheric precipitation. The precipitation genesis. Types of precipitation. Precipitation regime. Geographic distribution. Air pressure. The forces of nature involved in winds. Notions of Climatology. The climate of Romania and the climate of Europe.

TEACHING LANGUAGE: romanian

KNOWLEDGE ASSESSMENT: Answers to verification 60 %, periodic answers to practical work 10 %, results to periodic control works 30 %.

ASSESSMENT FORM: verification

REFERENCES:

Termodinamica, George C. Moisil, Ed. Academiei Romane, București, 1988

Electricitate și Magnetism, Al. Nicula, Ed. Didactica și Pedagogică, București, 1982

Optica, Fizica Plasmei, Fizică Atomică și Nucleară, Ed. Didactica și Pedagogică, București, 1983.

Cursul de fizică Berkley, C. Kittel et. all., vol.1-5, Ed. Didactica și Pedagogică, București, 1981.

Fizica generală, R.Țițeica, Iovițu Popescu, vol.1-3, Ed. Tehnică, București, 1973.

Dragomirescu Elena, Liviu Enache, Biofizică, București, 1992.

Popescu Aurel, Elemente de biofizică moleculară și supramoleculară, București, 1997.

Cimpoiasu Vily, Elemente și tehnici de Biofizică, ed.Universitaria Craiova, 2008.

Cimpoiasu Vily, Notiuni de fizica mediului, ed.Alma, 2010

RIVER REGULATIONS

CODE: D30IMAL646

CREDITS: 4

THE TITULAR OF THE COURSE: University lecturer Doctor of Engineering Costică PĂUNESCU

YEAR/ SEMESTER : the 3rd year/ 2nd semester

HOURS PER WEEK: 2 hours for courses, 2 hours for practical works

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE : domain

THE OBJECTIVE OF THE COURSE: Students' initiation in the field of river design and reconstruction.

THEMES: Regulations of watercourses, Objectives of the regulation of riverbeds, Alluvial movement, Alluvial transport mechanism, Dynamics of riverbeds, Constructions and regulation works.

THE TEACHING LANGUAGE : Romanian

ASSESSMENT OF KNOWLEDGE: 70% exam answers, final answers to practical laboratory work 30%

FORM OF EXAMINATION: exam

BIBLIOGRAPHY

Bally R.J., 1983 - Diguri și baraje din materiale locale pe terenuri slabe de fundare, Ed.Ceres

Boeru S., Mîndru R., 1970 – Îndiguri, Ed.Ceres

Manoliu I., 1988 – Regularizări de râuri și căi de comunicații pe apă, Ed.Didactică și Pedagogică București

Hâncu S., 1976 – Regularizarea albiilor râurilor, Ed.Ceres

Mitoiu C., 1983 – Concepții actuale cu privire la soluțiile de regularizare a albiilor cursurilor de apă, Ed. Fac.I.M.București

Șelărescu M., Podani M. 1993 – Apărarea împotriva inundațiilor, Ed.Tehnică București

Teodorescu I., Florescu Al., 1970 – Probleme de combatere a inundațiilor, Ed. Științifică și Tehnică București

LAND IMPROVEMENTS

CODE: D30IMAL647

CREDITS: 4

COURSE HOLDER: Lecturer, PhD, Mihaela BĂLAN

YEAR/SEMESTER: 3rd year/ 2nd semester

NUMBER OF HOURS PER WEEK: 2 hours course, 1hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: Knowledge and understanding of the importance of land improvement works; Knowledge and understanding of the phenomena related to the drainage and drainage of agricultural lands, the arrangement of accumulation basins and irrigation systems, dams, etc. Knowledge of methods of design, execution and maintenance of land improvement works.

THEMES: Object of discipline. The importance and features of land improvement works. Brief history of land improvement improvements. Soil erosion. Definitions, importance and spread of the erosion process in the world and in Romania. Mechanism of water erosion process. Determinants of soil erosion. Damage caused by soil erosion. Studies necessary for the preparation of soil erosion control projects. Mapping and research of soil erosion. Preventing and combating soil erosion on sloping arable land. Prevention and control of soil erosion in vineyards. Preventing and combating soil erosion in fruit plantations. Preventing and combating deep erosion. Insect erosion formations, their development and work to combat deep erosion. Preventing and combating wind erosion. Land landslides. Measures to prevent and combat them. Storage tanks for agriculture. Classification of storage basins. Components of an accumulation. Studies necessary for the design of storage basins. Conditions for the location of accumulation basins. Determining the water volume of the storage tank. Dam. Classification of dams. Main issues to solve when designing dams made of soil. Studies needed to prepare irrigation projects. Water consumption of agricultural crops. Watering methods. Irrigation systems - types of irrigation facilities. Water sources for irrigation. Irrigation water quality. Operation and maintenance of irrigation

systems.Landfilling of agricultural land. Draining through open channels.Drainage drainage. Special drainage methods.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 50%, final answers for workshops 30%, periodical assessment through practical tests 20%

ASSESSMENT TYPE: colloqui

BIBLIOGRAPHY:

Bălan Mihaela,2017 – Îndrumător de lucrări practice și de elaborare a proiectului de combatere a eroziunii solului. Ed. Sitech. Craiova.

Bălan Mihaela, Craioveanu Ghe., Carigoiu Violeta. 2011 – Aspecte privind eroziunea solurilor din Județul Gorj. Ed. Universitaria. Craiova.

Lulea C., Popescu C.V. și colab. 2009 – Îmbunătățiri funciare. Ed. IV. Editura Universitaria. Craiova.

Lulea C., 2000 – Ghid pentru proiectarea și executarea unor lucrări antierozionale pe terenurile situate în pantă. Editura Universitaria. Craiova.

Lulea C., 2000 – Ghid pentru proiectarea și executarea lucrărilor de desecări, îndiguiri, acumulări de apă și irigații. Editura Universitaria. Craiova.

Savu. P, Bucur D., 2002 – Organizarea și amenajarea teritoriului agricol cu lucrări de îmbunătățiri funciare. Editura „Ion Ionescu de la Brad” Iași.

HYDROLOGY AND HYDROGEOLOGY II

CODE: D30IMAL648

CREDITS: 4

THE TITULAR OF THE COURSE: University lecturer Doctor of Engineering Costică PĂUNESCU

YEAR/ SEMESTER: the 4th year/ 2nd semester

HOURS PER WEEK: 2 hours for courses, 4 hours for practical works

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE: domain

THE OBJECTIVE OF THE COURSE: Defining the study topic of hydrology and the implications of the branches of hydrology in the system of environmental protection sciences.

THEMES: Groundwater, Groundwater Action on earth's surface, Groundwater Circulation, Improvements in groundwater hydrology.

THE TEACHING LANGUAGE : Romanian

ASSESSMENT OF KNOWLEDGE: 70% exam answers, final answers to practical laboratory work 30%

FORM OF EXAMINATION: exam

BIBLIOGRAPHY

Boengiu S., (2008) - *Piemontul Bălăciței. Studiu de geografie*, Editura Universitaria, Craiova. (191 pagini), 978-606-510-321-4

Pleniceanu, V., Ionuș, Oana, (2007), *Geografia apelor continentale*, Editura Universitaria, Craiova, ISBN 978-973-742-937-7, 268 pagini

Pleniceanu, V., Ionuș, Oana, Marinescu, Ioan, (2008), *Geografia resurselor de apă ale Terrei*, Editura Universitaria, Craiova, ISBN 978-606-510-133-3, 253 pagini

Pleniceanu, V., (2003), *Lacuri și zone umede*, Editura UNIVERSITARIA, ISBN: 973-8043-484-4, Craiova, 2003, pagini 207

Pleniceanu, V., (2000), *Hidrologie*, (Vol. I), Editura SITECH, ISBN: 973-657-010-X, Craiova, pagini 306.

ECOLOGY OF VINEYARD ANTHROPIC SYSTEMS

CODE: D30IMAL649

CREDITS: 4

COURSE HOLDER: Associate Professor, PhD, Liviu Cristian MĂRĂCINEANU

YEAR/SEMESTER: 3 st year / 2 st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: • knowledge of the structure, functions and productivity of the wine ecosystems; • knowledge of the main technological systems practiced in viticultural agroecosystem and their impact on the environment; • promotion of sustainable cropping techniques and technologies compatible with sustainable viticulture; • acquisition of study methods of viticultural agroecosystems.

THEMES: • introduction; • winegrowing as an ecosystem; • anthropic interventions in the viticultural ecosystem; • zoning of viticulture worldwide and in Romania; • environmental degradation and protection in viticultural agroecosystems.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: examination answers 50 %, final answers for workshops 50%,

ASSESSMENT TYPE: examination

BIBLIOGRAPHY:

Dejeu L. and others, 1997, Horticulture and environmental protection. Didactic and Pedagogical Publishing House, Bucharest;

Olteanu I., Mărăcineanu L.C., 2007, Viticultural agroecosystems and environmental protection. Sitech Publishing House, Craiova;

Mărăcineanu L.C., 2011, Applications of ecology in viticulture. Universitaria Publishing House, Craiova.

PLANT PROTECTION AND ECOLOGICAL IMPACT II

CODE: D30IMAL650

CREDITS: 3

COURSE HOLDER: Senior Lecturer, PhD, Cătălin STAN

YEAR/SEMESTER: 3 st year/ 2 st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Knowledge of plant protection issues as a link between culture technologies. Knowledge of morphological, bio-ecological peculiarities of cultivated plants pests.

Knowledge the particularities of the methods, means and measures for prevention and control, the way of action and the reaction of the pest against them. Knowledge of the European Union's phytosanitary legislation. Normative acts for plant protection products and pesticide residues. Student knowledge and deepening of plant protection issues as a link between crop technologies and the establishment of pest control strategies for organically grown plants, taking into account the biological characteristics of the pest and the host plant.

THEMES: Insects general characters, Anatomy and physiology of insects, Insect biology, Ecology of insects, Systematic insects (recognition of pests from: Ord. Orthoptera, Ord. Blattaria, Ord. Dermaptera, Ord. Thysanoptera, Ord. Heteroptera, Homoptera, Ord. Hymenoptera, Ord. Coleoptera, Ord. Lepidoptera, Ord. Diptera), Preventive methods for controlling animal pests (phytosanitary quarantine, forecasting and warning, phytosanitary control, agrofitotechnics), Biological methods for control of animal pests, Territorial planning methods to increase the role of predators and parasites in combating crop pests., Phytosanitary and environmental legislation.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam sem. answers 80%, continuous assessment throughout semester 20%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Mitrea I., *Entomologie agricolă*, Editura Universitaria Craiova, 2005.

Mitrea I., C. Stan, O. Țucă, *Entomologie vol. I*, Editura Reprograph Craiova, 2008.

Mitrea I., C. Stan, O. Țucă, *Entomologie generala*, Editura Reprograph Craiova, 2010.

Roșca I., I. Oltean, I. Mitrea, M. Talmaciu, C. Stan și colab., 2011, "Tratat de Entomologie generală și specială", Editura Alpha MDN, Buzău.

Rosca I., C. Stan și colab. Protecția biodiversității în principalele agroecosisteme, Edit. Total Publishing, București 2008.

Perju T., Birica S. Legislatie fitosanitara si de mediu. Edit. AcademicPres Bucuresti, 2006.

SIMERIA GH. – Combaterea biologică în „sens strict” a patogenilor și dăunătorilor plantelor, Editura Mirton, Timișoara, 2001.

SIMERIA GH. – Profilaxia și terapia integrată a bolilor și dăunătorilor plantelor, vol. II, Editura Mirton, Timișoara, 2003.

Toncea I., Stoianov R. 2002. Metode ecologice de protecție a plantelor. Edit. Științelor agricole, București.

BIOLOGICAL INTEGRATED COMBAT IN AGRICULTURAL ECOSYSTEMS

CODE: D30IMAL651

CREDITS: 3

COURSE HOLDER: Senior Lecturer, PhD, Ovidiu Andrei ȚUCĂ

YEAR/SEMESTER: 3 st year/ 2 st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: Understanding knowledge about species relationships; Knowledge of the use of hyperparasites in combating parasitic species; Knowing the physiological needs of parasites and hyperparasites, Knowing how to use hyperparasites to fight parasites, Developing skills to analyze the relationships between species and their use in agricultural practice;.

THEMES: Hormones and pheromones as regulators of insect growth, development and behavior, Senses in the living world and their use in biological control, The use of zoophagus in the biological control of plant pests, Microbiological control, the use of pathogenic microorganisms in the biological control of plant pests, Genetic methods (autocidal) used to combat plant pests, Relationship between species used in the control of pathogens, Techniques for the growth and use of pathogens against pathogenic microorganisms and insect pests.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Examination 70%, practical workshops 30%.

ASSESSMENT TYPE: colloquy

BIBLIOGRAPHY:

Grozea Loana, Carabet A., Chirita Ramona, Badea Ana Maria, Entomofagii din culturile de cereale, Ed. Mirton, Timisoara, 2008

Grozea Loana, Entomofagi, 2008, Note de curs.

Popescu GH., Giuchici Camelia - Combaterea non-poluanta a patogenilor plantelor prin masuri biologice si culturale, Editura Brumar, 1997

Perju T., Lacatusu Matilda C., Pisica C., Andriescu Lonel, Mustata GH. Entomofagii si utilizarea lor în protectia integrata a ecosistemelor agricole, Ed. Ceres, Bucuresti, 1988

Ciochia V., Isac G., Stan GH. Tehnologii de crestere industrială a catorva specii de insecte auxiliare folosite în combaterea biologica a daunatorilor, Ed. Ceres, Bucuresti, 1992.

SOIL BIOLOGY AND ENZYMOLOGY

CODE: D30IMAL652

CREDITS: 4

COURSE COORDINATOR: Professor PhD Daniela POPA

YEAR / SEMESTER: IIInd Year / IInd Semester

HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Knowledge of the soil population, of ecological relations between elements of the soil population, of the influence of basic works, cultivated plants and fertilizers on the enzymatic potential of the soil - the application of soil analysis methodology from a biological point of view.

TOPICS: Organisms (population) soil-fertility effectors. Megafauna, macrofauna, mesofauna, microfauna, soil microflora; Metabolism of the soil population; Biochemical activity of soil microbiocenoses, the role of microorganisms in the formation and evolution of organic matter (humus) in the soil; Contribution of microorganisms to the biological circuit of nitrogen, carbon in the soil; Microbial interrelations in soil, interrelations between higher plants and soil microorganisms; Enzymology of cultivated soils - current concepts.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 35%, Active participation in courses 10%
Written assessment (during the semester): questionnaire 10%, Final written assessment (in the exams session) 35%, Active participation in seminars 10%

ASSESSMENT FORM: colloquy

REFERENCES

Soil Microbiology: the live beneath your feet, Popa Daniela, Coyne M. (Univ. Of Kentucky, SUA) –Printed in USA by Instant Publisher.com, 2007;

Biologia solurilor agricole, Stefanic Gh., Săndoiu D., Niculina Gheorghita – Ed. Elisavaros, Bucuresti, 2006;

Mediile naturale ale microorganismelor, Popa Aurel, Popa Daniela, Dragomir Felicia Ed. Universitaria, Craiova, 2002;

Enzimologia mediului inconjurator, Kiss St., Ștefanic Gh. și colab.. Ed.Ceres, 1991.

4ST YEAR OF STUDY

ECOLOGY OF VEGETABLE GROWING SYSTEMS

CODE: D30IMAL753

CREDITS: 4

COURSE COORDINATOR: PhD. Associate Professor Dinu Maria

YEAR/SEMESTER: year IV / semester I

HOURS PER WEEK: Course – 2 hours/Seminar – 2 hours

NUMBER OF WEEKS: 14

TYPE OF COURSE: specialized discipline

COURSE OBJECTIVES: Vegetable agroecosystems, way of organization, functioning and their practical importance.

TOPICS: The Importance of Vegetables to Ensure Food Security. The current and prospective situation of organic and vegetable crops on the world and national levels. Current trends in the utilization and consumption of biological vegetable products. Vegetable plant relations with environmental factors. Factors that influence the quality of vegetable production. Technology aspects specific to vegetable plants with implications for the proper use of soil and climatic conditions. Vegetable products - qualitative, quantitative and directions of use.

TEACHING LANGUAGE : Romanian

KNOWLEDGE ASSESSMENT: answers to exam 75%, control paper 25%

ASSESSMENT FORM: exam

REFERENCES:

Maria Dinu, Soare Rodica, 2015. Noțiuni teoretice și practice de legumicultură ecologică. Editura Universitaria Craiova.

Maria Dinu, 2009. Ecologia sistemelor antropice legumicole. Îndrumător de lucrări practice. Editura Reprograph, Craiova

Chilom Pelaghia, 2005. Protecția ecosistemului legumicol. Edit. Sitech, Craiova.

Dejeu L., Petraru Cornelia, Chira, 2002. Horticultura și protecția mediului. E.D.P. București.

Duță Adriana, 2004. Ingineria sistemului legumicol, vol. I Editura Universitaria Craiova.

Duță Adriana, 2004. Ingineria sistemului legumicol, vol. II Editura Universitaria Craiova.

Adriano Del Fabro, 2005. Orto, frutteto, giardino, tecniche colturali, varietà, malattie e cure. Giunti Editore S.P.A. Firenze – Milano.

INSTALLATIONS FOR ENVIRONMENTAL PROTECTION

CODE: D30IMAL754

CREDITS: 4

COURSE HOLDER: Assoc. Professor, PhD, Mihnea GLODEANU

YEAR/SEMESTER: 4th year/ 1st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical works

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: knowledge of the main sources of pollution of the environment and the way of their generation; exposure of some notions regarding the presentation of the

main techniques, technologies, installations and equipments intended for the protection of the water resources, the atmosphere and soil.

THEMES: Water purification techniques and technologies, general considerations, sources of water pollution; Physical, chemical and biological processes of wastewater treatment; Unit processes for treatment of the sludge results from wastewater; Atmospheric protection, general considerations, sources of air pollution; Air pollution exploration methods, methods and means of purifying the atmosphere; Soil protection, general considerations, sources of soil pollution; Techniques and technologies used for soil protection.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: answers to exam 60%, final answers to Laboratory works 40%

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

1. Antoniu R. and collab., 1987, Purification of Industrial Waste Water, Technical Publishing House, Bucharest.
2. Băţaga N., 2000, Internal Combustion Engines, UT Press Publishing House.
3. Chiriac V. and collab., 1977, Waste Water Treatment and Recovery of Residues from the Food and Zootechnics Industry, Ceres Publishing House, Bucharest.
4. Glodeanu M., 2003, Technological Equipment and Installations for Environmental Protection, Universitaria Publishing House., Craiova.
5. Marinescu G., 1981, Dewatering the Sludge by Centrifugation,, vol. XX, ICPGA, Bucharest.
6. Popescu S. and T. Ghinea, 1986, Automation of Machinery and Installations used in Agriculture, Scrisul Românesc Publishing House, Craiova.
7. Pumnea C. and G. Grigoroiu, 1994, Protection of the Environment, Didactic and Pedagogical Publishing House, Bucharest.

ECOLOGICAL MANAGEMENT

CODE: D30IMAL755

CREDITS: 5

COURSE HOLDER: Senior Lecturer, PhD, Eleonora Daniela CIUPEANU CĂLUGĂRU

YEAR/SEMESTER: 4 st year/ 1st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours seminar

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: To define the concepts of ecological management, sustainable development, natural capital, socio-economic systems, deterioration of natural capital, ecosystem management, total economic value of ecological resources, ecological economy; To identify the purpose and functions of ecological management and sustainable development; To identify strategies for sustainable development; To report on the mechanisms and tools of environmental management; To relate environmental policies and legislation, the institutional framework in terms of environmental protection.

THEMES: Environment and Sustainable Development; The content and meaning of the concept of sustainable development; Strategies for achieving sustainable development, Technocentrism and ecocentrism in the sustainable development approach; Sustained human development - an essential component of quality of life., environmental management of pollution; Ecology of atmospheric pollution; Ecology of water pollution; Ecology of soil pollution; Ecology of pollution for other situations, Waste management; Classification of

waste; Methods of recovery and disposal of waste; The responsibility of producers and consumers in waste generation. Evaluating and authorizing activities with an impact on the environment; System for the assessment and authorization of activities with environmental impact; Audit in environmental management systems. National System of Accounts and Environment; Integrated economic and environmental accounting; Environment in the National System of Accounts; Methodology of environmental accounting. Environmental expenditures; Principles of environmental accounting; The costs of deteriorating the natural environment. Ecological management system; Specific requirements for an ecological management system; The advantages of an ecological management system; Principles of an environmental management system, Environmental monitoring; Environmental Monitoring Concept; Components of the monitoring system; The environmental data required for the monitoring system; Quantitative indicators of the natural environment. Environmental policy and legislation; EU and Romanian environmental legislation; World and Romanian environmental institutions.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Examination 80%, activities such as papers/ projects 20%.

ASSESSMENT TYPE: Examen

BIBLIOGRAPHY:

Bran, F. Problemele de mediu. Posibilități de reglementare, Tribuna economică, 15, 2001

Bran, F. Componenta ecologică a deciziilor de dezvoltare economică, București, Editura ASE, 2002.

Daniela Ciupeanu, Ilie Murărița, Ovidiu Țucă, Managementul mediului, Craiova, Editura Universitaria, 2008.

Georgescu, G. Reforma economică și dezvoltarea durabilă, București, Editura Economică, 1995.

Gradinaru G., „Modele de ajustare a sistemului economic national în contextul dezvoltării durabile”, în volumul Economia Orizont 2002, Editura UNI-SAST, Brasov 2002.

PLATON, V. Protecția mediului și dezvoltarea economică durabilă, București, Editura Didactică și Pedagogică, 1997

Vădineanu, A. Dezvoltarea durabilă, vol.1, Teorie și practică, București, Editura Universității 1999

Vădineanu, A. Dezvoltarea durabilă, vol.2, Mecanisme și instrumente, București, Editura Universității 1999.

BIOSTATISTICS

CODE: D30IMAL756

CREDITS: 4

COURSE COORDINATOR: Prof. Dr. Mihai BOTU

YEAR/SEMESTER: 4th/ Ist

HOURS PER WEEK: 2 hours of course, 2 hours of laboratory

NUMBER OF WEEKS: 14

TYPE OF COURSE: domain

COURSE OBJECTIVES: Knowledge of the role, importance and peculiarities of biostatistics and research in biology and ecology. Defining research objectives, methodologies and techniques, set up experiments, data collection, calculus and inference. Capitalization of experimental results.

TOPICS: Role, importance, objectives and peculiarities of biostatistics, biometry and ecology research. Design and organization of research in ecology. Extraction of samples for analysis.

Measurement errors in environmental field experiments. Methods of setting up monofactorial and polyfactorial trials (randomized blocks, Latin square, Latin rectangle, balanced square lattice). Parameters and estimators in statistics (variance, standard deviation, coefficient of variation, correlation, regression). Statistical hypothesis testing, F, *t* and Duncan tests. Analysis of variance. Interpretation and use of experimental results in ecology.

TEACHING LANGUAGE: Romanian

KNOWLEDGE ASSESSMENT 75% of the final grade represent the response to the written theoretical questions and 25% of the final grade the answers to laboratory tests.

ASSESSMENT FORM: Verification

REFERENCES:

Botu I., Botu M. 1994. Metode și tehnici de cercetare în pomicultură. Ed. Conphys. Rm. Vâlcea.

Botu I., Botu M. 2003. Biostatistică și design experimental în agricultură și biologie. Ed. Conphys. Rm.Vâlcea.

Botu I., Botu M. 2010. Tehnică experimentală în horticultură și ecologie (Elemente de bază). Ed. Conphys, Rm.Vâlcea.

Ceapoiu N. 1968. Metode statistice în experiențele agricole și biologice. Edit. Agrosilvică. București.

Sokal, R.R., Rohlf, F.J. 1994. Biometry: The Principles and Practices of Statistics in Biological Research. 3rd Edition. W. H. Freeman.

Zar, J.H, 1998. Biostatistical Analysis. 4th Edition. Prentice Hall.

POLLUTION INVESTIGATION MEANS

CODE: D30IMAL757

CREDITS: 5

COURSE HOLDER: Profesor, PhD, Elena GAVRILESCU

YEAR/SEMESTER: 4st year/ 1st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: Know how to sampling, preserving and transporting samples to analyze them and establish the diagnosis of pollution. Knowledge of the principles of operation of the apparatus necessary for the determination of the investigations. Determination of pollutants in soil, water, air for quantitative and qualitative identification of pollution indicators.

THEMES: Notions on sources of air pollution, types of pollutants and their effect. Determinations: O₃, CO, CO₂, CH₄, SO₂, PM_{2,5}, PM₁₀, NO_x, NO₂, NO₃, COV etc. Determining sound pollution and making dispersion maps. Concepts of pollution sources of surface and underground waters, types of pollutants and their effect. Determinations: TDS, TSS, pH, acidity, salinity, alkalinity, conductivity, hydrocarbons, biogenic substances, general ions, oxygen regime in water, etc. Notions regarding the sources of soil pollution, types of pollutants and their effect. Determinations: pH, acidity, salinity, alkalinity, conductivity, organic matter, hydrocarbons. Dispersion of pollutants. Determination of water and soil radioactivity. Mathematical Modeling of Soil Pollution.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 70%, periodical assessment through practical tests ,continuous assessment throughout semester, activities such as homework/ essays/ papers/ projects 15%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Gavrilescu Elena, 2010, Pollution sources and environmental pollutants, Editura Sitech, Craiova
Gavrilescu Elena, 2011, Pollution of the aquatic environment, Editura Sitech, Craiova.
Lazaroiu Gh.,2006, Dispersion of pollutants, Editura AGIR, Bucuresti
Cârțână Daniela, 2008, Water pollution, Ed. Sitech, Craiova
Haiduc Iovanca, Boboș Liviu, 2005, Environmental Chemistry and Chemical Pollutants, Publishing House of the European Studies Foundation, Cluj-Napoca
Ionel Ioana, 2000, The dispersion of noxes. Theory and applications, Politehnica Timisoara Publishing House.

ENVIRONMENTAL AUDIT AND IMPACT STUDY

CODE: D30IMAL758

CREDITS: 5

COURSE HOLDER: Senior Lecturer, PhD, Ovidiu Andrei ȚUCĂ

YEAR/SEMESTER: 4 st year/ 1st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours seminar

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: The content of the discipline will track the transmission of related knowledge.

Knowledge of the elements necessary for carrying out an environmental audit, Define the principles and laws applicable in the conduct of the audit environment, Use of related domain tools to validate an audit process, Critical evaluation of the options for the stages of the implementation process an audit program.

THEMES: Fields of application, Terms of reference, Regulatory references; Conducting an environmental audit program, Objectives of the environmental audit program, The procedures of an audit program, Implementation of Audit Program, Record audit progress Monitoring and analyzing audit progress, Audit activities, Preparation, approval and distribution of the audit report. Audit within the Environmental Management System, Follow-up of audit results, ISO 19011 Guide to Systems Auditing Quality and/or environmental management, ISO 14001 Environmental Management Systems.Requirements with user guide, Structure and content of the management system manual integrated quality – environment.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Examination 70%, activities such as papers/ projects 30%.

ASSESSMENT TYPE: Examen

BIBLIOGRAPHY:

ROJANSCHI, V., - Politici și strategii de mediu, editura Economică, București, 2002.

*** ISO 14010- Ghid pentru audit de mediu. Principii generale.

*** ISO 14011- Ghid pentru audit de mediu. Auditul sistemelor de management de mediu.

*** ISO 14012- Ghid pentru audit de mediu. Criterii de calificare pentru auditorii de mediu.

*** SR EN ISO 19011- Ghid pentru auditarea sistemelor de management al calității și/sau mediului.

MONITORING AND DIAGNOSIS OF ENVIRONMENTAL QUALITY

CODE: D30IMAL759

CREDITS: 3

COURSE HOLDER: Lecturer PhD. Simona Mariana POPESCU

YEAR/SEMESTER: 4th year/ 1st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 1 hour practical course

NUMBER OF WEEKS: 14

COURSE TYPE: domain

COURSE OBJECTIVES: Developing the skills to obtain and process environmental data in order to reduce the impact of pollutants on the environment. Proper use of the terms of specialty in the field of environmental protection and of the environmental quality monitoring equipment.

THEMES: General considerations on environmental quality monitoring. Monitoring and quality control of the environment. Air quality monitoring. Monitoring of water quality. Monitoring of soil quality. Noise monitoring. The integrated quality-environment concept. General considerations of indoor pollution.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 70%, final answers for workshops 10%, periodical assessment through practical tests 10%, activities such as homework/ essays/ papers/ projects 10%.

ASSESSMENT TYPE: colloquy

BIBLIOGRAPHY:

Gavrilescu Elena, Popescu Simona Mariana, 2013 - Monitoring and diagnosis of environmental quality, Sitech Publishing, Craiova;

Ciolpan, O., 2005 - Integrated monitoring of ecological systems, Ars Docendi Publishing, București;

Carmen Teodosiu, 2004 - Integrated environmental management - Ecozone Publishing, Iasi;

Rojanschi, V., Bran, Florina, Diaconu, Gheorghita, 2002 - Environmental protection and engineering, Economică Publishing, București;

Godeanu, S., 1997 - Integrated ecological monitoring elements., Bucura Mond Publishing, București;

Varduca A., 1991 - Integrated environmental monitoring system in Romania, Rev. Mediul Înconjurător, vol. II, nr. 3-4, București.

METHODS AND MEASUREMENTS FOR INVESTIGATION OF DEPOLLUTION

CODE: D30IMAL861

CREDITS: 5

COURSE HOLDER: Professor, PhD, Elena GAVRILESCU

YEAR/SEMESTER: 4st year/ 2nd semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course

NUMBER OF WEEKS: 14

COURSE TYPE: specialized discipline

COURSE OBJECTIVES:

Knowledge of the principles of functioning of the apparatus necessary to determine the investigations. Determination of pollutants in soil, water, air for quantitative and qualitative monitoring. Knowledge of environmental depollution technologies. Specific methods for treating the main atmospheric, surface and groundwater and soil pollutants. Methods of

restoration of the polluted underground area. Waste water treatment processes, installations and equipment.

THEMES:

Establishment of the spreading area of the pollutants, specific requirements for measurements of physical and chemical parameters. Methods of air depollution (NO_x, SO₂, CO₂, primary and secondary reduction measures). Desulphurization of combustion gases (dry, semi-dry and wet process). Methods and devices for dust retention (gravity, inertia and impact, centrifugation, electrostatic filtering, etc.). Physical methods of soil and groundwater depollution (sealing, hydraulic blocking, stabilization, excavation, pumping, washing, floristry, extraction, etc.). Chemical methods for soil and groundwater abstraction (extraction, oxidation, reduction, precipitation, dechlorination, dehalogenation etc). Thermal methods of soil and groundwater (incineration, desorption, vitrification, etc.). Biological methods of soil and groundwater abatement (bioreactor, biodegradation, bioventing, biolixivation, bioaccumulation, biofiltration, etc.). Decontamination of soils and surface waters in emergency situations.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 70%, periodical assessment through practical tests 15 %, activities such as homework/ essays/ papers/ translations/ projects 15%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Gavrilescu Elena, 2010, Pollution sources and environmental pollutants , Editura Sitech, Craiova.

Gavrilescu Elena, Buzatu Diana, 2013, Methods of environmental detoxification. Editura Sitech, Craiova.

Ionel Ioana, 2000, The dispersion of noxes. Theory and Applications, Politehnica Publishing House Timisoara

Lazaroiu GH.,2006, Dispersion of pollutant particles, Editura AGIR, Bucuresti

Lazaroiu GH.,2006, Modern air pollution solutions. Editura AGIR Bucuresti .

Haiduc Iovanca, Boboş Liviu, 2004, Green Chemistry, Publishing House of European Studies Foundation, Cluj-Napoca

Voiculescu Anca and others, 2005, Decontamination of polluted soils with organic compounds, Ed. SITECH, Craiova.

BIOREMEDIATION

CODE: D30IMAL862

CREDITS: 5

COURSE HOLDER: Senior Lecturer, PhD, Gilda - Diana BUZATU

YEAR/SEMESTER: 2nd year/ 1st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours seminar

NUMBER OF WEEKS: 10

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: Acquiring basic knowledge on bio-depollution, bioremediation and ecological reconstruction methods using biotic factors and biodiversity resources in depollution biotechnology. This knowledge is useful to the specialists in understanding the importance of developing integrated environmental management strategies, including biotechnological methods, in the context of ensuring sustainable development

THEMES: Biological depollution biotechnologies. Principles of biological depollution, bioremediation and ecological reconstruction. Systematic analysis of ecosystems, their

operation, exploitation and rehabilitation. Bioremediation. Biological degradation / biotic degradation: biotransformation, biodegradation. Biodegradation of organic substances in soil. Biodegradation of aliphatic hydrocarbons (methane, ethane, propane, etc.) and aromatics (benzene, toluene etc.) Biological depollution of benzene, petroleum hydrocarbons, pyrene, biphenyl, pesticides etc.). Biodegradation of substances in the nitrogen cycle. Degradation of nucleic acids, creatinine, urea, and other nitrogenous substances in the soil. Soil bioremediation. Enzymes and soil fertility. Methodology of enzymatic soil testing. Restoration of biotopes, biocenoses and degraded ecosystems. Restoration of aquatic ecosystems (wetlands, rivers, lakes, seas). Biological treatment of polluted water. Restoration of terrestrial ecosystems / meadows, agricultural crops, forests. Biological methods of soil decontamination. Biological methods of immobilization / extraction of pollutants. Biomonitoring - methods of pollution assessment by bioindicators. Ecological rehabilitation of tailings dumps, degraded areas. Techniques of bioremediation of technical soil in tailings dumps of coal, iron, lead, zinc, sulfur, manganese, limestone etc. Bioremediation of oil shale, residues at thermal power plants. Bioremediation of degraded industrial and urban sites. Quality biological indicators used in the diagnosis of pollution.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 70%, final answers to seminar 30%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Barbu C.H., Sand Camelia, 2004. Theory and modern practice of soil pollutions with heavy metals. ALMA MATER Publishing, Sibiu.

Cosmulescu Sina, Costea D.C., 2009. Bioremediation. Sitech Publishing, Craiova.

Denuț I. (eds.), 2000. Ecological rehabilitation and management of sites degraded by the mining industry. Univ. de Nord Publishing, Baia-Mare.

Drăgan-Bularda M., Samuel Alina Dora, 2008. Microbial Biotechnologies. University of Oradea Publishing, Oradea.

Kiss Șt., Dragan-Bularda M., Pașca Daniela, 1993. Enzymology of the environment. Enzymology of anthropogenic soils. Vol. II. CERES Publishing, Bucharest.

Malschi Dana, 2009. Biotechnologies and decontamination of ecological systems. (Biological Decontamination Technologies, Bioremediation Technologies, Ecological Reconstruction). Course notes and practical applications. Manual in electronic format. Bioflux Publishing, Cluj-Napoca.

Oros V., 2002. Ecological rehabilitation of industrially degraded sites. Univ. Transilvania Publishing, Brasov.

Oros V., 2011. Elements of ecotoxicology and ecotoxicological tests, RIOSOPRINT Publishing, Cluj Napoca.

FLORAL ECOSYSTEMS AND HUMAN HABITAT

CODE: D30IMAL863

CREDITS: 4

COURSE HOLDER: Associate Professor, PhD, Carmen NICU

YEAR/SEMESTER: 4th year/ 2nd semester

NUMBER OF HOURS PER WEEK: 2 hours of course, 2 hours of practical works

NUMBER OF WEEKS: 10

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: Knowledge of floral ecosystem characteristics and the importance of ornamental plants in mitigating atmospheric pollution, moderating the urban climate,

combating soil erosion, etc. Knowledge of the main flower species used in outdoor and indoor spaces. Ways to use flower plants in urban green spaces and indoor spaces to create an environment that combines the sanogenic effect and aesthetics of human habitat.

THEMES: General notions about floral ecosystems. Relationships of flower plants with environmental factors. Biological features, ecological requirements and use for the main annual, biennial and perennial species used in green spaces. Indoor flower plants with sanogenic effects. Ways to use flower plants indoors to improve the quality of life.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: Exam answers 70%, final answers to practical works 30%.

ASSESSMENT TYPE: exam

BIBLIOGRAPHY:

Anton Doina, 2003. Floricultura generală. Editura Universitaria, Craiova.

Anton Doina, Nicu Carmen, 2005. Floricultură specială. Culturi floricole în câmp. Ed. Universitaria Craiova.

Anton Doina, Nicu Carmen, Mandă Manuela, 2009. Floricultură specială. Culturi floricole în spații protejate. Editura Universitaria, Craiova.

Muja S., 1994. Dezvoltarea spațiilor verzi în sprijinul conservării mediului înconjurător în România. Editura Ceres, București.

THE DEVELOPMENT AND HYDROTECHNICAL CONSTRUCTIONS

CODE: D30 IMAL864

CREDITS: 4

THE TITULAR OF THE COURSE: University lecturer Doctor of Engineering Costică PĂUNESCU

YEAR/ SEMESTER : the 4th year/ 1st semester

HOURS PER WEEK: 2 hours for courses, 4 hours for practical works

NUMBER OF WEEKS: 14

TYPE OF DISCIPLINE: domain

THE OBJECTIVE OF THE COURSE: Presentation of the basic elements for the design, development and exploitation of hydrotechnical constructions with impact on the environment in agriculture.

THEMES: Hydrotechnical constructions, Water supply of populated centers, Water supply schemes, Wastewater treatment plants, Technological water treatment schemes, Current treatments and special treatments.

THE TEACHING LANGUAGE : Romanian

ASSESSMENT OF KNOWLEDGE: 70% exam answers, final answers to practical laboratory work 30%

FORM OF EXAMINATION: exam

BIBLIOGRAPHY

Băloiu V., 1980 – Amenajarea bazinelor hidrografice a cursurilor de apă, Ed.Ceres

Diaconu S., 1999 - Cursuri de apă, Amenajare , Impact, Reabilitare, Ed. H.G.A. București

Dobrot R., 1999 – Modelarea impactului schimbărilor climatice asupra resurselor de apă, Ed. H.G.A. București

Jura N. C., 1984 - Alimentări cu apă, partea I-a și partea a II-a , Institutul Politehnic Timișoara, Facultatea de construcții

Pâslărașu I., Teodorescu M., 1991 – Alimentări cu apă, Ed.Tehnică, București , Ediția a II-a

Secară E., E.M. Blitz 1983 – Exploatarea alimentărilor cu apă și canalizărilor, Ed.Tehnică București

Secară E., E.M. Blitz 1987 – Exploatarea instalațiilor de epurare a apelor uzate , menajere și orășenești, Ed.Tehnică București

Trofin P., 1988 – Alimentări cu apă, Ed. Tehnică București.â

ENVIRONMENTAL LEGISLATION

CODE: D30IMAL865

CREDITS: 4

COURSE HOLDER: Senior Lecturer, PhD, Popescu Simona

YEAR/SEMESTER: 4th year/ 2nd semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours seminar

NUMBER OF WEEKS: 10

COURSE TYPE: specialized discipline

COURSE OBJECTIVES: The objective of the discipline is the assimilation by the students of the concepts regarding environmental legislation. The discipline will be analyzed by two important aspects: first, acquiring the basic concepts of law, then passing to the basic notions of environmental law, environmental policies and development strategies.

THEMES: Introduction to Law. The Law, Definition and Etymology. The Legal Norm and law sources. The action of legal norms in space, time and on people. Legal Relations. Civil legal Relations. Elements of the Civil Legal Relation: The subjects of the civil legal relation, Object of the Civil Legal Relation and Content of the civil legal relation. Legal Relations of Administrative Law. The main institutions and governing bodies of the state. Introduction to environmental law. Object, definition and notions specific to environmental law. Functions. Fundamental principles and law sources of environmental law. The place and role of environmental law in the legal system. The legal relation of environmental law. Environment protection. Institutional framework. Environmental protection - desideratum and content. Protection of natural resources and biodiversity. Regulation of hazardous activities for the environment. The main institutions with attributions in the field of environmental protection. Basic notion regarding liability in environmental law. Sustainable development. Concept and Content. Sustainable Development Strategy of Romania.

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 70%, final answers to seminar 30%.

ASSESSMENT TYPE: colloquy

BIBLIOGRAPHY:

Dogaru I., Cercel S., Drept Civil. Partea Generală (Civil law. General part), Editura C.H. Beck, București, 2007 ;

Ilie A.B., Dreptul Mediului (Environmental law), Editura C.H.Beck, București, 2017;

Dușcă A.I., Dreptul mediului (Environmental law), Ed. a II-a, Editura Universul Juridic, București, 2014;

Duțu M., Dreptul mediului, tratat, (Environmental law treatise) 2 vol., ediția a III-a, Editura C.H. Beck, București, 2007;

Marinescu D, Tratat de dreptul mediului (Treatise of Environmental law), Editura Universul juridic, București, 2008 ;

DESIGNING ECOLOGICAL FACILITIES

CODE: D30IMAL867

CREDITS: 3

COURSE HOLDER: Lecturer PhD. Simona Mariana POPESCU

YEAR/SEMESTER: 4th year/ 2st semester

NUMBER OF HOURS PER WEEK: 2 hour project

NUMBER OF WEEKS: 10

COURSE TYPE: complementary

COURSE OBJECTIVES: y acquiring theoretical-methodological concepts and approaching the practical aspects, students acquire a consistent knowledge bag in accordance with the partial competencies required for the possible occupations provided in the RNCIS

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: project presentation

ASSESSMENT TYPE: colloquy

BIBLIOGRAPHY:

Rojanschi V., Diaconu Gh. - 1996 - Ingineria mediului, Ed.Tehnică, București.

Ardelean A., Maior C., 2000. Management ecologic, Ed. SERVO – SAT, Arad

Primack B.R., 2002. Conservarea diversității biologice, Ed. Tehnică, București.

Berca M. - 1998 - Strategii pentru protecția mediului și gestiunea resurselor, Ed. Grant, București

Negulescu M. - 1995 - Protecția mediului înconjurător, Ed. Tehnică, București.

Nicoară M., 2009. Monitoring ecologic, Ed. Tehnopress, Iași.

PROFESSIONAL COMMUNICATION

CODE: D30IMAL868

CREDITS: 5

COURSE HOLDER: Senior Lecturer, PhD, Cătălin STAN

YEAR/SEMESTER: 4 st year/ 2st semester

NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours seminar

NUMBER OF WEEKS: 10

COURSE TYPE: complementary

COURSE OBJECTIVES: Knowledge and deepening of the students with some fundamental concepts that define communication in a knowledge-based society, modern means of communication and documentation that make it possible to access virtual information resources on the Internet. The technical and applicative learning of professional knowledge regarding: Preparing and supporting an oral presentation, Preparing for the interview, Drawing up a curriculum vitae, Writing a letter of intent / motivation, Drawing a business card, Drawing an invitation.

THEMES: Communication and language; Nonverbal communication; Mass Communication; Communication within working groups; Oral Communication (Preparation and support of an oral presentation; Preparing for the interview); Written communication (Writing a curriculum vitae; Writing a letter of intent / motivation, The structural requirements of a scientific work; Drawing a business card; Drawing an invitation; Press Release)

LANGUAGE OF INSTRUCTION: Romanian

KNOWLEDGE ASSESSMENT: exam answers 50%, activities such as homework/ essays/ papers/ translations/ projects 50%.

ASSESSMENT TYPE: colocviu

BIBLIOGRAPHY:

Bougnoux, Daniel, *Introducere în științele comunicării*, Ed. Polirom, București, 2000

Burt Shelley, *Fii pregătit pentru interviu*, Editura Tehnică, București, 1999

Defleur, Melvin L., Sandra Ball-Rokeach, *Teorii ale comunicării de masă*, Ed. Polirom, București, 1999

Rata, Georgeta, *Contribuții la teoria comunicării*, Editura Mirton, Timișoara, 2001

Van Cuilenburg, J.J., O.Scholten, G.W. Noomen, *Știința comunicării*, Ed. Humanitas, București, 2000.