ROMANIA
MINISTRY OF NATIONAL EDUCATION

UNIVERSITY OF CRAIOVA
FACULTY OF HORTICULTURE

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PACKAGE OF COURSES

Master's degree programme: ENVIRONMENTAL MANAGEMENT OF NATURAL RESOURCES

This is the package of course of master's degree programme of Environmental management of natural resources from the University of Craiova/ the Faculty of Horticulture/The Department of Biology and Environmental Engineering.

1ST YEAR OF STUDY

VEGETAL BIOTECHNOLOGY AND ECOLOGICAL IMPACT

CODE: D30MERNM101
CREDITS: 8
COURSE COORDINATOR: Professor Dr. Sina Cosmulescu
YEAR / SEMESTER: Year I / Ist Semester
HOURS PER WEEK: 2 hours of course, 2 hours of practical works
NUMBER OF WEEKS: 14
COURSE TYPE: Knowledge study
COURSE OBJECTIVES: Knowing the importance of biotechnologies and their prospects in the field of environmental protection.
TOPICS: Plant biotechnologies: definition, history, importance, current situation and perspectives in environmental protection.
General considerations on biotechnology for environmental protection. Biotechnologies for restoration of degraded soils. Biotechnologies for the regeneration of polluted sites. Plant propagation biotechnologies and their role in the protection of ecosystems. Creation and use of variability in breeding programs. Ecological impact. Genetically modified plants. Opinions on biosecurity. Conservation of plant genetic resources and ecological impact.
TEACHING LANGUAGE: Romanian
ASSESSMENT FORM: Exam (60% written examination, 40% periodic evaluation)
REFERENCES:
Cosma D. C. 1987. Metode in vitro la plantele de cultură, Editura Ceres.
Cosma D. C., Deliu C., Rakosy-Tican L. 2004. Tratat de biotehnologie vegetală. Ed. Dacia Cluj Napoca.
Cosmulescu S. 2002. Aplicaţii ale biotehnologiilor în pomicultură, Editura Reprograpf, Craiova.
Cosmulescu S., Costea D. 2009. Noţiuni de bioremediere, Ed Sitech Craiova.
Doyle A., Bryan Griffiths J. 1999. Cell and Tissue Culture: Laboratory Procedures in Biotechnology. Edited by John Wiley & Son.
Ignacimuthu S. 1997. Plant Biotechnology. Science Publishers.
Petre M., Teodorescu A. 2009. Biotehnologia protecţiei mediului. Ed. CD Press.
Roşu A. 1999. Elemente de biotehnologii vegetale, aplicaţii în ameliorare. Editura Ametist 92.
*** Colecţie reviste http://biblio.central.ucv.ro/bib_web/ro/Resurse%20electronice.php.

SOIL RESOURCE MANAGEMENT

CODE: D30MERNM102
CREDITS: 6
COURSE HOLDER: Senior Lecturer, PhD, GRECU FLORINA
YEAR/SEMESTER: 1st year/ 1st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 1 hour seminary/practical course
NUMBER OF WEEKS: 14

COURSE TYPE: Deepening study
COURSE OBJECTIVES:

1. The study of land resources of our country and evaluation methods of sustainable use of them;
2. The study of land quality and usage categories. Qualitative evaluation by soil evaluation;
3. The study of lucrative methods of ecological management.

THEMES:
General knowledge about soil. The classification of land resources. The group of waterlogged soils. The group of newly developed soil (young soils). The group of saline and alkali soils. The group of acid soils. The group of mountain soils. The group of fine textured and sandy soils. The erodded soils. The quality status of soil resources. Pollution ways of soil. The changing of soil features under the influence of human activity. The main restrictions on soil quality. The qualitative classification of soils by evaluation.

LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE ASSESSMENT: exam answers 50 %, projects during semester 50%.
ASSESSMENT TYPE: colloquy
BIBLIOGRAPHY:
Florea N., Munteanu I. 2003 – *Sistemul Român de taxonomie a solurilor*. Editura Estfalia București;
Maria Contoman, Feodor Filipov – *Ecopedologie*, Editura "Ion Ionescu De La Brad" Iaşi, 2007, 442 pag., ISBN 978-973-147-006-1;
Mihalache M., Ilie L., – *Bonitarea terenurilor agricole*. Do-Minor, Bucureşti; 2009, 121 pag., ISBN 978-973-1838-75-5;
Paulette Laura, Burta M., 2010 – *Noţinui teoretice şi practice de cartare şi bonitare a terenurilor agricole*. Risoprint, Cluj-Napoca; 229 pag., ISBN 978-973-53-0411-9

VEGETABLE RESOURCES IN SUSTAINABLE TERRITORIAL PLANNING

CODE: D29MERNM103
CREDITS: 8
COURSE HOLDER: Senior Lecturer, PhD, Nicolae LASCU
YEAR/SEMESTER: 1st year/ 1st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course
NUMBER OF WEEKS: 14
COURSE TYPE: Knowledge study
COURSE OBJECTIVES: Deepen knowledge of the organization and functioning of ecosystems and complex relationships established between biotic and abiotic subsystems. Developing an ecological concept to act to achieve ecological balance between ecosystems and human activities. Sustainable protection and valorisation of elements of the natural and built environment, determination, mitigation or annihilation of the effects of destructive phenomena (natural and anthropic risks). Presentation of plant resources and their role in spatial planning. Knowledge of existing interrelations between ecosystems and environment; Between productive activity and the obligation of environmental protection; Training the system approach to all problems; Formation of practical features necessary for the development and protection of natural ecosystems and those exploited by human society.
THEMES: Systematic organization of living matter. Ecological characteristics of natural and anthropic systems. Presentation of plant resources and their role in spatial planning. Managing

plant resources and using them in an integrated system. Ensuring the necessary areas for secondary functions by expanding intravilanes and converting non-performing activities that occupy important land resources. Influence of environmental pollution on plant resources. Prevention and control of pollution. Reconstruction of affected horticultural ecosystems: making a micro-habitat and macro-habitat on ecological principles;
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE ASSESSMENT: exam answers 50%, 50% exam answers, continuous testing 15%, general thematic work / essay / essay / translations / projects 15%, final laboratory work 20%.
ASSESSMENT TYPE: exam
BIBLIOGRAPHY:
O.U.G. 236/2000 – *Regimul ariilor protejate, protejarea habitatelor naturale.*
Cosmulescu Sina – *Protecţia mediului în ecosistemele pomicole,* 350 p, Edit. Universitaria Craiova, 2000.
Florescu Gh., Abrudan I.V. – *Tehnologii de instalare a culturilor forestiere.* Edit. Universităţii Transilvania, Braşov, 2003.
Neacşu P., Olteanu I., Olteanu E.G. - *Ecologia şi protecţia juridică a mediului,* 257 p, Edit. Universitaria, Craiova, 2000.

ECOLOGICAL PROTECTION METHODS FOR PLANTS

CODE: D30MERNM104
CREDITS: 8
COURSE HOLDER: Senior Lecturer, PhD, Cătălin STAN
YEAR/SEMESTER: 1st year/ 1st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 1 hour practical course
NUMBER OF WEEKS: 14
COURSE TYPE: Deepening study
COURSE OBJECTIVES: Deepen knowledge of plant protection in organic farming. Deepen knowledge of plant protection organic methods against harmful organisms. Knowledge of legislation on plant protection products used in plant protection. Practical training on organic methods of plant protection against harmful organisms. Practical training on "good phytosanitary practice" regarding the use of plant protection products used in plant protection.
THEMES: Plant Protection - a link to the organization and practice of sustainable agricultureOrganic farming - a change of conception. Harmful organisms. Definitions and classifications. Measures to prevent pest infestations in agricultural crops. Using radiation of temperature and light to controt pests. Use of technological links of culture. Use of mineral products or herbal prodacts. Products based on viruses, bacteria and entomopathogenic fungi. Invertebrate species antagonist to animal pests. Species of insectivorous vertebrates. Plant breeding, autocidal, etc. Use of sticky colored and pheromones traps as biotechnical combat means, etc. Reduction of pollution by rational use of pesticides (advantages and disadvantages of pesticides use in agriculture. Residues - Remanence- Phytotoxicity. Influence of pesticides on the human body. The place of pesticides in sustainable agriculture.
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE ASSESSMENT: exam answers 50%, activities such as homework/ essays/ papers/ translations/ projects 50%.
ASSESSMENT TYPE: exam
BIBLIOGRAPHY:

Ciochia V., Moise Cristina, 2005 – Protectia ecologică a plantelor de cultură şi mediul înconjurător, editura Editura Pleconus, Braşov.
Mitrea I, Stan C, Ţucă O, 2010, - *Entomologie vol. 1,* Editura Reprograph Craiova.
Roşca I., C. Stan şi colab., 2008, ” Protecția biodiversității în principalele agroecosisteme”, Editura TOTAL Publishing, București.
Roșca I., I. Oltean, I. Mitrea, M. Talmaciu, C. STAN și colab., 2011, ”Tratat de Entomologie generală și specială”, Editura Alpha MDN, Buzău.
Simeria GH., 2001, ”Combaterea biologică în sens strict” a patogenilor și dăunătorilor plantelor”, vol II, Editura Mirton, Timișoara.
Simeria GH., 2003, ” Profilaxia și terapia integrată a bolilor și dăunătorilor plantelor”, vol.II, Editura Mirton, Timișoara.
Toncea I., Stoianov R. 2002 Metode ecologice de protecție a plantelor. Edit. Științelor agricole, București.

BIODIVERSITY AND SUSTAINABLE DEVELOPMENT

CODE: D30MERNM205
CREDITS: 8
COURSE COORDINATOR: Prof. univ. dr. Gheorghe ACHIM
YEAR / SEMESTER: 1st / 2nd semester
NUMBER OF HOURS PER WEEK: course - 2 hours and laboratory - 1 hour
NUMBER OF WEEKS: 14
TYPE OF COURSE: Deepening study
OBJECTIVES OF THE COURSE: The knowledge of factors that influence biodiversity (primary factors in the development of vulnerability and genetic erosion) and methods of preserving;

Biodiversity of horticultural plants (role, importance, current state, perspective);

The structure of biodiversity and its factors of influence (primary factors of evolution and anthropogenic factors);

Relations between biodiversity - biotechnology, biodiversity - climatic changes, biodiversity - food security;

Knowledge of the concept and the main elements of the sustainable development in horticulture;

Sustainable development and its involvement in the progress of horticulture;

The main elements of sustainable development and their involvement in horticulture.

THEMATICS OF THE COURSE: Biodiversity - definition, role, importance, current state. Biodiversity to horticultural plants;

Factors influencing biodiversity (primary factors of evolution, vulnerability and genetic erosion);

Diversity and uniformity of biodiversity;

Methods of biodiversity conservation;

Biodiversity and climate change relations, biodiversity and biotechnology, biodiversity and food security;

Sustainable development and its involvement in horticulture development;

The main elements of sustainable development in horticulture.

LANGUAGE: Romanian

KNOWLEDGE MANAGEMENT: Theoretical examination, weight - 70% and practical assessment and verification, weight - 30%.

METHOD OF ASSESSMENT: EXAM

BIBLIOGRAPHY:

Botu I., Botu M., 2000 – *Protecția și conservarea biodiversității*, Editura Conphys, Rm. Vâlcea;

Cristea M., 1985 – *Conservarea genetică a plantelor și agricultura*, Editura Academiei Române, București;

Cristea M., 2006 – *Biodiversitatea* , Editura Ceres, București;

Ghidra V., Botu M., Sestraș R., Botu I., 2004 – *Biodiversitate și bioconservare*, Editura Academic Press, Cluj-Napoca, România.

CLIMATIC CHANGES

CODE: D30MERNM206
CREDITS:6
COURSE HOLDER: Professor, PhD, Elena GAVRILESCU
YEAR/SEMESTER: 1st year/ 2nd semester
NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course
NUMBER OF WEEKS: 14
COURSE TYPE: Synthesis study
COURSE OBJECTIVES: Climate change - exemplifying evidence of global and national climate change, acquiring knowledge of climate scenarios, acquiring knowledge of the flexible previsions and mechanisms of the Framework Convention on Climate Change and the Kyoto Protocol, acquiring knowledge about the National Inventory and the greenhouse gas trading scheme.
THEMES:
Climate and factors that define it. Climate change - causes. Geological phenomena, atmospheric phenomena, extreme physical phenomena, extreme hydric phenomena. Greenhouse effect (greenhouse gases), phenomena generated by earth and cosmos physics, magnetic anomalies. Solar storms, magnetic pole migration, magnetic pole inversion, magnetic field and life forms, magnetic field loss model, magnetic chaos theory, magnetic field of the earth, and global warming. Climate scenarios for the 21st century. Forecasts on climate change defining parameters, future climate change scenarios.
Consequences and phenomena associated to the current global warming (increase of the planetary ocean, increase of the frequency and intensity of climatic and hydrological risk phenomena, the impact of climate change on water resources). Dramatic reduction of biodiversity, consequences on the biosphere and pedosphere. Current global warming legislative framework on mitigation of climate change. European legislation. National legislation. Legal framework and environmental policies in the field of climate change.
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:
Roberts, Neil, 2002, , Major Environmental Changes. Bucuresti : ALL.
Ioan Farcaș, Adina-Eliza Croitoru, 2003, Atmospheric Pollution and Climate Change, Cluj-Napoca: The Science Book House.
EC Directive 2003 on the establishment of the scheme for greenhouse gas emission allowance trading.

Fulvio Zecchini, 2008, Global Climate Change, Timisoara : Editura Universităţii de Vest.
Muresan C. ,2006, Ecoclimatic apocalypse and its causes , Ed. Cartimpex, Cluj-Napoca.
lmplementation of the Kyoto Protocol and the European Union Directives on Emission Trading in Romania, PROOROCU -Editura Accent, Cluj-Napoca, 2006.
Gavrilescu Elena, 2017 , Climatic changes, Editura Sithec, Craiova.

ECOLOGICAL RECONSTRUCTION OF DEGRADED LANDS

CODE: D30MERNM207
CREDITS: 8
TITULAR OF THE COURSE: Associate Professor PhD. Ana Maria DODOCIOIU
YEAR / SEMESTER: I/ II MASTER
HOURS PER WEEK: 2 hours course, 2 hours practical works
NUMBER OF WEEKS: 14
COURSE TYPE: Synthesis study
COURSE OBJECTIVES: Knowledge of the main causes and processes of soil degradation, The evolution of degraded areas at national and regional level, Establishment of ecological reconstruction methods depending on the system of soil degradation.
THEMES: Soil. General composition of the soil. Soil functions, Soil degradation phenomena in the world and in our country, Need for ecological reconstruction, surface mining impacts on soils, ecological reconstruction methods of waste dumps, Land degradation due to petroleum extraction, land degradation through flue dusts from power plants, ecological reconstruction of degraded land through erosion, ecological reconstruction of desertified areas, ecological reconstruction of degraded lands by different wastes, ecological reconstruction of land polluted with nitrates and heavy metals.
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE EVALUATION: answers to exam 80%, final answers to Laboratory works 20%
EVALUATION FORMS: Oral examination
BIBLIOGRAPHY

Avarvarei I., Velicica Davidescu, Mocanu R., Goian M., Rusu M. – 1977, Agrochimie (pp. 163-189), Editura Sitech, Craiova.
Blaga Ghe., Dumitru M., Răuţă C., - 1989 – 20 annes des reches scientifiqe dans la domain de la recultivation des terrens degrades par la exploatasion miniere superficialles de Transilvania, Scientific Bulletin USACNA 11.48.1.
Burger A., Tarbert L., 1992 – Restoring forests and surface – minedland Guidelines for Surface Minen Land Virginia Pub. 460 – 123.
Creangă I., 2006 – Reconstructia ecologica a solurilor poluate cu petrol si apa sarata, Editura Sitech, Craiova.
Constantinescu Emilia 1998 –Cercetari privind recultivarea haldelor de cenusa Researches regarding recultivation of ash dumps from the power plant Isalnita - PhD Thesis Craiova.
R. Mocanu, Osiceanu N., Susinski M., Roşculete C., Iagăru Ghe, 2007-Reconstructia ecologica a haldelor de steril din cariera Husnicioara, Mehedinti, Editura Sitech, Craiova.
Dumitru M., Popescu I., 2002- Recultivarea terenurilor degradate de extractia lignitului, Editura Sitech, Craiova.

TRACEABILITY OF VEGETABLE ECOLOGICAL PRODUCTS

CODE: D30MERNM208
CREDITS: 8
COURSE COORDINATOR: PhD. Associate Professor Dinu Maria
YEAR/SEMESTER: year II / semester II
HOURS PER WEEK: Course – 2 hours/Seminar – 1 hours
NUMBER OF WEEKS: 14
TYPE OF COURSE: Knowledge study
COURSE OBIECTIVES: General concepts of ecological products. The benefits of using organic products. Characteristics of organic products.
TOPICS: Environmental protection rules. Evolution of organic products in Romania. How to get organic products. Storage and marketing of organic products. Presentation of legislation in force on organic products - raw materials and processed products. Certification of organic products. Getting the Ecolabel
TEACHING LANGUAGE : Romanian
KNOWLEDGE ASSESSMENT: answers to exam 75%, control paper 25%
ASSESSMENT FORM: exam
REFERENCES:
Beceanu D., A.Chira A., 2002.Tehnologia produselor horticole Vol I .Editura Economică, Bucureşti
Gherghi A.,1994. Tehnologia valorificării produselor horticole. Curs universitar. Vol. I. Editura Paideia, Bucureşti.
Gherghi A.,1994. Tehnologia valorificării produselor horticole. Curs universitar. Vol. II. Editura Paideia, Bucureşti.
Salunke D. şi colab., 1984 Postharvest Biotechnology of fruit. Vol. I.
Tudor A şi colab.,1992. Tehnologia valorificării produselor horticole. Academia Athenaeum , Bucuresti

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2ST YEAR OF STUDY

MICROBIAL ECOLOGY AND ENVIRONMENTAL QUALITY

CODE: D30MERNM309
CREDITS: 8
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: Deepening study
COURSE OBJECTIVES: Knowledge of the main types of microorganisms of the terrestrial, aquatic and aerial media; acquiring the morphological, eco-physiological and reproductive characteristics of microorganisms important in the ecological management of natural environments.

TOPICS: Importance and weight of microorganisms in the biosphere; Microorganisms in the natural and anthropic environment - classification, functional structures, ecophysiology; Behavior of microorganisms at the action of ecological factors; Soil microbiota: bacteria, actinomycetes, fungi, algae, protozoa, viruses; Ecological relationships of soil microorganisms; Ecological aspects of soil inoculation with useful bacteria; Microbiology of water - importance of microorganisms in water in the process of mineralization, in water self-purification, in aquatic ecosystems productivity, in corrosion, hygienic-sanitary importance; Air Microbiology - importance of microorganisms in the air; The role of air in transmitting pathogenic microorganisms to humans.
TEACHING LANGUAGE : Romanian
KNOWLEDGE ASSESSMENT: answers to exam 100%
ASSESSMENT FORM: exam
REFERENCES
Popa Daniela, Coyne M. (Univ. of Kentucky, SUA) – Soil Microbiology: the live beneath your feet, published in U.S.A. - Instant Publisher.com., 2008
Popa Aurel, Popa Daniela, Dragomir Felicia "Mediile naturale ale microorganismelor", Ed.Universitaria, 2005
Popa Daniela – Apa – mediu pentru microorganisme, Editura Universitaria Craiova, 2006
Ștefanic Gh., Săndoiu D., Niculina Gheorghiță – Biologia solurilor agricole, Ed. Elisavaros, Bucuresti, 2006

ENVIRONMENTAL POLICIES AND STRATEGIES. SPECIFIC LEGISLATION FOR ENVIRONMENTAL PROTECTION

CODE: D30MERNM310
CREDITS: 6
COURSE HOLDER: Professor, PhD, Nicolae GIUGEA
YEAR/SEMESTER: 2 st year / 1 st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 1 hours practical course
NUMBER OF WEEKS: 14
COURSE TYPE: Deepening study
COURSE OBJECTIVES: • Knowing the premises of the emergence and implementation of environmental policies; • Knowledge of environmental policy objectives; • promotion of sustainable cropping techniques and technologies compatible with sustainable viticulture; • Knowledge of institutions involved in implementing environmental policies; • practice of a sustainable agriculture.
THEMES: • Environmental policy in the European Union; • Objectives and principles of environmental policies; • The evolution of environmental policies, environmental policy enforcement tools; • zoning of viticulture worldwide and in Romania; • environmental degradation and protection in viticultural agroecosystems. • strategies in environmental policy, environmental protection in Romania, legal and institutional framework
LANGUAGE OF INSTRUCTION: Romanian
KNOWLEDGE ASSESSMENT: examination answers 50 %, final answers for workshops 50%,
ASSESSMENT TYPE: examination
BIBLIOGRAPHY:
Ciupeanu E.D., Țucă O., Murărița I., 2008 – Ecological management Universitaria Publishing House, Craiova

Culic A., Petrescu R. M., 2006 - Waste Management and Legislation, EFES Publishing House, Cluj-Napoca;
Neacșu P., Olteanu I., Olteanu E.G., 2000 – Ecology and legal protection of the environment, Universitaria Publishing House, Craiova
Marinescu D., 2003 - Treated by environmental law, All Beck Publishing House, Bucharest;
Prisecaru P., 2004 - Common policies of the European Union, Economic Publishing House, Bucharest.

PROJECT MANAGEMENT

CODE: D30MERNM311
CREDITS: 8
COURSE COORDINATOR: Professor Dr. Sina Cosmulescu
YEAR / SEMESTER: Year II / Ist Semester
HOURS PER WEEK: Course – 2 hours / Seminar - 1 hours
NUMBER OF WEEKS: 14
COURSE TYPE: Synthesis study
COURSE OBJECTIVES: Understanding the basic notions, the main knowledge base that makes the content of the project management. Creating the necessary skills to carry out projects in economic, cultural, political, non-governmental organizations etc.
TOPICS: Introduction. Project cycle management. Quality management. Management of human resources. Time management. Financial management. Other management activities (management of communication, conflict management in projects, risk management in projects, management of public acquisitions, management of the objectives). Control and evaluation. Monitoring. The management of the project cycle. Fundamental principles. Analysis tools. Impact study. Feasibility study. Business Plan. The selection of projects.
TEACHING LANGUAGE: Romanian
ASSESSMENT FORM: Exam (60% written examination, 40% periodic evaluation)
REFERENCES:
Bonghez S. 2013. Managementul proiectelor – adevăr sau provocare. Ed. Universul Juridic.
Dennis L. 2009. Managementul proiectului. Ed. Monitorul Oficial.
Florescu D. 2012. Managementul proiectelor cu finanţare europeană. Ed. CH Beck.
Grigorescu A. 2008. Managementul proiectelor. Ed. Uranus
Iliescu V., Gherghinescu O. 2005. Managementul proiectelor, Ed. Didactică şi Pedagogică, Bucuresti
Mocanu M., Schuster C. 2001. Managementul proiectelor: Calea spre creşterea competitivităţii. Editura All Beck, Bucureşti.
Mochal T., Mochal J. 2006. Lecţii de management de proiect. Ed. Codecs Bucureşti.
Postavaru N. 2002. Managementul proiectelor. Editura Matrix Rom, Bucuresti.

ECOTOXICOLOGY, ENVIRONMENTAL IMPACT AND EFFECTS OF POLLUTANTS

CODE: D30MERNM312
CREDITS: 8
COURSE HOLDER: Professor, PhD, Elena GAVRILESCU
YEAR/SEMESTER: 2st year/ 1st semester
NUMBER OF HOURS PER WEEK: 2 hours course, 2 hours practical course
NUMBER OF WEEKS: 10

COURSE TYPE: Deepening study

COURSE OBJECTIVES:

Knowledge of distribution disturbance in the key compartments of the ecological systems of some elements and chemical compounds. Explaining the bioaccumulation, bioconcentration and bio-amplification processes. Knowledge of the processes of abiotic transformation, biodegradation and biotransformation of contaminants. Knowledge of the effects of pollutants at individual, population and ecosystem level.

THEMES:

Bioaccumulation, bioconcentration, bio-amplification and biodegradation processes. Factors influencing the bioaccumulation phenomenon. Bioaccumulation phenomena in trophic chains and networks. Bioaccumulation in terrestrial ecosystems. Accumulation of contaminants in plants. Accumulation of contaminants in invertebrates. Transfer of contaminants along the trophic network. Bioconcentration. Factors influencing the bioconcentration process. Biomagnification. Bio-amplification in aquatic systems. Methods for determination of bioconcentration and bio-amplification factors. Biodegradation of chemical compounds. Factors influencing biodegradation processes. Aerobic Biodegradation. Anaerobic biodegradation. Persistence of chemicals in the environment. Toxicity of chemical elements and their compounds. Toxicity of phytosanitary substances. Extremely dangerous toxic substances. Toxicity of endotoxins, algotoxins and molds. Phytotoxins, mycotoxins. Psychotoxic and hallucinogenic substances.

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, 2008, General notions of ecotoxicology,, Ed. Sitech, Craiova.

Petre Marian, 2003, Ecotoxicology - fundamental elements , Ed. Didactică şi Pedagogică, Bucureşti.

Lancranjan Ioana, 2012, Ecotoxicology - University course, Editura Ecou Transilvan

Postolache Carmen şi colab., 2000, Introduction to Ecotoxicology, Ed. Ars Docendi, Bucureşti