

COURSE UNIT DESCRIPTION

Course Title : Agricultural Environment Technology Control	Course-No. :	Semester :
Course Type : Lecture –	Hours/Weeks/WS/SS 2	Number of credits
Practical	2	

Lecturer: George Stavroulakis Ph.d. – Professor

Institute/Department: TEI

Course Description:

The aim of the course is to educate the student about the soil management which is one of the basic factor of the agricultural environment. The knowledge of the soil qualitative and quantitative characteristics and the control of soil pathology combined with laboratory applications will provide the scientific background in order to manipulate the soil as a natural resource.

Course Outline:

General about soil. Soil genesis and development. Organic and inorganic soil elements. Soil water and soil air. Physical and chemical properties of the soils. Soil microorganisms. Soil erosion. Soil management. Soil and water relationship. Sodic, saline, alkaline and acidic soils management

Bibliography:

Soil science - N Polizopoulos
Soil science – N. Alexiadis
Soil science - Soil pathology – K Sinanis

Teaching method: Lectures, supported by transparencies and computer demonstrations.
In the practical part student participate in laboratory exercises

Assessment: Coursework (40%) and final examination (60%).

Course Title : Introduction to the Agricultural Environment	Course-No. :	Semester :
Course Type : Lecture –	Hours/Weeks/WS/SS 2	Number of credits

Lecturer: George Stavroulakis Ph.d. – Professor

Institute/Department: TEI

Course Description:

The course provides the introductory knowledge on sustainable management of the agricultural environment parameters.

Course Outline:

Environment pollution and contamination. Pollutant toxicity. Eutrophication. Basic parameters of the agricultural environment. Soil. Soil erosion. Desertification. Water. Water quality. Water management. Flora. Fauna. Pest control. Conventional, biological and integrated agricultural practices. Renewable resources in agriculture. Greenhouse cooling and heating. Sustainable use of natural resources in agricultural production.

Bibliography:

Environment vol I - vol II. J. Miller

Technology and global environmental problems - Makofske-Karlin

Teaching method: Lectures, supported by transparencies and computer demonstrations.

Assessment: Coursework (40%) and final examination (60%).

COURSE UNIT DESCRIPTION

Course Title : Water quality technology control	Course-No. :	Semester :
Course Type : Lecture –	Hours/Weeks/WS/SS 2	Number of credits
Practical	2	

Lecturer: George Stavroulakis Ph.d. – Professor

Institute/Department: TEI

Course Description:

The course aims to provide the theoretical and practical knowledge about water quality control.

Course Outline:

Sources and uses of water. Physical, chemical and biological characteristics of water. Significance of the characteristics of water. Water sampling and laboratory analysis. Drinking water quality. Ground water. Bathing waters. Water pollution.

Laboratory exercises :

1. Water sampling
2. pH, EC, turbidity
3. Alkalinity, acidity
4. DO, BOD, COD
5. Water hardness, TDS
6. Water chlorination
7. Anions in water : Chloride-Nitrate-Ammonium-Phosphate-Sulfate
8. Flame Photometer analysis : Ca, K, Na.
9. Atomic Absorption Spectrophotometry : Heavy metals analysis
10. Total organic carbon analyzer : TOC, IC, POC, NPOC
11. Water microbiology.

Bibliography: Environmental Chemistry - Kouimtzis T.*et al.*
Methods of environmental pollution control – Vasilikiotis G.

Teaching method: Lectures, supported by transparencies and computer demonstrations.
In the practical part student participate in laboratory exercises

Assessment: Coursework (40%) and final examination (60%).
In the practical part student participate in laboratory exercises

COURSE UNIT DESCRIPTION

Course Title : Ecology	Course-No. :	Semester :
Course Type : Lecture – Practical	Hours/Weeks/WS/SS 2	Number of credits

Lecturer: George Stavroulakis Ph.d. – Professor

Institute/Department: TEI

Course Description:

The aim of this class is to inform the student for the mutual dependence between the biotic and abiotic environment and at the same time trouble on the consequences that planet Earth will suffer if man proceeds to thoughtless exploitation of Natural Resources.

Course Outline:

Introduction to Ecology: Ecosystems – Applications of Ecology
Organisms in their environment: Liebig's Law – Shelford's Law – Distribution of organisms – Adaptation of organisms
Population ecology: Population characteristics – Mortality and Fertility – Population Interactions – Competition – Predation – Adaptation – Symbiosis
Ecological succession
Community stability
Ecosystem Productivity: Energy Flow – Ecosystem characteristics – Food Chains
Nutrient cycling: Water cycle – Nitrogen cycle – Phosphorus cycle – Carbon cycle – Sulfur cycle.
Man as ecological factor: Acid rain – Glasshouse effect – Ozone hole
Natural ecosystems: Deserts – Tundra – Prairies – Forests – Rivers – Lakes – Seas.

Bibliography: Ecology. S Likakis
Environment vol I , vol II. J. Miller

Teaching method: Lectures, supported by transparencies and computer demonstrations.
In the practical part student participate in laboratory exercises

Assessment: Coursework (40%) and final examination (60%).

Course Title : Limnology	Course-No. :	Semester :
Course Type : Lecture – Practical	Hours/Weeks/WS/SS 2	Number of credits

Lecturer: George Stavroulakis Ph.d. – Professor

Institute/Department: TEI

Course Description:

The aim of the course is to present a balanced, comprehensive and contemporary view of limnology, the study of inland waters.

Course Outline:

Limnology: past, present and future. The structure of aquatic ecosystems.
Analytical methods for water quality management. Significance of the water characteristics.

Bibliography: Limnology – Sinis A.
Limnology – Wetzel R.

Teaching method: Lectures, supported by transparencies and computer demonstrations.

Assessment: Coursework (40%) and final examination (60%).