



## **FACULTY**

**OF CONTEMPORARY SCIENCES AND TECHNOLOGIES**

## **STUDY PROGRAMME FOR POSTGRADUATE STUDIES**

**(Master of Science)**

**NAME OF THE PROGRAMME:**

**ENVIRONMENTAL MANAGEMENT STUDIES**

## I. INTRODUCTION

Environmental Management is one of the leading strategies for sustainable development of every community, and thus of R. Macedonia. This creates the need for educated highly qualified staff, who will be able to successfully engage in the activities related to the protection, advancement and management of the environment.

According to the data from the summative report, the Self-evaluation of the National Capacities for Global Environmental Management in the Republic of Macedonia (UNDP, 2005), the condition of the scientific expertise in the country is evaluated as considerably unsatisfactory. In order to develop the capacity in this field, a single objective is set, that is advancement of the scientific expertise and the research. As obstacles for realizing the task, among others are: the lack of experts and the low level of contemporary knowledge in the certain fields, the lack of cooperation and communication among the interested parties and the scientific community, as well as the insufficient orientation of the scientific staff to research in accordance with the national priorities.

The current efforts of certain higher educational institutions in the field of staff education in this field appeared non-adequate for the needs. The causes to this situation may be located in several aspects:

1. Apart from the pledge for the interdisciplinary approach to the issue, within the frames of certain scientific disciplines smaller or larger closeness was noticeable.
2. The study programmes did not provide significant contribution in the field of bridging the gap between the instructional theory and practice.
3. The cooperation and exchange of experiences between the involved parties was marginalized.
4. The development of competencies of the institutions, groups and individuals is overlooked.

The above-mentioned remarks are used in the creation of the study programme for postgraduate studies at the Institute for Environment and Health. Thus, the generally accepted international norms, strategies, references, tendencies and considerations about the environment were respected in accordance with the concept of sustainable development.

## II EXPECTED OUTCOMES OF THE PROGRAMME GRADUATES ARE:

- Advancement of the ability for Environmental Management with reference to sustainable development, completion of ecological studies, use and management of natural resources etc.
- Scientific-research work in the field of Environmental Science, which requires high level of expert interdisciplinary knowledge in the given field.
- Understanding of the mutual influences of the economy, society and maintenance of the environment.

- Skills for collection, preparation, analysis and presentation of data about the environment, necessary for its management,
- Skills for utilizing other data and information sources,
- Skills for independent practical work,
- Ability for searching and evaluating information.
- Knowledge of concepts, strategies and possibility for their application in solving certain problems in the field of Environmental Management.
- Understanding of the mutual relations between the society and the environment.

### **III LEARNING OUTCOMES**

The skills that will be acquired through this programme may be divided into action skills (intellectual and transferrable) and technical skills (practical and based on knowledge). According to the chosen programme, the learning outcomes the student will acquire may be grouped as followed:

#### **Skills:**

- compiling suitable questions that refer to significant study and research;
- defining fundamental concepts such as the environment, community, development and technology, application of definitions on local, national and global experience;
- utilization of a range of resources and technologies related to certain issues;
- evaluation of bias and different perspectives;
- development of hypotheses based on balanced information, crucial analyses and comprehensive syntheses, and their testing against new information, personal experience and beliefs;
- effective reporting of information and perspectives;
- acting for negotiating consensus and cooperative conflict resolution;
- development of cooperative strategies for adequate action for change of the current relations between ecological preservation and economic development.

#### **Knowledge about:**

- natural processes that are maintained in the environment;
- the influence of human activities on the environment;
- the different environments, in the past and today;
- ecological topics, such as the greenhouse effect, acid rains, air pollution;
- local, national and international control of the legislation on the protection and management of the environment;

- the interdependence between life, earnings and environment;
- conflicts that may emerge related to ecological problems;
- how the environment is affected by the past decisions and activities;
- the importance of planning, design and esthetic observation;
- the importance of effective action for environmental protection and management.

**Competencies:**

- scientific research, professional communication, public speaking, decision making, problem solving, public ethics, critical thinking- ability for critical evaluation and communicative information that are beneficial for solving practical problems, knowledge and understanding of numerous ecological, economic, geographical, educational and political processes and understanding of the effects, influences of the people on the natural systems:
  - population dynamics
  - interaction
  - interdependence
  - reasoning within time and range/scale frames.

**IV PROGRAMME AND CURRICULUM DESCRIPTION**

The 2<sup>nd</sup> cycle programme will consist of 90 credits equivalent to 60 ECTS credits and the instruction will be full time within the period of three semesters (30 credits per semester).

The programme consists of four obligatory courses from the Institute, elective courses from the field of ecology, as well as Masters Thesis based on research.

Apart from the general admission requirements for 2<sup>nd</sup> cycle studies, the future student is required to meet the following conditions:

- 1) Completed Higher Education (VII degree) or (180-240 credits)
- 2) Solid knowledge of Albanian, Macedonian and English Language.
- 3) Minimum 8 GPA or two extensive articles published in internationally acknowledged professional journals.
- 4) Approval from Admission Committee (as a part of the programme students with a diploma from other disciplines may be required to fulfill certain undergraduate preconditions)
- 5) Interview.

Modifications and supplements of study programmes

<b>Semester 1</b>	<b>Credits</b>	<b>W/S</b>	<b>Lectures:</b>	<b>Tutorials:</b>	<b>Overall classes:</b>	<b>Group size</b>
Research Methodology	6	W	30	15	180	50/25
Natural Resources	6	W	30	15	180	50/25
Technological Development and Environment	6	W	30	15	180	50/25
Law and Environment	6	W	30	15	180	50/25
Elective	6	W	30	15	180	50/25
<b>Total</b>	<b>30</b>				<b>900</b>	

<b>Semester 2</b>	<b>Credits</b>	<b>W/S</b>	<b>Lectures:</b>	<b>Tutorials:</b>	<b>Overall classes:</b>	<b>Group size</b>
Information Systems for Environmental Management	6	S	30	15	180	50/25
Energy and Environment	6	S	30	15	180	50/25
Institutional Organization and Cooperation	6	S	30	15	180	50/25
Environmental Economy and Management	6	S	30	15	180	50/25
Elective	6	S	30	15	180	50/25
<b>Total</b>	<b>30</b>				<b>900</b>	

<b>Semester 3</b>	<b>Credits</b>	<b>W/S</b>	<b>Lectures:</b>	<b>Tutorials:</b>	<b>Overall classes:</b>	<b>Group size</b>
Health and Environment	6	W	30	15	180	50/25
Social Ecology	6	W	30	15	180	50/25
Communal and Solid Waste Management	6	W	30	15	180	50/25
Ecological Education and Sustainable Development	6	W	30	15	180	50/25
Elective	6	W	30	15	180	50/25
<b>Total</b>	<b>30</b>				<b>900</b>	

Modifications and supplements of study programmes

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<b>Semester 4</b>	<b>Credits</b>	<b>W/S</b>	<b>Lectures:</b>	<b>Tutorials:</b>	<b>Overall classes:</b>	<b>Group size</b>
Masters Thesis Writing	30	S	/	/	180	30
<b>Total</b>	<b>30</b>				<b>900</b>	

**Elective Courses:**

Ecological Principles  
Bioenergy Sources  
Environment and Ecology  
Ecopsychology  
Ecotoxicology  
Climate Change  
GIS System  
Kyoto Protocol  
Human Ecology

## **COURSE DESCRIPTION**

### **ECOLOGICAL RESEARCH METHODOLOGY**

The programme objective is to equip students for scientific-research work, especially for the completion of research draft, as well as thorough knowledge of certain qualitative and quantitative approaches in data collection from the field of ecology and their successful analysis.

### **NATURAL RESOURCES**

Adoption of knowledge related to natural resources, their availability and recovery. Ecological awareness raising.

### **TECHNOLOGICAL DEVELOPMENT AND ENVIRONMENT**

Adoption of knowledge related to the technological development and environment, new technologies in the sustainable development, technology and ecological problems. Environmental Management Systems.

### **ENVIRONMENTAL LAW**

Adoption of knowledge related to international frame of legal regulations of the environment and the legal standards that need to be respected in the field.

### **HEALTH AND ENVIRONMENT**

Adoption of knowledge related to health, health management method, environment, influence of the environment on the health. Raising health awareness and critique.

### **ORGANIC PRODUCTS AND ORGANIC AGRICULTURE**

Adoption of knowledge related to organic agriculture and organic food production. The effects of organic agriculture on the environment and of the organic products on people's health. How organic agriculture can help avoid the environment imbalance and its destruction.

### **INFORMATION SYSTEMS OF ENVIRONMENTAL MANAGEMENT**

Acquisition of knowledge related to information systems that provide solutions to environmental problems.

### **ENERGY AND ENVIRONMENT**

Adoption of general knowledge related to the energetic technologies, risks and influence on the environment and health. Specific knowledge about the energy and climate change and evaluation methods of energetic technologies from environmental and economic aspect. Finally, applying the acquired knowledge in the sustainable energetic development function.

## **INSTITUTIONAL ORGANIZATION AND COOPERATION IN THE ENVIRONMENTAL FIELD**

Overview of the institutional frame and the information flow in the process of decision making from environmental and sustainable development aspect, in accordance with national and international recommendations.

## **ENVIRONMENTAL ECONOMY AND MANAGEMENT**

- Introduction to environmental economy development
- Introduction to the relation between economy and environment
- Examination of the ecological problems and dilemmas
- Introduction to all the forms of environmental pollution
- Examination of the relation between the development, poverty and environment
- Introduction to the protection measures from environmental pollution
- Introduction to environmental management.

## **ECOPSYCHOLOGY**

Adoption of knowledge related to the effects of the environment on the behavior and the effects of the behavior on the environment. How psychology can aid the solving of environmental problems.

## **ECOTOXICOLOGY**

Educating the students about the harmful effect of the toxins on the environment.

## **KNOWLEDGE ABOUT THE CONTEMPORARY LEGISLATION ON THE ENVIRONMENT**

Adoption of knowledge related to the legal frame of regulating the environmental issue- comparative and within the country.

## **POLICIES AND STRATEGIES FOR ENVIRONMENTAL MANAGEMENT**

Adoption of knowledge about the effects of the environment on the behavior and the effects of behavior on the environment. How the regulations of the European Union can aid the solving of environmental problems in the country.

## **EDUCATION AND PUBLIC AWARENESS ABOUT THE ENVIRONMENT**

Raising the ecological awareness and culture, acquisition of new perspectives, visions, concepts, values, knowledge, skills, competencies, and changes in behavior for preservation and advancement of the environment, as a foundation pillar of sustainable development.

## **ECOLOGICAL PRINCIPLES**

Introducing the students to the general ecological principles and their significance.

### **BIOENERGY SOURCES**

Introducing the alternative energy sources, the method and the main principles for their generation.

### **ENVIRONMENT AND ECOLOGY**

Distinction between the concepts of environment and ecology. Introducing and elaborating the significance of the abovementioned concepts.

### **ECOPSYCHOLOGY**

Introducing the students to the psychological aspects from an ecological perspective and the importance of this approach.

### **ECOTOXICOLOGY**

Introducing the list of toxic substances. The method of identifying the danger from certain substances and preventive measures.

### **CLIMATE CHANGE**

Introducing the students to the global climate changes. What are the causes and how to deal with those occurrences.

### **GIS SYSTEM**

Introducing the importance of having a GIS programme and a data map of the ecological condition of a certain territory.

### **KYOTO PROTOCOL**

Introducing the students to this very significant protocol and the obligations of the signed countries.

### **HUMAN ECOLOGY**

Introducing the students to the significance of human ecology and its significance for raising the awareness about the ecological problems.