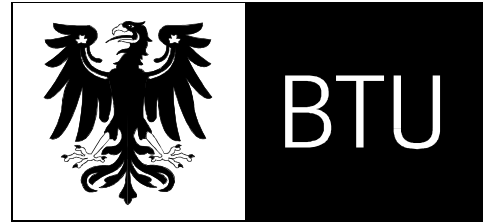


**International Study Course  
Environmental and Resource  
Management**



Brandenburgische Technische Universität Cottbus

Explanation

on the

**Examination and Study Regulations for the  
Master Programme in Environmental and Resource  
Management**

Version 2008/2009

## Introduction

The ERM Master programme is a 4 semesters study programme; which consists of 26 compulsory elective modules, study project and Master thesis. Each of the compulsory elective modules counts for 6 credit points, the study project for 12 credit points, and the master thesis for 30 credit points. In order to **graduate from the Master programme**, you need 120 credits in total.

### 1. Explanation of:

1. Compulsory elective modules
2. Complementary subjects
3. Study project

#### 1.1 *Compulsory elective Modules*

- A catalogue of 26 compulsory elective modules are offered within the ERM Master programme. Students can choose freely from this catalogue.
- In order to obtain the necessary 78 credits with compulsory elective modules students have to choose 13 modules with 6 credit points each.
- It is recommended to attend 5 modules within one semester, in order to obtain a total of at least 30 credit points per semester.
- In order to finish a module you have to take all assigned lectures, seminars, exercises etc. and pass the related examinations.
- In general one module has to be finished within one semester, in some cases they can take up to two semesters.
- For a better overview modules have been divided into four main areas:  
Environmental sciences,  
Environmental management,  
Environmental engineering, and  
Sustainability and ecology

Description of modules offered

<b>ENVIRONMENTAL SCIENCES</b>	
M1	<b>General and Applied Ecology</b> The Module General and Applied Ecology provides an overview of the basic and applied aspects of ecology. Biodiversity is used as a cross-cutting issue to link scientific models and theories to application in planning and management.
M2	<b>Soil protection and Ecotoxicology</b> The module has the aim to extend the basic knowledge of soil protection. Selected issues of soil science and applied soil protection related problems will be reflected including different climate regions of the world.
M3	<b>Molecular Sciences</b> This lecture is to provide examples of systems in Biochemistry and Cell biology. The students are introduced into the specific aspects of organic life which are not found in the physical and abiotic aspects of nature.
M4	<b>Aquatic Ecology</b> Deeper understanding of the variety of freshwater ecosystems with their structures and functions, the students shall understand the interaction of abiotic and biotic processes in lakes and rivers, most important ecological processes relevant for the quality of freshwaters, the interaction of biogeochemical cycles and water quality as well as the processes connecting the major impacts and the water quality.
M5	<b>Freshwater Restoration Ecology</b> The objective of the module is to develop an understanding of principles of water management, knowing principles and methods of established surface water quality assessment, guiding principles, basic impacts to surface waters, approaches to mitigate human impact to surface waters, understanding the eco-technology approach in water management.

M6	<p><b>Environmental Modelling</b></p> <p>Objectives of the module are to enable students to identify and formulate ecological modelling problems and to apply modelling techniques to experimental data sets on regional and global scales.</p>
M7	<p><b>Protection of the Atmosphere</b></p> <p>There are two main environmental goals in respect to the atmosphere: reasonable air quality and the prevention of climate change. In order to achieve these goals it is necessary to assess the current situation and to make forecasts of (develop scenarios for) potential future changes. The students are encouraged to do these forecasts based on incomplete knowledge.</p>
<b>ENVIRONMENTAL MANAGEMENT</b>	
M8	<p><b>Strategic Environmental Assessment and Environmental Impact Assessment</b></p> <p>In the lecture EIA/SEA fundamental knowledge regarding environmental impact assessment and strategic environmental assessment will be gained. The most essential contents of the lecture shall be discussed to a greater depth and in a more detailed manner, throughout the seminars.</p>
M9	<p><b>Industrial Sustainability</b></p> <p>The module gives an overview about the principles of product and company related legislation, systems and cost management for take-back operations, state-of-the-art and implications of the recycling technology</p>
M10	<p><b>Material Management</b></p> <p>In the range of manufacture and especially within industrial production the hazards of chemical substances and materials have been the key concern in the areas of work safety, environmental protection and plant procurement. Rules from different law areas are relevant therefore: OSHA, EP, HTMA etc. This multi-aspect subject must be understood by plant officers – to be. In addition, the systems of chemical hazards are compared, regarding Germany (and the EC) as well as the United States.</p>
M11	<p><b>Cost Benefit Analysis in Environmental Evaluation</b></p> <p>The students should get acquainted with economic methods of valuation, of analyzing and solving problems.</p>
M12	<p><b>General Business Administration</b></p> <p>This module introduces the major tools and deeper understanding of the basics of economics and business administration.</p>
<b>ENVIRONMENTAL ENGINEERING</b>	
M13	<p><b>Natural Resource Investigation</b></p> <p>he objectives of the module are to get to know geological processes and to understand the role of these processes for the formation of natural resources, to become acquainted to the processes leading to the genesis of different raw materials, to study methods and techniques for investigation of natural resources</p>
M14	<p><b>Applied Geology</b></p> <p>The objective of the module is to develop an understanding of groundwater systems, their dynamics and geochemistry in the hydrological cycle.</p>
M15	<p><b>Municipal Solid Waste Management</b></p> <p>After a more general introduction, the students will be made familiar with the phenomenon of entropy for deriving guidelines and recommendations for the development of policies and strategies in waste management. From this, new approaches to the solution of the waste problem will be discussed. Furthermore, an introduction into economic problems with focus on PPP-models will be given.</p>
M16	<p><b>Methods of Water Resources Management</b></p> <p>The contents of the module are focused on methods to assess and to balance the components of the water cycle and to derive properties of surface and subsurface catchments with respect to runoff generation and water yield.</p>

M17	<b>Production, Processing and Use of Renewable Raw Materials</b> The module objective is to learn how an enhanced bioenergy production affects land use in different regions (tropical, temperate), to apply the principles of interaction between site conditions, trees and crops in order to design agroforestry systems and short rotation plantations
M18	<b>Wastewater and sludge treatment</b> Understanding of general processes of waste water and sludge treatment, e.g. Coarse cleaning by screens and rakes, micro-sieving, sedimentation processes: thickener, grid chamber, preliminary sedimentation and secondary settling, flotation processes: oil and fat trapping, light density material collector, clearing by filtration, etc.
M19	<b>Decentralized Power Generation</b> The module provides basic knowledge of understanding in electrical power engineering with special reflection on the situation during normal or fault operation. Students will get an overall understanding of technical solutions for decentralized power generation as well as energy storage.
M20	<b>Power Systems Economics</b> The module "Power System Economics 1" provides the students with deeper understanding of energy-economic basics. The students can compare different components of an energy supply system with the help of techno-economic characteristics.
M21	<b>Safety and Risk Analysis for Process and Plants</b> Fundamentals and application of the following methods: - hazard identification, - evaluation of probability and consequence of failures,- qualitative and quantitative risk assessment, - safety related plant optimisation (e.g. extension of inherent safety)
<b>SUSTAINABILITY AND SOCIOLOGY</b>	
M23	<b>Philosophy of Ecological Sciences</b> Orientation in a post-modern world requires a comprehensive overview of the philosophical back-ground and the ethical relevance of ecological concepts and their applications. In contrast to standard philosophical approaches, emphasis is laid on the analysis of examples and cases studies taken from the field of biological sciences.
M24	<b>Social Change and Continuity</b> The module gives an introduction into the main themes of social change and continuity. It enables students to apply key-concepts to specific dimensions, and/or cases.
M25	<b>Culture and Globalisation</b> The main contents of this module the central importance of the environment and culture in international politics, selected international organisations; history, development and ways of working of international organisations, political models and concepts influencing on contemporary international politics, theories of development, under-development and dependency.
M26	<b>Sociology/Environmental Sociology</b> The objective of the module is to convey a basic understanding of sociological thought and sociological concepts as well as of research methods used in social sciences. The module is also designed to provide an overview of possible applications of sociological approaches and a profound understanding of the potentials and limitations of the various approaches.

## 1.2 Complementary subjects

- Up to five compulsory elective modules (30 credits) can be substituted by complementary subjects.
- A complementary subject can be a module or class, which is offered in another study programme at BTU Cottbus, by the language centre, by guest lecturers or classes taken during a semester abroad.
- They require advance approval of the Head of the Examination Board or the Head of the Study Programme.
- Grades for complementary courses studied at a foreign university are not incorporated into the overall grade.

### **1.3 Study Project**

- Within the study project a freely chosen subject can be studied in detail.
- A study project should always be carried out within a group of students, not by a single student
- The main scope of the study project is the development of problem-solving skills by means of information gathering, social interaction within a team, and communication of the results

## **2. Proceedings when:**

1. Planning your curriculum
2. Registering for a module
3. Going for a semester abroad
4. Registering for the Master thesis

### **2.1 Planning your curriculum**

- Students can choose freely from a catalogue of 26 compulsory elective modules.
- In order to specialise and prepare for your Master thesis you should select modules based on your professional interests.
- An assigned mentor shall guide you while setting your personal timetable.
- The study plan for the whole programme has to be approved by the mentor.

### **2.2 Registering for a module**

- Students have to register for all modules they like to take within the registration period (first three weeks of the lecture period).
- The registration should be done via the Online Examination Registration (please read the leaflet about the Online Examination Registration carefully).

### **2.3 Going for a semester abroad**

The semester abroad is a voluntary but a recommended part in the Master programme.

- You can choose one of our partner universities or a suitable university of your own choice.

Keep in mind:

- that you need to get the advance approval of the examination board for your Learning Agreement, indicating all the subjects planned to take during the semester abroad,
- that you have to attest your studies taken with an official Transcript of Records from the host university.
- that you can get recognised a maximum of 30 credits during your semester abroad, which count as well to the possible substitutions for the 5 compulsory elective modules.

### **2.4. Registering for the Master thesis**

The Master thesis shall be done in the fourth semester and shall be finished within sixth month.

To get registered for the Master thesis you have to have finished your study project successfully and have to have collected 78 credits in total. Furthermore you need to be enrolled in the study programme.

### **3. What is the process of examination repetition**

If you fail one examination you have two chances for a repetition.

The first repetition has to be in the same examination form like the failed one. First repetition has to be offered latest during the next semester.

A second repetition has to be offered within one academic year.

#### **Note:**

**Please consider that these explanations just refer to specific parts of the Examination and Study regulations.**

**These explanations do not relieve you of the duty to read the whole Examination and Study regulations.**