

## Environmental and Recycling Technology (M. Eng.)

<b>Module – Number</b>	<b>737</b>	<b>Obligatory in specialization Environmental Technology (ET)</b>		
<b>Module name</b>	<b>Plant Planning for Environmental Technology / Project Work</b>			
Module coordinator	New Prof. Dr.-Ing. ERT N.N.			
Title	Plant Planning for Environmental Technology / Project Work			
Title of examination	Plant Planning for Environmental Technology / Project Work			
Semester	2 <sup>nd</sup>			
Course type	Language	Lecture	English	
Credit hours/ ECTS/ Workload	2/1/1	5	150	
Formal Conditions	Bachelor of Engineering or Bachelor of Science degree			

### 1. Content and objectives

#### Content:

The course provides the principles of planning and projecting environmental systems.

Based on the basic project organization, the approach and methodology of the individual project phases are presented. Specifically, preliminary project, basic engineering, detailed engineering as well as assembly and commissioning are dealt with. Further training will be provided by the use of examples.

Calculation and design of selected system components (e.g. sewage treatment plant; systems for solid-liquid separation, dedusting systems).

Planning of complete systems.

#### Learning objectives:

In the project, the students carry out the planning of a complex system. The overall task changes, but can basically be broken down into the following sub-tasks: -Planning basis -Economic considerations -Development of solution options, process analysis and selection -Safety considerations -Creation of flow diagrams -Design of the apparatus and machines -Location and construction planning.

Students are able to plan and design recycling systems and organize their implementation. The students have knowledge of project organization and the implementation of individual project phases and are able to apply this to specific projects. They can use planning software and special tools. They are able to present the design, the progress and the results.

Literature: For preparation and follow-up the following textbooks are recommended:

1. Gupta, A., Yan, D.S.: Mineral Processing Design and Operation, Elsevier 2006.
2. Pahl, G.; Beitz, W.; Feldhusen, J., Grote, K.: Engineering Design: A Systematic Approach, Springer, 2006. ISBN: 1846283183
3. Weber, K.: Engineering verfahrenstechnischer Anlagen, Praxishandbuch mit Checklisten und Beispielen, Springer 2016; ISBN 978-3-662-52897-6
4. Bernecker, G.: Planung und Bau verfahrenstechnischer Anlagen Projektmanagement und Fachplanungsfunktionen, Springer 4. Auflage 2012; ISBN-13: 9783642626111
5. Ripperger, S., Nikolaus, K.: Entwicklung und Planung verfahrenstechnischer Anlagen, Springer 2020; ISBN 978-3-662-60427-4

A list of further literature will be given out in the lecture.

### 2. Method(s) of instruction

Lecture, practice, exercise

### 3. Requirements for attendance

Successful participation in the course Project Management.

### 4. Usability of this module

This module is an obligatory module in the master study course "Environmental and Recycling Technology" for specialization Environmental Technology.

### 5. Requirements for assessment

Students need to pass the module examination, which encompasses all contents of the lecture. Presentation of the results, final report, excursion report.

### 6. ECTS Credits

Modules are assessed by a module examination, which is credited by 5 credit points according to the ECTS (European Credit Transfer and Accumulation System).

#### **7. Frequency of offer**

The module is scheduled for the first academic year.

#### **8. Workload**

Participation in the course	= 20 h
Preparation and follow-up (of the lecture)	= 20 h
Excursion	= 10 h
Preparation for examination	= 110 h

**The entire workload encompasses 150 hours, which equals 5 ECTS credit points.**

#### **9. Duration of module**

The module is held within one semester.