



PRACTICE OF SECONDARY RAW MATERIALS

Prof. Dr.-Ing. Urs Alexander PEUKER

Work load: 75h Theory (lectures), 45h Self-studies.

Number of credits: 4 ECTS

Course code: Examination number: 40319

▶ *Course contents:*

The aim is the teaching of practical insight into secondary raw materials technology and its industrial application. Several established processes for secondary raw materials are introduced by (guest) lectures. This introduction contains the specialties of the material sources and properties, the process design and potential alternatives as well as the key technological components. The lecture also involves demonstration of technology by site visits of recycling plants. (Guest) lectures: introduction in several recycling processes, e.g. battery recycling (acid lead battery, lithium-ion battery), aluminum scrap, construction waste, metallurgical waste, WEEE, automotive recycling.

▶ *Intended Learning Outcomes:*

The students acquire knowledge about typical actual challenges as well as about technical setups and approaches in recycling industry. They are able to connect theoretical knowledge on unit operations to the technical operation of recycling plants. Furthermore the students become familiar with the balancing and business models in secondary raw materials business.

▶ *Prerequisites and co-requisites:*

Mandatory:

Course restricted to students of EMerald program

▶ *Planned learning activities and teaching methods:*

S1 (WS): Lectures (1 SWS)

S1 (WS): Seminar (1 SWS)

S1 (WS): 4-6 Site visits to relevant production plants connected to course content / Excursion (3 SWS)



▶ *Mode of delivery (face-to-face; distance-learning):*

- Theoretical courses are given by modules of 2 hours.
- Face-to-face discussions with young researchers in the field. Supportive learning during practical lessons by working on datasets both in group and individually.

▶ *Recommended or required readings:*

Martens, H. und Goldmann, D.: Recyclingtechnik

Scientific publications

▶ *Assessment methods and criteria:*

For the award of credit points it is necessary to pass the module exam. The module exam contains:

AP: Report

The Grade is generated from the examination result(s) with the following weights (w):

AP: Report [w: 1]

* In modules requiring more than one exam, this exam has to be passed or completed with at least "ausreichend" (4,0), respectively.

▶ *Contribution to EIT's Overarching Learning Outcomes:*

(EIT OLO1, OLO2 and OLO6): This course acquires knowledge about typical challenges as well as technical setups and approaches in recycling industry. The students are getting acquaintance with the balancing and business models in secondary raw materials business and are connecting theoretical knowledge on unit operations to technical operation of recycling plants.