



PROJECT – PROCESS DESIGN MINERAL PROCESSING / RECYCLING

Prof. Dr.-Ing. Urs Alexander PEUKER

Work load: 150h Theory (lectures), 90h Self-studies.

Number of credits: 8 ECTS

Course code: PPDMPR. MA. Nr. 3620 / Examination number: 40318

▶ *Course contents:*

Seminar:

- Introduction into basic engineering
- Plant layout
- Example of a case study
- Selection of lab scale tests / using standard parameters (e.g. VDI guidelines)
- Documentation

Project:

- Selection of lab tests
- Lab work: determination of individual parameters
- Definition of interface between process steps
- Selection of apparatus / dimensioning of process step
- Presentation of flow sheet.

▶ *Intended Learning Outcomes:*

The project work aims at the dimensioning of a mineral processing plant. On the basis of lab scale test (e.g. Bond grind ability) the students work out a basic engineering of a processing plant of a given ore type / recycling question. The students learn to select the right lab scale tests, which provide the material and process data to quantify the individual processing steps. They learn the balancing of the material flows as well as of the auxiliary streams (e.g. process water).

▶ *Prerequisites and co-requisites:*

Recommended:

[Conception of Process Equipment, 2017-08-21](#)

[Training in Particle Technology, 2017-08-21](#)



▶ *Planned learning activities and teaching methods:*

S1 (WS): process design mineral processing / recycling / Seminar (2 SWS)

S1 (WS): project process design mineral processing / recycling / Practical Application (8 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:*

Selected papers and textbook chapters for individual project topic (to be announced in the first week);
VDI guidelines and international standards

▶ *Assessment methods and criteria:*

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

The module exam contains:

AP*: Report (basic Engineering - process layout and applied engineering tools)

AP*: Presentation (determination of key parameters using engineering tools)

AP*: Presentation (process layout)

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

AP*: Report (basic Engineering - process layout and applied engineering tools) [w: 2]

AP*: Presentation (determination of key parameters using engineering tools) [w: 1]

AP*: Presentation (process layout) [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, OLO5, OLO6, OLO7): This course includes the study of balancing of material flows and of auxiliary streams (e.g. process water). The students are learning the dimensioning of a mineral processing plant and how to select right lab scale tests. It is a group project on process design mineral processing or recycling.