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| Data: | TPT. MA. Nr. / Examination number: 40316 | Version: 15.09.2022  | Start Year: WiSe 2022 |
| Module Name: | Training in Particle Technology | | |
| (English): | | | |
| Responsible: | Peuker, Urs Alexander / Prof. Dr.-Ing. | | |
| Lecturer(s): | Mitarbeiter des Institutes MVT/AT Peuker, Urs Alexander / Prof. Dr.-Ing. | | |
| Institute(s): | Institute of Mechanical Process Engineering and Mineral Processing | | |
| Duration: | 1 Semester(s) | | |
| Competencies: | <p>The module aims at recalling the fundamentals of particle technology. It is set up using special exercises to practice scientific and technological calculations of particle size distributions and fundamental micro-processes. The principles of the mechanical micro-processes are introduced.</p> <p>The exercises also apply the fundamental approaches (micro-processes) to describe and to design process equipment. This will be done using case studies.</p> | | |
| Contents: | <p>Particle characterization Particle size distribution Mixing of particle size distributions Separation of particle size distributions (classification) Grade recovery curves Micro processes in particle technology</p> <ul style="list-style-type: none"> • Particles in flow-fields (i.e. sedimentation) • Flow through porous media • Particle-particle interactions (e.g. van-der-Waals-forces, electrostatic interactions, DLVO-theory, capillary forces) • Breakage laws (i.e. breakage energy) <p>Selected case studies form the fields:</p> <ul style="list-style-type: none"> • Filtration • Sedimentation • Agglomeration • Classification • Comminution • And others | | |
| Literature: | M. Stieß: Mechanische Verfahrenstechnik 1 - Partikeltechnologie, Springer-Verlag, Berlin, Heidelberg, 2009 H. Schubert: Handbuch der Mechanischen Verfahrenstechnik, Wiley-VCH, Weinheim, 2003 selected scientific papers | | |
| Types of Teaching: | S1 (WS): Recall of fundamentals - (also digital available every semester - provided as screencasts) / Lectures (1 SWS) S1 (WS): Application of fundamentals - case studies - (also digital available every semester - provided as screencasts with feedback rounds in a virtual classroom) / Exercises (2 SWS) | | |
| Pre-requisites: | | | |
| Frequency: | yearly in the winter semester | | |
| Requirements for Credit Points: | For the award of credit points it is necessary to pass the module exam. The module exam contains: in examination variant 1: MP/KA (KA if 8 students or more) [MP minimum 30 min / KA 120 min] or | | |

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| | <p>in examination variant 2: PVL: Midtermtests (parallel to lectures and excercises) AP: Home work assignment The variant 2 applies only for students of the virtual faculty. PVL have to be satisfied before the examination.</p> |
| Credit Points: | 4 |
| Grade: | <p>The Grade is generated from the examination result(s) with the following weights (w):</p> <p>in examination variant 1: MP/KA [w: 1]</p> <p style="text-align: center;">or</p> <p>in examination variant 2: AP: Home work assignment [w: 1]</p> |
| Workload: | The workload is 120h. It is the result of 45h attendance and 75h self-studies. |