1. Introduction to mechanical process engineering
Objectives: To provide basic knowledge and concepts of mechanical process engineering.
Contents: Historical overview, basic terms, areas of application, connection to other engineering disciplines.

2. Particles and disperse systems
Objectives: Understanding the properties and characteristics of particles and disperse systems.
Contents: Fineness characteristics, particle sizes, equivalent diameter, particle shape, particle size distribution, porous systems.

3. Statistical description of particle distributions.
Objectives: To learn the methods for statistical description and analysis of particle size distributions.
Contents: Statistical characteristics, methods for the determination and interpretation of particle size distributions.

4. Particle interactions
Objectives: Understanding of the different interactions between particles in disperse systems.
Contents: Attractive and repulsive forces, DLVO theory, aggregation and dispersion of particles.

5. Dimensional analysis
Objectives: To teach the fundamentals of dimensional analysis and its application in mechanical process engineering.
Contents: Dimensional systems, Pi theorem, similarity theory, practical application examples.

6. Forces on particles in the fluid
Objectives: To learn about the different forces acting on particles in a fluid and their importance for separation technology.
Contents: Hydrodynamic drag, gravitational forces, centrifugal forces, adhesion forces.

7. Separation
Objectives: To teach the principles and techniques of separating particles and fluids.
Contents: Classifying, sorting, separating, solid-liquid separation, methods and devices of separation technology.