I. Introduction to the terminology and history of wastewater engineering.
Objectives: To provide basic knowledge of the terminology and historical development of wastewater technology, to raise awareness of future challenges.
Contents: Historical review and motivation for wastewater technology, future challenges in wastewater technology.

II. basics of urban drainage.
Objectives: To understand the principles and methods of urban drainage.
Contents: Concepts and strategies of urban drainage.

III. composition and quantity of wastewater.
Objectives: To gain knowledge of the characteristics and standards of wastewater.
Contents: Methods of analysis of wastewater, typical concentrations, wastewater standards and specifications.

IV. Basic mechanical treatment processes.
Objectives: To develop skills in the application and sizing of mechanical wastewater treatment techniques.
Contents: Screening processes, different forms of sedimentation and flotation, sizing of screens, grit chambers and primary sedimentation tanks.

V. Basic biological and chemical treatment processes.
Objectives: Understanding and applying biological and chemical processes for wastewater treatment.
Contents: Basics of the activated sludge process, biological N and P elimination, chemical precipitation, basics of aeration, wastewater calculation, mass balances in wastewater treatment, dimensioning of biological wastewater treatment plants (according to DWA-A131), membrane bioreactors (MBRs), wastewater quality standards in Germany.

VI. sludge treatment; methods and objectives of sludge treatment.
Objectives: To recognise the importance and application of different sludge treatment strategies.
Contents: Objectives of sludge treatment, thickening, stabilisation (aerobic and anaerobic), dewatering and conditioning, thermal drying and incineration, P-recovery, principles of digester design, treatment of sludge water.

VII. motivation and processes of advanced wastewater treatment.
Objectives: To understand the need and methods of advanced wastewater treatment.
Contents: Reasons for advanced wastewater treatment, common methods: Activated carbon, ozone and membrane technology.