

# **Basic process engineering in industrial wastewater treatment**

**Legal Basis, Process Engineering,  
Production-integrated Environmental Protection**

BAUHAUS  
UNIVERSITÄTSVERLAG

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## Preface

Since 1996, the 'Water and the Environment' ('Weiterbildendes Studium Wasser und Umwelt') continuing academic education programme has become a synonym for continuous and effective collaboration at university level between Lower Saxony and Thüringen in the field of post-graduate training. This collaboration basically follows the principle of 'two universities – one degree', by which existing synergies are exploited while respecting the technical, scientific and organisational independence of the two establishments concerned.

The project began in the early 1980s as a distance learning course culminating in a certificate which was awarded in Hannover. This course covered General Water Management, Aquatic Ecology and Water Conservation, Soil Conservation, and Waste Management as its main areas of study. Weimar then emerged as a partner by developing a complementary distance learning course focusing on Hydraulic Engineering, Environmental and Sanitary Engineering, and Waste Management. Both universities have since continued to develop these courses into recognised (accredited) Master's degree courses. The 'Water and the Environment' postgraduate programme with its modular structure achieves a high degree of flexibility and individual leeway in planning student curricula, while continuing to ensure high academic standards.

This volume, the first edition in English, contains the revised and updated material of a technical module from the programme. The joint publication of the textbook by the two universities in question makes the subject matter accessible not only to students in Hannover or Weimar but also to a wider circle of interested parties outside the postgraduate programme. By publishing an English-language edition, we now also hope to contribute towards the scientific discourse at international level. At the same time, this publication serves to intensify the quality and scope of collaboration with the German Association for Water, Wastewater and Waste (DWA).

This book is based on the second edition (2009) of the technical module 'Industrieabwasser WW54', which forms part of the 'Water and the Environment' programme offered by the Bauhaus Universität Weimar, led by Prof. Dr.-Ing. J. Londong, Weimar, and Prof. Dr.-Ing. K.-H. Rosenwinkel, Hannover; it was compiled and updated by the authors Prof. Dr.-Ing. habil. Dr. phil. S. Kunst, Prof. Dr.-Ing. R. Gräf, Prof. Dr.-Ing. K.-H. Rosenwinkel, Prof. Dr.-Ing. U. Rott, Dr.-Ing. H. Sixt, Dr.-Ing. U. Menzel, Dr.-Ing. D. Bock, Dipl.-Ing. R. Minke, and Dipl.-Ing. U. Raesfeld.

We wish to express our heartfelt gratitude to all those who worked on the editing of this edition. Besides colleagues from our two chairs (Chair of Environmental and Sanitary Engineering in Weimar and the Institute of Sanitary Engineering and Waste Technology in Hannover), special thanks go to Dipl.-Ing. U. Raesfeld, for restructuring the 'Legal Basis' chapter and revising the text. Thanks also to the members of the Working Group on Water and the Environment in Weimar, in particular Dr.-Ing. H.-W. Frenzel (†), Dipl.-Ing. R. Holzhey, and Dipl.-Ing. S. Büttner, as well as Dipl.-Ing. S. Matthies (responsible for typesetting and design), without whom publication would not have been possible. We would also like to say a big thank you to Maxine Demharter and David Miller for their translation of the text. And of course we thank the students themselves for their interest and diverse feedback, and also our contacts at DWA for their kind support.

Last but not least, special thanks go to the Federal Ministry of Education and Research, whose 'Open Universities' initiative provided the impetus to revise, translate and publish this first English edition via the competition 'Open Universities' within the scope of the Professional Bauhaus project.

May this series from the field of 'Water and the Environment' be warmly received by the experts and may it serve to bring about professional and sustainable use of our environment and water resources.

Weimar and Hannover, August 2013

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