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**Process Modelling,
Identification, and Control
II**

Identification and Optimal Control

Slovak University of Technology in Bratislava

This publication deals with mathematical modelling of sampled data systems, design of simple PID controllers, identification of processes, optimal, predictive, and adaptive process control. The intended audience of this book includes graduate students but can also be of interest to practising engineers or applied scientists that are interested in modelling, identification, and process control.

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<http://www.kirp.chtf.stuba.sk/~fikar/research/other/book.htm>

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Some of the examples in the book marked in the margin are freely accessible in the Internet at the address:

<http://www.kirp.chtf.stuba.sk/~fikar/research/other/kniha2.htm>

The program sources are for MATLAB (<http://www.mathworks.com>) with toolboxes Simulink, Polynomial Toolbox (<http://www.polyx.cz>) and IDTOOL (available at the authors web pages).

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Preface

This is the second part of the book dealing with mathematical modelling of processes, their identification, and control. This part discusses mathematical modelling of sampled data systems, design of simple PID controllers, identification of processes, optimal, predictive, and adaptive process control.

The first chapter investigates connections between continuous-time and sampled process models used for identification and process control design.

The next chapter describes identification based approach to mathematical modelling of processes either from step responses or using the least squares methods.

Chapters 3–5 are devoted to process control. In the first part, simple PID controllers are treated. Next the optimal control using dynamic programming, LQ, LQG, H2, and predictive approaches are studied.

The last chapter combines the results of previous chapters in adaptive control.

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The publication activity of Dr. Fikar includes more than 150 works and he is co-author of several books. In his scientific work he deals with predictive control, constraint handling, system identification, optimisation, and process control.

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