Scheduling Computer and Manufacturing Processes

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Jacek Błażewicz · Klaus H. Ecker
Erwin Pesch · Günter Schmidt
Jan Węglarz

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With 113 Figures

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Prof. Dr. Jacek Błażewicz, Instytut Informatyki,
Politechnika Poznanska, ul. Piotrowo 3a,
60-965 Poznań, Poland

Prof. Dr. Klaus H. Ecker, Institut für Informatik,
Technische Universität Clausthal, Erzstraße 1,
38678 Clausthal-Zellerfeld, Germany

Prof. Dr. Erwin Pesch, Universität Bonn,
Institut für Gesellschafts- und Wirtschaftswissenschaften,
Adenauerallee 24–42, 53113 Bonn, Germany

Prof. Dr. Günter Schmidt, Lehrstuhl für Betriebswirtschaftslehre,
insbesondere Informations- und Technologiemanagement,
Universität des Saarlandes, Postfach 151150,
66041 Saarbrücken, Germany

Prof. Dr. Jan Węglarz, Instytut Informatyki, Politechnika Poznanska,
ul. Piotrowo 3a, 60-965 Poznań, Poland

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FOREWORD

This book is a continuation of *Scheduling in Computer and Manufacturing Systems* [1], two editions of which have received kind acceptance of a wide readership. As the previous position, it is the result of a collaborative German-Polish project which has been partially supported by Committee for Scientific Research [2] and DFG. We appreciate this help.

We decided to treat this work as a new book rather than the third edition of the previous one due to two important reasons. First of all, the contents has been changed significantly. This concerns not only corrections we have introduced following the suggestions made by many readers (we are very grateful to all of them!) and taking into account our own experience, but first of all this means that important new material has been added. In particular, in the introductory part the ideas of new local search heuristics, i.e. generally applicable global optimization strategies with a simple capability of learning (ejection chains, genetic algorithms) have been presented. In the framework of parallel processor scheduling, topics of imprecise computations and lot size scheduling have been studied. Further on flow shop and job shop scheduling problems have been studied much more extensively, both from the viewpoint of exact algorithms as well as heuristics. Moreover, results from interactive and knowledge - based scheduling have been surveyed and used, together with previous results, for solving practical scheduling problems in the framework of computer integrated manufacturing and object - oriented modeling. Independently of this, in all chapters new results have been reported and new illustrative material, including real-world problems, has been given.

The second reason for which this is a new book is the enlarged list of authors including now also Erwin Pesch whose fresh view at the contents has appeared to be very fruitful.

We very much hope that in this way the book will be of interest to a much wider readership than the former, the fact which has been underlined in the title.

During the preparation of the manuscript many colleagues have discussed with us different topics presented in the book. We are not able to list all of them but we would like to express our special gratitude toward Andreas Drexl, Maciej Drozdowski, Gerd Finke, Jatinder Gupta, Adam Janiak, Joanna Józefowska, Martina Kratzsch, Wiesław Kubiak, Klaus Neumann, Antonio Rodríguez Díaz, Kathryn Stecke and Dominique de Werra. As to the technical help in preparing the manuscript our thanks are due to Barbara Błażewicz, Brigitte Ecker, Susanne Gerecht and Izabela Tkocz, especially for their typing efforts.

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