PRINCIPLES OF SEQUENCING AND SCHEDULING
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PREFACE

This textbook provides an introduction to the concepts, methods, and results of scheduling theory. It is written for graduate students and advanced undergraduates who are studying scheduling, as well as for practitioners who are interested in the knowledge base on which modern scheduling applications have been built. The coverage assumes no background in scheduling, and for stochastic scheduling topics, we assume only a familiarity with basic probability concepts. Among other things, our first appendix summarizes the important properties of the probability distributions we use.

We view scheduling theory as practical theory, and we have made sure to emphasize the practical aspects of our topic coverage. Thus, we provide algorithms that implement some of the solution concepts we describe, and we cover the use of spreadsheet models to calculate solutions to scheduling problems. Especially when tackling stochastic scheduling problems, we must balance the need for tractability and the need for realism. Thus, we stress heuristics and simulation-based approaches when optimization methods and analytic tools fall short. We also provide many examples in the text along with computational exercises among our end-of-chapter problems.

Coverage of the Text

The material in this book can support a variety of course designs. An introductory-level course covering only deterministic scheduling can draw from Chapters 1–5, 8–10, 12–14, 16, and 17. A one-quarter course that covers both deterministic and stochastic topics can use Chapters 1–11 and possibly 15. Our own experience suggests that the entire book can support a two-quarter sequence, especially with supplementary material we provide on the Internet.