Contents of the CD

The textbook “Operations Scheduling with Applications in Manufacturing and Services” has been adopted by more than 20 instructors worldwide. A number of these instructors have developed elaborate websites and large number of power point transparencies. In this CD we have compiled the material developed by four of them, namely

Erwin Hans and Johann Hurink (Twente University in the Netherlands)
Siggi Olafsson (Iowa State University)
Sanja Petrovic (Nottingham University)
Sibel Salman (who taught this course at Carnegie-Mellon University)

In addition, this CD contains a copy of the LEKIN scheduling system, which is being used at hundreds of universities and companies worldwide.

Folder 1: University of Twente-Enschede, The Netherlands – Dr. Erwin Hans and Johann Hurink

- Course Title: Production planning: operations scheduling with applications in manufacturing and services

- Course Description: The objective of this course is to develop an acquaintance with models and techniques for operations scheduling, with applications in manufacturing and services. The course will focus on resource constrained project scheduling, job shop scheduling, interval scheduling and reservation systems, workforce scheduling and scheduling applications. It will concentrate on exact methods as well as heuristic methods.
Folder 2: Iowa State University – Professor Sigurdur Olafsson

- **Course Title:** Production Scheduling IE 514

- **Course Description:** As modern manufacturing moves towards manufacture-to-order and virtual environments that both increase the complexity of the operation and demand an increasing rapid response time, it becomes more important than ever that manufacturing enterprises have Advanced Planning and Scheduling (APS) systems that can reliably schedule complicated operations quickly. At the same time, scheduling plays an increasing role in many service industries, such as the transportation, computer, and communication industries. Against this background, this course presents a solid background in the models and scheduling techniques that are the most useful in both manufacturing and service industries and places these tools within the context of modern enterprise-wide information systems such as Enterprise Resource Planning (ERP) systems, where the APS module works interactively with other modules such as MRP, inventory management, product and process design, product costing, and supply chain management. Thus, although most of our lectures in this course will be spent on scheduling models and solution techniques, after completing the course you should also understand how these technical tools can be integrated into enterprise-wide computing systems that improve the overall efficiency of the organization. In particular, by incorporating the models and techniques from this course, an APS module can be used to improve customer service and delivery promises, increase throughput, reduce work in process, and minimize setup operations.

Folder 3: University of Nottingham - Dr. Sanja Petrovic

- **Course Title:** Automated Scheduling G53ASD

- **Course Description:** The aim of the course is to provide a sound understanding of the fundamental techniques and algorithms for scheduling problems that arise in a range of commercial and service sectors. The objectives of the course include the introduction of a number of scheduling applications from a variety of industrial and service sectors and the software packages needed to deal with these applications. This course will cover General Purpose Procedures Applied to Scheduling, Timetabling problems, University Timetabling, Employee Timetabling, Nurse Rostering, Production Scheduling, Single Machine Deterministic Models, Multiple Machines Problems. The course will also cover more modern approaches for dealing with scheduling problems.
Folder 4: Carnegie Mellon University – Professor Fatma Sibel Salman

- **Course title:** Sequencing and Scheduling: 45-865 – *Spring 2000*

- **Course Description:** Every organization needs to schedule its operations effectively in order to remain competitive in today's markets. This course gives an introduction to a broad range of scheduling problems that arise in both manufacturing and service organizations. We will examine a variety of scheduling techniques, starting from basic principles and leading to algorithms and computerized scheduling systems. We will apply these techniques to problems arising in production scheduling, project management, transportation scheduling and workforce scheduling. The emphasis is on practicality rather than depth and theory, with the goal of bringing the student up to the position where he or she knows where to look and what to expect to be able to do when faced with a situation that seems to involve some sort of scheduling problem. Instruction will be through a mix of lectures, readings, cases and problem sets. Guest lectures by practitioners, articles, videos and software demos on industrial applications will complement the class material.