



UNIVERSITY AT BUFFALO
State University of New York

THE SCHOOL OF ENGINEERING
AND APPLIED SCIENCES

IE 661

Scheduling Theory

Chapter 1

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Chapter 1: Introduction

- Role of Scheduling
 - Allocation of (scarce) resources over ***time***
 - Decision-making process with a goal of optimizing one/more objectives
- Elements
 - Resources
 - Machines in a workshop
 - Runways at an airport
 - Crews at a construction site
 - CPUs in a computing environment
 - Tasks
 - Production operations
 - Take-offs and landings
 - Construction stages
 - Computer programs
 - Objectives
 - Minimizing the completion time of the last task
 - Minimizing the number of tasks completed after their respective due dates.



Chapter 1: Introduction

- Examples
 - A Paper bag factory
 - Gate assignments at an Airport
 - Scheduling tasks in a CPU



Chapter 1: Introduction

- Scheduling functions in an enterprise
- Scheduling
 - MRP
 - ERP

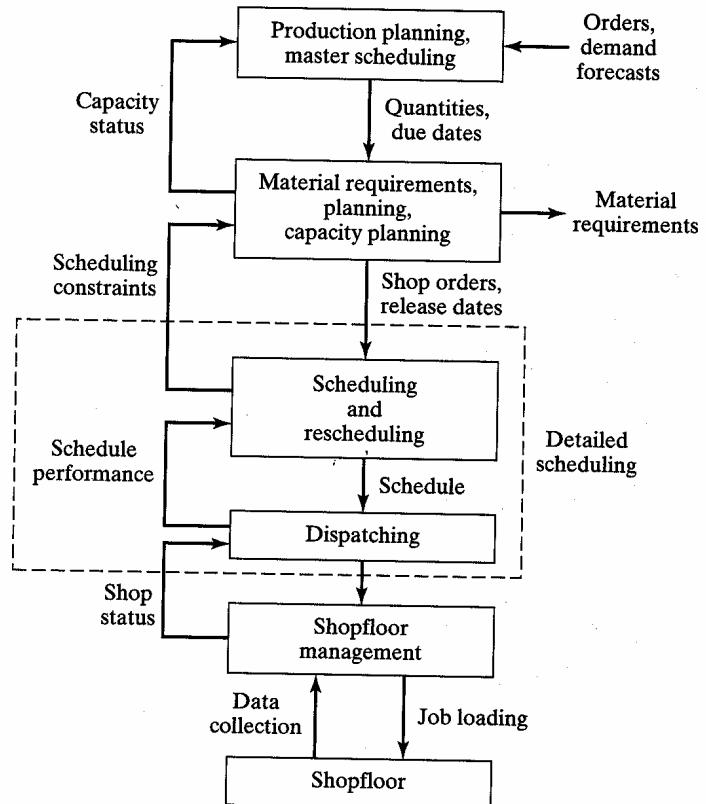


Figure 1.1 Information flow diagram in a manufacturing system.



Chapter 1: Introduction

- Scheduling functions in an enterprise
- Service Enterprises

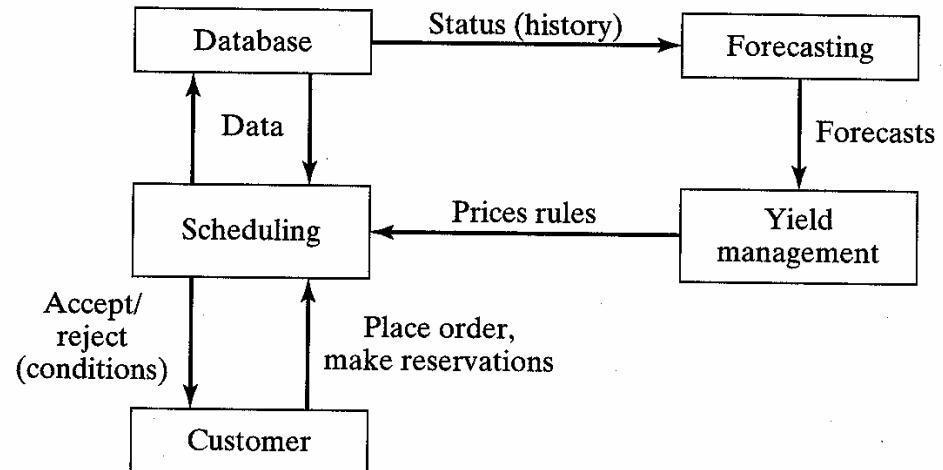


Figure 1.2 Information flow diagram in a service system.