

THE UNIVERSITY OF TEXAS AT DALLAS
School of Management
Box 830688, Richardson, Texas 75083-0688

OPRE6385 SCHEDULING
Spring 2006
Dr. Chelliah Sriskandarajah

- **Objective:** Scheduling is an important aspect of operations control in both manufacturing and service industries. Efficient scheduling of operations will improve the performance of the systems. The purpose of this course is to introduce the theory of scheduling. Topics include: methods of designing algorithms for various production/service systems, micro-scheduling of jobs and machines. flowshop and jobshop scheduling, computational complexity and practical applications.
- **Course Outline**
 1. Introduction
 - Examples
 2. Single Machine Scheduling
 - Jackson, Smith rules
 - Moore algorithm
 - Precedence constraints
 3. Complexity of Scheduling Problems
 4. Flowshop, Openshop, Jobshop
 - Cyclic scheduling
 - No-wait, blocking scheduling models
 5. Exact Methods
 - Branch and bound methods
 - Dynamic programming
 6. Heuristics Methods
 - Neighborhood search techniques
 - Tabu search techniques
 - Genetic algorithms
 7. Parallel Machine Scheduling
 - Heuristics
 - Worst case analysis
 8. Scheduling in manufacturing and service industries.
 - Applications

Instructor Information: Chelliah Sriskandarajah is a Professor at the School of Management of the University of Texas at Dallas. He has a Ph.D degree from the Higher National School of Electrical Engineering of the National Polytechnic Institute of Grenoble (France) in the field of Production and Operations Research. His research revolves around solving various production planning and scheduling problems with the aim of making the production process more economical and efficient. His research interests lie in the general area of production planning and scheduling, supply chain management, logistics, and performance evaluation of production systems. He has published over 75 scholarly articles in leading journals. Over the years, his research has been supported by a number of sponsors including National Science Foundation (USA), Natural Sciences and Engineering Research Council (Canada), Manufacturing Research Cooperation of Ontario (Canada) and NATO. He is an associate editor of INFOR and is a member of INFORMS, POMS, IIE, IEEE, DSI and CORS.

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Office hours by Ms. Gokcen Arkali: Every Tuesday starting 17 January 2006 at SOM 3.205: 5:00PM - 7:00PM.

Office hours by Dr. C. Sriskandarajah, office SOM 3.404: Every Wednesday starting 18 January 2006 : 4:30PM - 6:30PM.

• **Grading:**

30 % final examination

25 % mid term test

15 % project report

10 % project presentation

20 % course work (4 assignments)

- **Text:** Scheduling, Theory, Algorithms and Systems, Michael Pinedo, Prentice-Hall, Inc, 2002.
- **MID-TERM EXAMINATION :** February 27, 2006, 4:00 PM to 6:45 PM.
- **FINAL EXAMINATION :** April 24, 2006, 4:00 PM to 6:45 PM.

- **Assignments:** Assignments must be returned on the specified due dates. You may discuss the assignments with others but make sure that you complete the work independently.
- **Examination:** There will be a mid-term and a final exam. All exams are closed book. No make up exams will be given.
- **Project:** The following is a suitable report format that you may wish to use as a guide.
 - Title page
 - Executive Summary page
 - Introduction
 - Existing Methods
 - Analysis
 - Results
 - Conclusion
 - Lines for Further Investigation
 - Appendices : - Numbered and Titled
- The size of your project report: 10-15 pages.