

MECHANICAL ENGINEERING DEPARTMENT
ISyE 8773-8774

**An Integrated Framework to Optimize Dynamic Time-to-Market
and Production Decisions**

by

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Wednesday, February 27, 2008

3:15 p.m. — Refreshments before the seminar

3:30 p.m. — Graduate Seminar

Room 4125A + 4125B ME

ABSTRACT — In this presentation, we will outline the challenges and uncertainties associated with bringing a new product to market. To do so, we will focus on a major global high-technology company located in the Bay Area and discuss challenges related to new product introductions. The high technology industry is characterized by lightning speed in technology innovation and intense competition. We will present our OR based modeling framework that is used to help make effective time-to-market and production decisions. Our model solves the problem in two nested phases: a design phase and a mass production phase. The design phase is modeled as an optimal stopping problem where decision to "enter or not" is made. The solution of the design stage affects the mass production phase. This second phase is modeled as a stochastic production control problem where production decisions are made. We will characterize an optimal policy for market timing, an optimal policy for production decisions and how and why they are amenable for implementation. We will also discuss the methods used to solve this large-scale stochastic dynamic program, including how structural results enabled us to improve computational efficiency. If time permits, we will discuss how this project and the resulting software enabled various functional areas, such as Finance, Manufacturing, Marketing and R&D within this global high-technology company to communicate and jointly address this strategic question.

BIO — Özalp Özer is a faculty member of the Department of Management Science & Engineering at Stanford University. He is also an affiliated faculty member of the Stanford Global Supply Chain Management Forum. His general research interest is to investigate the impact of technology and information on the design and control of production and distribution systems, management and coordination of supply chains, and pricing management. He has received the Wickham Skinner Early-Career Research Accomplishment Award from the Production and Operations Management Society in 2004, and the Eugene Grant Teaching Award at Stanford by vote of students in 2003 and 2004. His articles have appeared in journals such as *Management Science*, *Operations Research*, and *Production and Operations Management*. He is serving as an associate editor for *Operations Research* and a senior editor for *Production and Operations Management*. He received his Ph.D. and M.S. degrees from Columbia University.

Informal Faculty Luncheon: Wednesday, February 27, 2008, 12:00 noon. Meet in 1100 ME and walk to lunch with other faculty. Prof. Özer will be able to attend.