COURSE NUMBER: IE 5112, 3 credits	**COURSE TITLE:** Introduction to Operations Research
TERMS OFFERED: Fall	**PREREQUISITES:** Students should have basic knowledge of linear algebra and probability.
TEXTBOOKS/REQUIRED MATERIAL: Introduction to Operations Research by Hillier and Lieberman	**COGNIZANT FACULTY:** Cooper **DATE OF PREPARATION:** May 4, 2007
COURSE LEADER(S): Cooper	**CLASS/LABORATORY SCHEDULE:** One three-hour class per week **CONTRIBUTION OF COURSE TO MEETING PROFESSIONAL OBJECTIVES:** 100% engineering topics
CATALOG DESCRIPTION: This course is a survey of Operations Research models and methods in deterministic and stochastic settings. Topics covered include linear programming, integer programming, networks, forecasting, Markov chains, and queuing systems. Examples from a variety of application areas, such as systems engineering, logistics, design, and project management, will be included.	**COURSE TOPICS:** • Overview of Operations Research and modeling • Optimization models • Using optimization software • Output assessment and sensitivity analysis • Integer programming models • Network models and solution methods • Review of Probability • Decision analysis • Markov chains • Queuing theory • System reliability • Forecasting

COURSE OBJECTIVES	1. Establish a firm understanding of the basic principles of operations research. 2. Formulate appropriate deterministic or stochastic models given a problem instance. 3. Solve small-scale problems by hand to understand the fundamentals of operations research methodology. 4. Use appropriate software to solve large-scale models. 5. Assess output from operations research models to make appropriate recommendations.
COURSE OUTCOMES	**(Letters shown in brackets are linked to program outcomes a-k)** 1. Students learn how to formulate and solve problems using tools from operations research. [a,b,c,e,g,k] 2. Students learn how to interpret output of operations research models. [a,b,c,e,g,k]
ASSESSMENT TOOLS:	Midterm Exams, Project, Homework, Final Exam

IE 5112
Nature of Changes
This is an entirely new document; no previous versions exist.