COURSE NUMBER: IE 4011, 4 credits	COURSE TITLE: Stochastic Models
TERMS OFFERED: Fall	PREREQUISITES: MATH 1371,1372,2372,2374, IE 2010, or Instructor Consent
TEXTBOOKS/REQUIRED MATERIAL: Introduction to Modeling and Analysis of Stochastic Systems, Second Edition by V. G. Kulkarni	PREPARED BY: William L. Cooper DATE OF PREPARATION: October 28, 2011
COURSE LEADER(S): William L. Cooper	CLASS/LABORATORY SCHEDULE: Two 115-minute lectures per week CONTRIBUTION OF COURSE TO MEETING PROFESSIONAL OBJECTIVES:
CATALOG DESCRIPTION: Models for describing and evaluating random systems. Formulating and analyzing stochastic models for decision making in business situations. Discrete-time Markov chains. Continuous-time Markov chains. Poisson processes. Markovian and non-Markovian queueing theory. Applications to inventory management, manufacturing, reliability, and other areas.	COURSE TOPICS: 1. Probability review 2. Discrete-time Markov chains 3. Poisson processes 4. Continuous-time Markov chains 5. Markovian Queueing Models 6. Non-Markovian Queueing Models 7. Reliability Models
COURSE OBJECTIVES 1. To introduce students to stochastic models that can be used for decision making in a variety of settings. 2. To provide students with training in how to formulate such models, starting from a description of a business situation. 3. To provide students with training in the analysis of such stochastic models, including computational techniques.	
COURSE OUTCOMES 1. Students learn to formulate and solve quantitative models to aid decision making. 2. Students become versed in theoretical and computational aspects of stochastic models.	

ASSESSMENT TOOLS: Midterm and final examinations, homework assignments.	