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Department of Industrial Engineering	
Operations Research II (65515)	
Total Credits	**3**
major elective	
Prerequisites	P1 : Operations Research I (65413)

Course Contents

Review of Linear Programming, Integer Programming, Dynamic Programming, Nonlinear Programming, Game Theory, Markov Chains, Queueing Theory, Advanced Topics in Linear Programming

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	Teach students the modeling and solution techniques of discrete and continuous optimization problems.	E	35 %
2	Teach students approaches that utilize mathematical modeling to solve complex optimization problems.	A	30 %
3	Introduce students to modeling and solution approaches of stochastic and game-theoretical problems	K	35 %

Textbook and/ or Refrences

Textbook: Winston, W. L. Operations Research: Applications and Algorithms. 4th Edition, Brooks, Cole, 2004. Useful References: Rardin, R. L. Optimization in Operations Research. 1st Edition, New Jersey: Prentice-Hall, 1997. Taha, H. Operations research: An Introduction. 8th Edition, New Jersey: Prentice-Hall, 2006. Hillier, F.S. and Lieberman, G.J. Introduction to Operations Research. 8th Edition, New York: Mc Graw-Hill, 2005. Wolsey, L. Integer Programming. 1st Edition, Wiley-Interscience, 1998. Osborne, M.J. An Introduction to Game Theory. Oxford University Press, UK, 2004. Bertsekas, D.P. Dynamic Programming and Optimal Control. 2nd Edition, Athena Scientific, 2000. Nocedal, L. and Wright, S.J. Numerical Optimization. Springer, 2000. Kao,E.P.C. An Introduction to Stochastic

Assessment Criteria	Percent (%)
Quizzes	20 %
Projects	40 %
Final Exam	40 %

Course Plan

Week	Topic
1	Review of Linear Programming
2-4	Integer Programming
5	Dynamic Programming
6-7	Nonlinear Programming
8	Markov Chain
9	Midterm Exam
10-11	Queuing system
12-15	Jackson Networks
15	Game theory (if time permits)
16	Final Exam