

Department of Industrial Engineering			
Operations Research I (65413)			
Total Credits	3		
major compulsory			
Prerequisites	P1 : Quantitative Methods (65211) OR Statistical Methods & Probabilities for Engineers (21230) P2 : Calculus III (21201) OR Engineering Mathematics (21202)		
Course Contents			
Operations Research: Background and overview Introduction to linear programming The Simplex method Duality and Sensitivity Analysis Transportation model Network models			
Intended Learning Outcomes (ILO's)		Student Outcomes (SO's)	Contribution
1	Be able to demonstrate an understanding of what operations research entails and why it is important to industrial engineers.	H	10 %
2	Be able to recognize and correctly model problems as linear programs	A	40 %
3	Use some of the basic operations research tools to solve real-world problems.	K	50 %
Textbook and/ or References			
Textbook: Taha, H. A, Operations Research: An Introduction, 9th edition, Pearson, 2010. References: David R. Anderson, Dennis J. Sweeney, Thomas A. Williams, and Kipp Martin, An Introduction to Management Science. 12th ed. , Thomson South-Western, 2008. Hillier & Lieberman, Introduction to Operations Research, Tata McGraw-Hill Winston, Wayne L. Introduction to mathematical programming : operations research. Vol 1. Wayne L. Winston, Munirpallam Venkataramanan ; with cases by Jeffrey B. Goldberg, 4th ed. Thomson Brooks/Cole, 2003			
Assessment Criteria		Percent (%)	
First Exam		20 %	
Second Exam		20 %	
Homeworks		10 %	
Projects		10 %	
Final Exam		40 %	
Course Plan			
Week	Topic		
1-2	What is operations research?		
3-4	Linear Programming		
5-7	The Simplex Method		
7	First Exam		
8-10	Part 4. Duality and Sensitivity Analysis		
11-13	Part 5. Transportation model. Second exam		
14	Part 6. Network models		
15	Part 7. Other topics as time permits		
16	Final Exam		