



University of Tehran
School of Electrical and Computer Engineering

Course:	8101145 – Operations Research									
Course type:	EE*						CE*			Credit: 3
	Com	E	P	B	Con	D	SW	HW	IT	
	Required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Elective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Level:	Undergraduate <input checked="" type="checkbox"/> Graduate <input type="checkbox"/>									
Co-requisite(s):										
Prerequisite(s):	Introduction to Computer and programming (8101347)									
Prerequisite by topic:	Algorithm and Programming									
Textbook(s):	[1] Introduction to Operations Research, F.S. Hillier, G.J. Lieberman, Eighth Ed., McGraw-Hill, 2008.									
Coordinator:	Hoseini, Professor, School of ECE									
Goals:	The main goal of this course is introduction to industry and technology operation and how to perform it optimally. To reach this goal, students will be introduced to different steps, like Allocation of facilities, project control, etc. Two steps are optimization and analysis of the optimal solution which students will be introduced to.									
Outcome:	Upon successful completion of the course, students will be able <ol style="list-style-type: none"> 1. To understand steps of operation research 2. To use excel to solve optimization and analyze the optimal solution. 3. To understand the basics of simplex method 4. To understand the well-known problems of optimization, like the linear programming, etc. 5. To formulate the optimization problem considering the pros and cons of the methods. 6. To understand reformulation methods and make a time consuming and complex problem solvable. 7. To understand dynamic programming. 									
Topics:	<ol style="list-style-type: none"> 1) Introduction to operation research 2) Problem formulation steps 3) Simplex method 4) Mathematical basics of simplex method 5) Duality theorem and sensitivity analysis 6) Other methods of linear programming 7) Allocation and transportation problems 8) Network optimization methods 9) Dynamic programming 									

	10) Integer programming
Computer usage:	Some implementation assignments
Assignments:	5 homework assignments
Projects:	none
Grading:	Assignments: 15 % Midterm exams: 35% Final exam: 50 %
Further readings:	
Prepared by:	Hoseini, Professor, School of ECE
Date:	28 October 2017

*EE: Electrical Engineering		CE: Computer Engineering	
Com	Communications	SW	Software
E	Electronics	HW	Hardware
P	Power	IT	Information Technology
B	Bioelectronics		
Con	Control		
D	Digital System		