uc3m | Universidad Carlos III de Madrid
Vicerrectorado de Estudios
Apoyo a la docencia y gestión del grado

COURSE: Production and Logistics Systems Design and Simulation		
DEGREE: Bachelor in Industrial Technology Engineering	YEAR: 3	TERM: 2

WEEKLY PLANNING

WEEK	SESSION	DESCRIPTION	TEACHING (mark X)		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	WEEKLY PROGRAMMING FOR STUDENT		
			LECTURES	SEMINARS		DESCRIPTION	CLASS HOURS (1,66=50+50 min)	HOMEWORK HOURS (Max. Estim. 6,5h)
1	1	General course presentation	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	2	Introduction to linear programming. Graphic problem solving		x		Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	
2	3	Matrix notation. Standard form. Types of solutions (linear independence, feasibility and optimality)	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	4	Graphic problem solving and sensibility analysis. Exercises		x		Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	
3	5	Basic solutions and bases. The Fundamental Theorem of Linear Programming (FTLP)	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	6	The Simplex method		x		Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	

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4	7	The Simplex foundations	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	8	Properties of the Simplex matrix. Exercises		x		Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	
5	9	Economic interpretation	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	10	Problem solving with Orstat and Excel Solver		x	Comp. Lab	Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	
6	11	Sensitivity analysis.	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	12	Sensitivity analysis exercises. Lemke method		x		Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	
7	13	Initial solution. Charnes and two phases methods	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	14	Scenario analysis		x		Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	
8	15	Special cases exercises. Mid-term exam (aproximate date)	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	16	Formulation of models with integer and binary variables		x		Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	

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9	17	Exercises of special cases. Duality	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	18	Integer linear programming. Branch and Bound algorithm		x		Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	
10	19	Introduction to simulation	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	20	Branch and Bound exercises. Graphic method		x		Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	
11	21	Simulation. Probabilistic distributions and result analysis	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	22	Simulation with Excel		x	Comp. Lab	Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	
12	23	Simulation. Result analysis and modeling	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	24	Branch and Bound exercises. Analitic method		x		Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	
13	25	Simulation. Modeling exercises	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	26	Branch and Bound with binary variables		x		Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	

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			LECTURES	SEMINARS		DESCRIPTION	CLASS HOURS (1,66=50+50 min)	HOMEWORK HOURS (Max. Estim. 6,5h)
14	27	Project presentations	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	6,5
	28	Simulation with Witness		x	Comp. Lab	Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	
	29	Project presentations	x			Active class participation. Study of assigned material. Solving the exercises assigned.	1,66	3,25
						Subtotal 1	**48**	**94**
						Total 1 *(Hours of class plus student homework)*	**142**	
15		Tutorials, handing in, etc					3,6	-
16		Assessment					4	10
17								
18								
						Subtotal 2	**8**	**10**
						Total 2 *(Hours of class plus student homework)*	**18**	
TOTAL (*Maximun 160 horas*)							**160**	