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

COURSE: DATA STRUCTURES AND ALGORITHMS			
DEGREE: INGENIERÍA INFORMÁTICA Y ADMINISTRACIÓN DE EMPRESAS		YEAR: 2	TERM: 2

WEEK	SESSION	DESCRIPTION	TEACHING (mark X) LECTURES	SEMINARS	SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	WEEKLY PROGRAMMING FOR STUDENT DESCRIPTION	CLASS HOURS (1,66=50+50 min)
1	1	Presentation of the course. Problems about programming.	x		Computer	Problems about programming	1,66
	2	Unit 1. Abstract Data Types. Unit 2. Linear ADT, Stacks, Queues.	x			Study about basic ADTs, stacks and queues	1,66
2	3	Problems on stacks and queues (balanced parenthesis and josephus)	x		Computer	Study about stacks and queues	1,66
	4	Unit 2.2 - Singly Linked List	x			Study about singly linked lists	1,66
3	5	Implementation of singly linked list. Problems on singly linked lists	x		Computer	Study about singly linked lists	1,66
	6	Unit 2.3 - Doubly Linked List	x			Study about doubly linked lists	1,66
4	7	Implementation of doubly linked list. Problems on doubly linked lists	x		Computer	Study about doubly linked lists	1,66
	8	Unit 3. Analysis of Algorithms	x			Study about analysis of algorithms	1,66
5	9	Problems on analysis of algorithms	x		Computer	Study about analysis of algorithms	1,66
	10	Unit 4. Recursion	x			Study about recursion.	1,66
6	11	Problems on recursion	x		Computer	Study for the midterm exam (unit 1-4)	1,66
	12	Midterm exam: unit 1, unit 2, unit 3, unit 4.	x			Study for the midterm exam (unit 1-4)	1,66
7	13	Exam resolution. Presentation of the lab case.	x		Computer	Work on lab case (phase 1 using linear ADTs)	1,66
	14	Unit 5. Trees. Definitions. Tree traversals. Binary Trees.	x			Study on trees.	1,66
8	15	Work on lab case (phase 1 using linear ADTs)	x		Computer	Study on trees. Work on lab case.	1,66
	16	Unit 5.2. Binary Search Trees (BSTs)	x			Study on binary search trees.	1,66
9	17	Problems on BSTs. Work on lab case (phase 2)	x		Computer	Study on BST. Work on lab case	1,66

WEEKLY PLANNING							
WEEK	SESSION	DESCRIPTION	TEACHING (mark X) LECTURES	SEMINARS	SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	WEEKLY PROGRAMMING FOR STUDENT DESCRIPTION	CLASS HOURS (1,66=50+50 min)
	18	Unit 5.3. How to balance BSTs	x			Study on balancing strategies for BST.	1,66
10	19	Problems on balancing BSTs. Work on lab case (phase 2)	x		Computer	Work on lab case.	1,66
	20	Unit 6. Graphs. Implementations. Traversals.	x			Study on Graphs.	1,66
11	21	Implementation of graphs. Work on lab case (phase 3)	x		Computer	Study on lab case. Work on lab case (phase 3)	1,66
	22	Unit 6.2. Shortest path (Dijkstra's Algorithm)	x			Study on Graphs.	1,66
12	23	Work on lab case (phase 3).	x		Computer	Study on lab case. Work on lab case (phase 3)	1,66
	24	Unit 7- Divide and conquer	x			Study on divide and conquer. Work on lab case	1,66
13	25	Problems on divide and conquer. Work on lab case	x		Computer	Study on divide and conquer. Work on lab case	1,66
	26	Problems of previous exams / work on lab case	x			Study for the final exam. Work on lab case	1,66
14	27	Lab case exam	x		Computer	Study for the final exam. Work on lab case	1,66
	28	Problems of previous exams	x			Study for the final exam.	1,66
	29	Additional session					1,66
						Subtotal 1	**48**
						Total 1 *(Hours of class plus student homework)*	14
15		Tutorials, handing in, etc					3,6
16		Assessment					4
17							
18							
						Subtotal 2	**8**
						Total 2 *(Hours of class plus student homework)*	1
TOTAL (*Maximun 160 horas*)							16

HOMEWORK HOURS (Max. Estim. 6,5h)
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HOMEWORK HOURS (Max. Estim. 6,5h)
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2

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