

THE BUCHAREST ACADEMY OF ECONOMIC STUDIES
Faculty: ECONOMIC CYBERNETICS, STATISTICS AND INFORMATICS
Chair: Economic Informatics
1 st cycle

SYLLABUS
academic year: 2009-2010

Course title	DATA STRUCTURES						
Course code	0100101OS311220L	Numbers of points	5	Hours per semester			
				Total	Lectures (C)	Seminar (S)	Laboratory/ project work (L/P)
				56	28	28	-
Faculty where delivered	ECONOMIC CYBERNETICS, STATISTICS AND INFORMATICS	Year of study		3			
		Semester		1			
Specialisation	ECONOMIC INFORMATICS						
Course type: F – fundamental, S – specialised, C – complementary							S
Course curricular category : C – compulsory, E – elective, F - free, S - special							C
Pre-requisites	Compulsory						
	Recommended						
Learning objectives	Initiation in defining and using data structures adequately.						
Course contents (descriptors)	<ul style="list-style-type: none">Basic concepts: memory areas, referring address, contextual content, abstract data defining models, data classification criteria, data presentation models analytical, graphic, graph, textualSparse matrices and arrays: models, properties, operations – definitions, initializations, traversals, updates; sparse matrix: encoding with arrays, lists, aggregated lists, sparse matrix operations; storing arrays into files, generalizations; array operations libraries;Heterogeneous data structures: articles, files, databases, repository; internal encoding, searches, retrieval, traversal; referring expressions, aggregation;Lists, stacks, queues: definition, models: analytical, graphic, textual; operations: creation, traversal, insertion, deletion, concatenation, conversion, aggregation;Trees: definition, models: analytical, graphic, textual; operations: creation, traversal, insertion, deletion, concatenation, conversion, aggregation; B trees, AVL trees;Data structures optimizations;Object oriented data structures in complex applications;Using data structures as resource allocation and leveling process in complex projects for developing economic problems oriented software						
Type of assessment (E – exam, A – continuous assessment, C – colloquium)							E
Assesment percentage	Final exam/assessment paper						50%
	Projects/Essay(s) + attendance						50%
Bibliography	<ul style="list-style-type: none">Cristian BOLOGA - <i>Algoritmi si structuri de date</i>, Editura RISOPRINT, Cluj-Napoca, 2005, ISBN 973-651-003-8, 323pg.I.Smeureanu, I. Ivan, M. Dârdală, <i>Limbajul C/C++ prin exemple probleme</i>, Ed.CISON, București, 1995Ion IVAN, Cristian IONITA, Cătălin BOJA, Marius POPA, Adrian POCOVNICU, Daniel MILODIN - <i>Practica dezvoltarii software orientata pe structuri de date</i>, Editura ASE, Bucuresti, 2005, ISBN 973 - 594-630-0, 223 pg.Mirela Catrinel VOICU – <i>Aplicații cu baze de date și structuri de date în Java utilizând mediul de dezvoltare JBuilder</i>, Ed. Universității de Vest, 2007Saumeyendra Sengupta, Carl Phillip Korobkin - <i>C++ Object Oriented Data Structures</i>, Springer Verlag, New York, 1994William Ford, William Topp – <i>Data Structures with C++</i>, Prentice Hall Inc., New Jersey, 1996, ISBN 0-13-320938-5.						
Instructors	Position, title, first name, surname						Signature
	Prof. Dr. Ion IVAN						
Legend: L – lecture; S – seminar; L/P – laboratory/project work.							