

Course Description Form			
Course Code and Name	BM311 COMPUTER ARCHITECTURE		
Course Semester	5		
Catalog Content	Cache memory, memory structures, I/O units, register organization, pipelining, RISC and CISC, superscalar, control unit, multicore, multiprocessors.		
Textbook	Stallings, W., "Computer Organization and Architecture 10/e", Prentice Hall, 2015.		
Supplementary Textbooks	- Patterson, D.A., Hennessy, J.L., "Computer Architecture a Quantitative Approach 5/e", Morgan Kaufmann, 2011. - Mano, M.M., "Computer System Architecture 3/e", Prentice Hall, 1992.		
Credit	6		
Prerequisites of the Course (Attendance Requirements)	-		
Type of the Course	Compulsory		
Instruction Language	Turkish		
Course Objectives	To provide knowledge about cache memory, memory structures, I/O units, register organization, pipelining, RISC and CISC, superscalar, control unit, multicore, multiprocessors.		
Course Learning Outcomes	Students who successfully complete this course have knowledge on the following topics: Cache memory, memory structures, I/O units, register organization, pipelining, RISC and CISC, superscalar, control unit, multicore, multiprocessors.		
Instruction Methods	The mode of delivery of this course is face to face		
Weekly Schedule	1.Week: Introduction to computer architecture 2.Week: Performance and history of computers 3.Week: BUS structures 4.Week: Cache memory 5.Week: Instruction sets 6.Week: Addressing modes, Addressing formats 7.Week: Register organization 8.Week: Pipelining 9.Week: RISC architecture 10.Week: CISC architecture 11.Week: Instruction level parallelism and superscalar processors 12.Week: Control unit 13.Week: Multicore processors 14.Week: Multiprocessor systems		
Teaching and Learning Methods <i>(These are examples. Please fill which activities you use in the course)</i>	Weekly theoretical course hours: 3 Reading Activities Internet browsing, library work Report preparing Preparation of Midterm and Midterm Exam Final Exam and Preparation for Final Exam		
Assessment Criteria		Numbers	Total Weighting (%)
	Midterm Exams	1	35
	Assignment	4	25
	Application	0	0
	Projects	0	0
	Practice	0	0
	Quiz	0	0
Percent of In-term Studies (%)		60	

	Percentage of Final Exam to Total Score (%)		40				
	Attendance						
Workload	Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load			
	Weekly Theoretical Course Hours	14	3	42			
	Weekly Tutorial Hours	0	0	0			
	Reading Tasks	14	2	28			
	Studies	14	2	28			
	Material Design and Implementation	0	0	0			
	Report Preparing	4	4	16			
	Preparing a Presentation	0	0	0			
	Presentations	0	0	0			
	Midterm Exam and Preparation for Midterm Exam	1	12	12			
	Final Exam and Preparation for Final Exam	1	24	24			
	Other (should be emphasized)	0	0	0			
	Total Workload			150			
	Total Workload / 25			6			
	Course Credit (ECTS)			6			
Contribution Level Between Course Learning Outcomes and Program Outcomes	No	Program Outcomes	1	2	3	4	5
	1	Sufficient knowledge on mathematics, science and computer engineering; ability to apply theoretical and practical knowledge in these areas to model and solve engineering problems				X	
	2	Ability to identify, define, formulate and solve complex engineering problems; ability to choose and apply appropriate analysis and modelling methods for these purposes			X		
	3	Ability to design a complex system, process, device, software, algorithm, or product under realistic constraints and circumstances to meet certain requirements; ability to apply modern design techniques for this purpose					X
	4	Ability to choose, develop and use modern techniques and tools necessary for engineering applications; ability to effectively use computing technologies				X	
	5	Ability to design and implement systems or experiments to solve engineering problems, collect and interpret data to evaluate and analyze the results of solutions		X			
	6	Ability to work effectively in intradisciplinary and interdisciplinary teams or individually		X			
	7	Ability to efficiently prepare, evaluate and interpret reports					X
	8	Ability to make presentations and conduct effective verbal and written communication in Turkish and English	X				

	9	Awareness of the necessity of lifelong learning; ability to access information, follow scientific and technological developments; ability to perpetually renew oneself				X	
	10	Awareness of professional and ethical responsibility, ability to act in accordance with ethical principles				X	
	11	Ability to apply knowledge on project management, risk management and change management			X		
	12	Awareness of entrepreneurship and innovation, ability to design and build		X			
	13	Ability to devise local and global solutions to contemporary issues considering the effects of engineering applications on health, environment and security		X			
	14	Awareness of the legal consequences of engineering solutions		X			
	15	Ability to apply knowledge on software development process and documentation rules					X
	16	Knowledge on standards used in engineering applications					X
	17	Awareness of occupational health and security, information security and privacy		X			
The Course's Lecturer(s) and Contact Information		Prof. Dr. M. Ali AKCAYOL akcayol@gazi.edu.tr					