

### COURSE PROFILE

Course Name	Code	Semester	Term	Theory+PS+Lab (hour/week)	Local Credits	ECTS
Computer Organization	IT305	Fall	5	3 + 1 + 0	3	5

<b>Prerequisites</b>	None
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<b>Course Language</b>	English
<b>Course Type</b>	Required
<b>Course Lecturer</b>	Assoc. Prof. Dr. Vedat Coskun
<b>Course Assistant</b>	Kerem Ok
<b>Course Objectives</b>	This course aims to give hardware awareness, the structure that the hardware is based on; as well as low level programming capability to some extend.
<b>Course Learning Outcomes</b>	Upon successful completion of the course, students will: <ul style="list-style-type: none"><li>• understand the hardware structure</li><li>• understand how the memory management works</li><li>• have understanding of logic and boolean algebra</li><li>• be able to apply computer algebra</li></ul>
<b>Course Content</b>	Basic computer layout. Instruction sets and their implementation. Addressing techniques. ALU, hardwired and micro programmed controllers. Memory unit. I/O structures and interrupt handling. Improvements on Von Neumann machine. Bus structures. Assembly programming.

## COURSE CONTENT

<b>Week</b>	<b>Subjects</b>	<b>Related</b>
<b>1</b>	Introduction to Computer Organisation	
<b>2</b>	Computer Arithmetic	
<b>3</b>	Character Encoding	
<b>4</b>	Logic	
<b>5</b>	Microprocessors	
<b>6</b>	Parallel processing & Distributed computing	
<b>7</b>	Storage Components	
<b>8</b>	Memory Components	
<b>9</b>	Memory management	
<b>10</b>	Motherboard	
<b>11</b>	Computer Bus	
<b>12</b>	System Software, Machine language	
<b>13</b>	Assembly language	
<b>14</b>	Future of Computers	

<b>Course Textbook</b>	Structured Computer Organization, Tanenbaum & Austin
<b>Recommended References</b>	

<b>Semester Requirements</b>	<b>Number</b>	<b>Percentage of Grade</b>
Attendance/Participation		
Laboratory		
Application		
Special Course Internship (Work Placement)		
Quizzes/Studio Critics		
Homework Assignments		
Presentation		
Project		
Seminar/Workshop		
Midterms/Oral Exams	1	45
Final/Resit Exam	1	55
<b>Total</b>		100

<b>PERCENTAGE OF SEMESTER WORK</b>		45
<b>PERCENTAGE OF FINAL WORK</b>		55
<b>Total</b>		100

<b>Course Category</b>	Core Courses	X
	Major Area Courses	
	Supportive Courses	
	Media and Management Skills Courses	
	Transferable Skill Courses	

### COURSE'S CONTRIBUTION TO PROGRAM

#	Program Qualifications / Outcomes	* Level of Contribution				
		1	2	3	4	5
<b>1</b>	A foundation in mathematics and basic sciences and ability to apply acquired knowledge as they relate to the study and practice of information technology					X
<b>2</b>	An ability to analyze a problem, identify and define the computing requirements appropriate to its solution, to understand, select and use appropriate technology, tools, standards, protocols, building blocks, and components to solve the problem					X
<b>3</b>	An ability to propose, analyze, design, develop, test and maintain an information technology system including software solutions, security model, computer and network infrastructure, information systems etc. to solve information technology problems			X		
<b>4</b>	An ability to analyze local and global impact of computing on individuals, organizations and society; and the ability to apply information technology techniques, skills, and tools for regular computing practices as well as to improve effectiveness of current methodologies	X				
<b>5</b>	An ability to effectively communicate in oral and written media with all kinds of related audiences; and prepare documentation for this purpose as required	X				
<b>6</b>	An understanding of professional, ethical, legal, and social issues and responsibilities of information technology profession		X			
<b>7</b>	A taste and breadth of knowledge across several social topics outside the immediate requirements of the information technology profession, and the ability to work within heterogeneous teams to accomplish a common goal including people from the information technology area as well as other disciplines		X			
<b>8</b>	An ability to engage in life-long learning and professional development for personal improvement to follow contemporary information technology issues	X				

\*1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

**ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE  
DESCRIPTION**

<b>Activities</b>	<b>Number</b>	<b>Duration</b>	<b>Total Workload</b>
Course Hours (Including Exams)	14	3	42
Tutorials			
Laboratory			
Application			
Special Course Internship (Work			
Field Work			
Study Hours Out of Class	14	3	42
Presentations / Seminar			
Project			
Preparatory reading	14	3	42
Homework Assignments			
Quizzes			
Midterm Exams	1	2	2
Final / Resit Exam	1	2	2
		<b>Total Workload</b>	130

### COURSE CATEGORY

<b>ISCED GENERAL AREA CODES</b>	<b>GENERAL AREAS</b>	<b>ISCED BASIC AREA CODES</b>	<b>BASIC EDUCATIONAL AREAS</b>	
1	Education	14	Teacher Training and Educational Sciences	0
2	Humanities and Art	21	Art	0
2	Humanities and Art	22	Humanities	0
3	Social Sciences, Management and Law	31	Social and Behavioural Sciences	0
3	Social Sciences, Management and Law	32	Journalism and Informatics	0
3	Social Sciences, Management and Law	38	Law	0
4	Science	42	Life Sciences	0
4	Science	44	Natural Sciences	0
4	Science	46	Mathematics and Statistics	0
4	Science	48	Computer	80
5	Engineering, Manufacturing and Civil	52	Engineering	20
5	Engineering, Manufacturing and Civil	54	Manufacturing and Processing	0
5	Engineering, Manufacturing and Civil	58	Architecture and Structure	0
6	Agriculture	62	Agriculture, Forestry, Livestock, Fishery	0
6	Agriculture	64	Veterinary	0
7	Medicine and Welfare	72	Medical	0
7	Medicine and Welfare	76	Social Services	0
8	Service	81	Personal Services	0
8	Service	84	Transport Services	0
8	Service	85	Environment Protection	0
8	Service	86	Security Services	0