

COURSE INFORMATION					
Course Title	Code	Semester	L+P+L Hour	Credits	ECTS
Virtualization and Introductory Cloud Computing	CIS 518		3 + 0+0	3	10

<b>Prerequisites</b>
----------------------

<b>Language of Instruction</b>	English
<b>Course Level</b>	Bachelor's Degree (First Cycle Programs)
<b>Course Type</b>	Elective
<b>Course Coordinator</b>	Dr. Mustafa Asım Kazancıgil
<b>Instructors</b>	Dr. Mustafa Asım Kazancıgil
<b>Assistants</b>	
<b>Goals</b>	The course aims to give the students introductory information about current practices in virtualization and cloud computing. Virtualized operating systems, their installation and implementation will be explained, Computing models, techniques and architectures will be introduced. The course will provide students practical knowledge on designing and implementing virtual and cloud based software systems and major providers of such systems in the market today. Their use in enterprise level information management will be introduced.
<b>Content</b>	Introduction to virtual operating systems, their study, installation, advantages and problems, guest operating system installation, Introduction to cloud computing, enterprise cloud computing, cloud technologies, Virtualization technologies and multi user software, Cloud development, Data storage in clouds, software development for clouds, Software architecture, Commercial applications of cloud software, work flow and work processes, research on and solutions in commercial applications, The economics of Cloud Computing.

Learning Outcomes	Teaching Methods	Assessment Methods
1 Understanding and installing virtual operating systems.	1,2,3,4	A,B, C
2 Understanding the principles and applications of virtualization and cloud computing in enterprise information systems.	1,2,3	A,C
3 Being able to develop simple applications. programming goals.	1,2,3,4	A,B,C
4 Understanding service oriented architecture. and web services.	1,2,3	A,C
5 Understanding distributed storage and security issues in virtualization and cloud computing.	1,2,3	A,C

<b>Teaching Methods:</b>	1: Lecture, 2: Question-Answer, 3: Discussion 4. Lab Work
<b>Assessment Methods:</b>	A: Testing, B. Laboratory C: Homework

COURSE CONTENT		
Week	Topics	Study Materials
1	Review of Data Structures and Introduction to Operating Systems. Concepts and Tools:	ACM 111
2	Introduction to virtualization and Cloud Computing,	ACM 111
3	History of commercial applications of virtualization and cloud computing.	ACM 111
4	Virtualization Technologies and Multi Client Software. Reentrancy.	ACM 111
5	Installation of a virtual operating system.	
6	Application Development in the cloud.	ACM 222
7	MIDTERM EXAMINATION.	
8	Data Storage In the Cloud	ACM 221
9	Application Development Platforms. Software Architecture	
10	Commercial and Enterprise Application Software Work flow and Work Processes	ACM 111
11	Networking and internet applications	ACM 111
12	Economics of Virtualization and Cloud Computing	
13	REVIEW AND MIDTERM EXAMINATION	

RECOMMENDED SOURCES	
<b>Textbook</b>	Enterprise Cloud Computing, by Gautam Shroff, Cambridge University Press, 2010
<b>Additional Resources</b>	Handbook of Cloud Computing, Borko Furht · Armando Escalante Editors Springer (2010); Ivanka Menken, Cloud Computing Virtualization Specialist Complete Certification Kit: Study Guide Book and Online Course Emereo Pty Ltd; 2 edition (August 26, 2010)

ASSESSMENT		
IN-TERM STUDIES	NUMBER	PERCENTAGE
Mid-terms	1	60
Quizzes	1	20
Homework	1	20
	<b>Total</b>	100
<b>CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE</b>		60
<b>CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE</b>		40
	<b>Total</b>	100

<b>COURSE CATEGORY</b>	Expertise/Field Courses
------------------------	-------------------------

COURSE'S CONTRIBUTION TO PROGRAM						
No	Program Learning Outcomes	Contribution				
		1	2	3	4	5
1	Information Systems graduates have the knowledge and the skills to design and develop the complete systems for multi-media visual user interface.	X				
2	Information Systems graduates have advanced the knowledge and skills to design, develop and install the application systems for multi-media.		X			
3	Information Systems graduates have the knowledge and the skills to design, develop and apply algorithms and data structures to solve the basic problems of information processing, within the framework of discrete mathematics.					X
4	Information Systems graduates have the knowledge and the skills to design and develop computer applications, based on user specified requirements, using modern structured development tools and install them on various hardware platforms and deploy their usage.					X
5	Information Systems graduates have the knowledge and the skills to design and develop computer applications, based on user specified requirements, using modern object-oriented development tools and install them on various hardware platforms and deploy their usage.					X
6	Information Systems graduates know the logic of computer operating systems, the basic set of system commands, how to control access to system resources by users of different departments and how to monitor the running of jobs in the system.					X
7	Information Systems graduates have the knowledge and the skills to design and develop data models serving different requirements, database applications that would access and process data using various types of software, including queries, reports and business applications.			X		
8	Information Systems graduates have the knowledge and the skills to design and develop business applications that would provide data access, modification and processing for data kept in enterprise database systems.			X		
9	Information Systems graduates have the knowledge about computer networks, and have the skills to design, develop and monitor computer networks, how to configure them and how to maintain their performance.		X			
10	Information Systems graduates have the knowledge and the skills to design and develop visual user interfaces for the web, web-based applications for n-tier client/server configurations, how to deploy them in enterprises.		X			

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

Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Including the exam week: 13x Total course hours)	13	3	39
Hours for off-the-classroom study (Pre-study, practice)	14	4	56
Mid-terms	1	2	2
Homework	4	35	140
Final examination	1	3	3
<b>Total Work Load</b>			240
<b>Total Work Load / 25 (h)</b>			9.60
<b>ECTS Credit of the Course</b>			10