

**TISHK INTERNATIONAL UNIVERSITY**  
**FACULTY OF ENGINEERING**  
**Department of COMPUTER ENGINEERING,**  
**2018-2019 Fall**  
**Course Information for CMPE 301 OPERATING SYSTEMS**

<b>Course Name:</b>	OPERATING SYSTEMS				
<b>Code</b>	<b>Regular Semester</b>	<b>Theoretical</b>	<b>Practical</b>	<b>Credits</b>	<b>ECTS</b>
CMPE 301	5	3	-	3	6
<b>Name of Lecturer(s):</b>	Polla Fattah				
<b>Teaching Assistant:</b>	-				
<b>Course Language:</b>	English				
<b>Course Type:</b>	Main				
<b>Office Hours</b>	-				
<b>Contact Email:</b>	pollaeng@gmail.com				
	Tel:				
<b>Teacher's academic profile:</b>	Data mining, Machine Learning, Statistics, Software Engineering, Computer Programming BSc Degree in Software Engineering. MSc Degree Information Technology. PhD research on classification of individual's behavior in time series data				
<b>Course Objectives:</b>	This course introduces operating system (OS) design and implementation. The operating system provides an established, convenient, and efficient interface between user programs and the bare hardware of the computer on which they run. This subject became more important lately as operating systems are not only required for just computer nowadays but also the majority of mobile and pad like devices. The main objectives of this course are: Learn the evolution of Operating Systems. Understand the operations performed by Operating System as a resource manager. Study the major components of an Operating System. "Operating System II" will be a continuation of "Operating System I". It will recover some of the subjects introduced in "Operating System I" in more depth with practical lab assignments to understand & implement important concepts. It will also introduce more advanced topics and actual operating systems examples to demonstrate the main concepts presented.				
<b>Course Description (Course overview):</b>	This course introduces operating system (OS) design and implementation. The operating system provides an established, convenient, and efficient interface between user programs and the bare hardware of the computer on which they run. This subject became more important lately as operating systems are not only required for just computer nowadays but also the majority of mobile and pad like devices. The main objectives of this course are: Learn the evolution of Operating Systems. Understand the operations performed by Operating System as a resource manager. Study the major components of an Operating System. "Operating System II" will be a continuation of "Operating System I". It will recover some of the subjects introduced in "Operating System I" in more depth with practical lab assignments to understand & implement important concepts. It will also introduce more advanced topics and actual operating systems examples to demonstrate the main concepts presented.				
<b>COURSE CONTENT</b>					
<b>Week</b>	<b>Hour</b>	<b>Date</b>	<b>Topic</b>		
1	3	2-4/10/2018	Introduce subject's syllabus		
2	3	7-11/10/2018	Introduction to OS		
3	3	14-18/10/2018	Introduction to Computer System		
4	3	21-25/10/2018	Process Description and Control		
5	3	28/10-1/11/2018	Threads, SMP, and Microkernels		
6	3	4-8/11/2018	Concurrency: Mutual Exclusion and Synchronization		
7	3	11-15/11/2018	Concurrency: Deadlock and Starvation		
8	3	18-22/11/2018	Midterm Exam		

9	3	25-29/11/2018	Memory Management
10	3	2-6/12/2018	Virtual Memory
11	3	9-13/12/2018	Uniprocessor Scheduling
12	3	16-20/12/2018	Multiprocessor and Real-Time Scheduling
13	3	23-24/12/2018	I/O Management and Disk Scheduling
14	3	2-3/1/2019	File Management
15	3	7-10/1/2019	Review
16	3	13-17/1/2019	Final Exam
17	3	20-24/1/2019	Final Exam

### COURSE/STUDENT LEARNING OUTCOMES

- 1 Learn the basic functionality & operations performed by an Operating System.
- 2 Study the major components of an Operating System and the concept behind processes and scheduling.
- 3 Study multiprogramming, multi-threading and the role of multi-processor systems.
- 4 Study memory management techniques including paging & virtual memory.

### COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES

(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced )

Program Learning Outcomes	Cont.
1 An ability to apply knowledge of mathematics, science, and engineering.	I
2 An ability to analyze, design, and implement software and hardware solutions	
3 Identify, interpret and analyze stakeholder needs, establish priorities and goals , constraints and uncertainties of the computer systems( Social, Cultural, legislative forensics, environmental, business etc..)	I
4 Apply problem solving, design and decision-making methodologies to develop components, systems and/or processes to meet specified requirements.	I
5 An ability to model the structure and behavior of real or virtual systems, components and processes.	P
6 An ability to coordinate range of disciplinary and interdisciplinary activities in addition to exercise of effective communication to arrive at problem and design solutions in team contexts.	I
7 Using different methods, techniques, modern tools and skills for engineering practice in real engineering projects.	I
8 An ability self-organization, self-review, personal development and lifelong learning.	P
9 Handle professional and ethical responsibilities.	I
10 Explain an engineer's responsibilities to employee, society and their fellow engineers along with identifying latent ethical problems.	P
11 The broad education necessary to understand the impact of computer engineering solutions in a global, economic, environmental, and societal context.	A
12 A knowledge of contemporary issues.	A

<b>Prerequisites (Course Reading List and References):</b>	Basics of computer architecture.
<b>Student's obligation (Special Requirements):</b>	No mobile phones during the lessons
<b>Course Book/Textbook:</b>	Lecture Notes.
<b>Other Course Materials/References:</b>	Operating System Concepts (9th Edition) Abraham Silberschatz (Yale University), Peter B. Galvin (Pluribus Networks), Greg Gagne (Westminster College), Wiley 2012.
<b>Teaching Methods (Forms of Teaching):</b>	Lectures, Excersises, Presentation, Assignments, Demonstration

### COURSE EVALUATION CRITERIA

Method	Quantity	Percentage (%)
Quiz	2	10
Homework	1	10

Midterm Exam(s)	1	20
Term Paper	1	10
Final Exam	1	40
Final Exam	1	40
<b>Total</b>		<b>140</b>

**Examinations:** True-False, Fill in the Blanks, Multiple Choices, Short Answers, Matching

WARNING:Percentage sum is **140. It can not be over 100.**

**Extra Notes:**

**ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD**

<b>Activities</b>	<b>Quantity</b>	<b>Workload Hours for 1 quantity*</b>	<b>Total Workload</b>
Theoretical Hours	17	3	51
Practical Hours	17	0	0
Final Exam	1	16	16
Quiz	2	3	6
Homework	1	1	1
Midterm Exam(s)	1	2	2
Term Paper	1	1	1
Final Exam	1	2	2
<b>Total Workload</b>			<b>79</b>
<b>ECTS Credit (Total workload/25)</b>			<b>3</b>

**Peer review**

Signature:

Name:

Lecturer

Signature:

Name:

Head of Department

Signature:

Name:

Dean