

OSTIM TECHNICAL UNIVERSITY FACULTY OF ENGINEERING COMPUTER ENGINEERING

COURSE SYLLABUS FORM 2020-2021

CENG 303 Operating System										
Course Name	Course Code	Term	Hours	App Hours	Lab Hours	Credit	ECTS			
System Programming	CENG 204	5	3	0	0	3	7,5			

Language of Instruction	English
Course Status	Compulsory
Type of Instruction	Online
Instructor/s	Assist. Prof. Dr. Ramazan KOCAOĞLU

Course Objectives

This course provides an introductory overview of operating systems and system programming, mainly focusing on system-level programming based on OS services and other APIs. Topics include system calls, file I/O, files and directories, memory management, process control, inter-process communication (IPC), socket-based network programming, remote procedure call (RPC) programming, and basic security mechanisms. Course work includes substantial programming homework and team-based projects.

Learning Outcomes

- Overview of operating systems, functionalities and charateristics of OS
- System errors and error handling
- Variations on File I/O
- Resource management techniques
- Spawning and managing child processes
- Interprocess communications
- Messaging systems
- Client/server development
- Performance measurement
- Distributed processing infrastructures
- Parallel processing infrastructures
- Introduction to Server-Client Sockets
- Introduction to Threads

Course Outline					
Week	Topics				
1	Overview of systems programming				
2	Users, files and manuals				



3	Directories, file properties and file systems
4	Terminal control and signals
5	Event driven programming
6	Processes and programs
7	i/o redirection and pipes
8	Mid-term Exam
9	Servers and sockets
10	Threads
11	Memory management system and processes carried outunder the operating systems
12	Concurrency control
13	Project/Homework Presentation
14	Project/Homework Presentation
15	Project/Homework Presentation
16	Project/Homework Presentation

References/Meterials/TextBooks

- 1. Systems Programming and Designing and Developing Distributed Applications, 1st edition , Richard Anthony.
- 2. The Linux Programming Interface: A Linux and UNIX System Programming, 1st Edition, Michael Kerrisk
- 3. Linux System Programming: Talking Directly to the Kernel and C Library, Second Edition, Robert Love

Assessment Methods					
Requirments	Qua	Grading (%)			
Mid-term Exam	1	% 30			
Homework Presentation	4	% 20			
Project Presentation	1	% 50			
	Total	100			