Course Title	Systems Programming				
Course Code	CSE305				
Course Type	Compulsory				
Level	Bachelor (1st Cycle)				
Year / Semester	3rd Year / 5th Semester				
Teacher's Name	TBA				
ECTS	6	Lectures / week	3 hours / 14 weeks	Laboratories / week	N/A
Course Purpose and Objectives	The purpose of the course is to introduce the student to the Unix family of operating systems, to scripting through their command line, and to expose the students to the process of writing low-level programs that interact directly with a computer's operating system and hardware.				
Learning Outcomes	After the completion of this course the student should be able to: • Discuss the main parts of the operating system • Create scripts that allow the compilation and profiling of a computer program • Create programs that manipulate the computer hardware directly • Create programs that utilize the operating system's low level processes to solve specific problems.				
Prerequisites	CSE200	Required	None		
Course Content	Part I: The Unix family of Operating Systems What is the Unix family; How to interact with the command line; writing command line scripts; understanding unix-family commands; understanding the memory allocation in the Unix-family of operating systems; computer systems and how they interact through the operating system Part II: Program Structure and Execution Representing and Manipulating Information; Machine-Level Representation of Programs; Processor Architecture; Optimizing Program Performance; The Memory Hierarchy; Part III: Running Programs on a System Separate Compilation and Linking; Exceptional Control Flow; Manipulation of Virtual Memory; Interaction and Communication Between Programs; System-Level I/O; Network Programming; Concurrent Programming				
Teaching Methodology	Face – to – face				

Bibliography	Bryant, R. E. and O'Hallaron, D. R. (2016) Computer systems: a programmer's perspective, Pearson.
	Kochan, S. G. and Wood, P. (2017). Shell programming in unix, linux and os x: the fourth edition of unix shell programming, Addison-Wesley
	Robbins, K. and Robbins, S. (2016). Unix systems programming: communication, concurrency and threads: communication, concurrency and threads, Prentice Hall.
Assessment	

Mid – Term Examination	30%
Final Examination	30%
Assignments/Lab	30%
Class Participation and Attendance	10%
	100%

Language	English