

CCIP504 Course Syllabus

Operating Systems and System Programming | Fall 2026–2027

Course information	Details
University and programme	Kadir Has University Cybersecurity Graduate
Type and delivery	Compulsory English Face to face PC-LAB-3
Credits and hours	3 local credits 7.5 ECTS 3+0+0 hours weekly Prerequisites: none
Lecturer and coordinator	Dr. Beyazıt Bestami Yüksel Prof. Dr. Hasan Dağ

Purpose and learning outcomes

Explain architecture, OS services and evolution, processes, concurrency, memory, files and virtual machines. Write and test Linux/Bash tools for administration and security. Classes integrate theory and guided practice.

Weekly course plan

Week	Topic	Practice or assessment
1	Computer systems and OS foundations	Linux system information
2	Interrupts, memory hierarchy, caches, DMA, multicore	CPU and memory inspection
3	Virtual machines and the Linux environment	VMs, navigation and manuals
4	Commands, pipes, redirection and quoting	Quiz 1 (5%)
5	Files, permissions, links and I/O	Homework 1 due (3%)
6	Editing and program execution	Editors, C compilation, streams
7	Processes and system programming	ps, signals, fork, exec, wait, pipes
8	Review and midterm examination	Midterm (25%)
9	Regular expressions and pattern matching	Homework 2 due (3%)
10	Text processing with grep, awk and sed	Quiz 2 (5%)
11	Bash variables, tests, conditions and loops	Ungraded project proposal
12	Functions and reliable Bash scripts	Homework 3 due (4%)
13	Security-oriented scripting	Project demonstrations
14	Integrated review and final preparation	Remaining project demonstrations
15–16	University final examination period	Final examination (40%)

Assessment and grading

Assessment	Count	Weight
Attendance and participation	13 sessions	5%
Homework assignments	3 (3% + 3% + 4%)	10%
Course project	1	10%
Midterm examination	1	25%
Quizzes	2 (5% each)	10%
Final examination	1	40%
Total		100%

Project: Linux/Bash tool, code, README, tests, report and demonstration with individual explanation. Weekly practice and the project proposal are ungraded. Estimated total workload: 187.5 hours.

Resources and course expectations

Texts: Silberschatz et al., Operating System Concepts, 10th ed., 2018; Sobell, A Practical Guide to Linux Commands, Editors, and Shell Programming, 2nd ed., 2010. Use approved Linux systems and acknowledge sources. AI use requires task permission, disclosure and verification. Dates, office hours and materials: learn.khas.edu.tr. Policies: full syllabus.