Department of Electrical Engineering

College of Engineering

Salahaddin University-Erbil

Subject: Operating Systems

Course Book – *(2022-2023)*

Lecturer's name: Qahhar Muhammad Qadir BSc, MSc, PhD

Academic Year: 2022/2023 (Semester 2)

Course Book

1. Course name	**Operating Systems**
2. Lecturer in charge	**Qahhar Muhammad Qadir**
3. Department/ College	**Electrical/Engineering**
4. Contact	**e-mail: qahhar.qadir@su.edu.krd** **Tel: (optional)**
5. Time (in hours) per week	**Theory: 2 (Sun 11-1pm)** **Practical: 2 (Thurs 11-1pm)**
6. Office hours	**Sunday 9-11am**
7. Course code	
8. Teacher's academic profile	**https://academics.su.edu.krd/qahhar.qadir**
9. Keywords	**OS, Systems programming, Processes, Resource allocation**

10. Course overview:

The purpose of this module is to learn fundamental knowledge on how to design Operating Systems (OS) and make modifications to existing operating systems, Linux as an example. Topics that are covered in this module include concepts of operating systems and systems programming, processes, memory allocation, resource allocation, I/O systems and basic networking. Students can simulate some of the learnt concepts using CPU-OS Simulator.

11. Course objective:

The aims of the module are to:

1) Understand basic knowledge of operating systems,
2) Learn how to design operating systems from academic point of view,
3) Modify existing operating systems (Linux),
4) How to program systems.
5) How to use computer package to simulate some functionalities of OS.

12. Student's obligation

Students are expected to attend classes, do the assignments and submit them by the due date, sit for the exams and do other required tasks given by the instructor. In particular

- Regular attendance is required according to the university rules.
- The use of mobile phone during the class is prohibited.
- Only the students who are officially enrolled can attend the class, guests and children are not admitted.
- Daily participation and conducting assignments are required.

13. Forms of teaching

The teaching strategies practised in this course include regular weekly lectures using PowerPoint slides, videos, simulation and other supporting materials. All materials are uploaded to Google Drive.

14. Assessment scheme

The performance of the participants is assessed in many ways. Daily participation and activities, assignments/projects, critical reading and exams are used to evaluate them in

regular basis. Assignments and critical reading tasks are done by the semester week prior the final examination. Exams (both midterms & final) will be scheduled by the examination committee in the department.

Below is the grading scheme of the course:

Midterm	20%
Quizzes	20%
Practical	10%
Final Exam (10 Practical + 40 Theoretical)	50%

15. Student learning outcome:

Upon successful completion of this course, students will be able to

1. Distinguish between the hard and soft real-time systems,
2. Understand the theoretical concepts of real-time embedded systems
3. Design factors of real-time embedded systems

16. Course Reading List and References:

■ **Textbook:** Silberschatz, Abraham; Galvin, Peter Baer; Gagne, Greg, "Operating Systems Concepts", 9th Edition, 2013, Wiley.

■ Useful references: Internet

■ Magazines and review (internet): Will be passed to used by the instructor

17. The Topics:	Lecturer's name
Week 1: Introduction Week 2: OS Structure Week 3: Processes Week 4: Threads Week 5: Process Synchronization Week 6: Midterm Exam Week7: Deadlocks Week 8: Protection Week 9: Security Week 10: Distributed systems Week 11: Review Week 12: Final Exam	Qahhar Muhammad Qadir
18. Practical Topics (If there is any) Practical sessions will implement the theoretical concepts studied in the lectures.	

19. Examinations:

1. Compositional: In this type of exam the questions usually starts with Explain how, What are the reasons for…?, Why…?, How….?
With their typical answers

For example:
Q: What are different OS structures? Support your answer with an example that is commercially available.
A: As discussed in the class.

20. Extra notes:

None

21. Peer review

Will be given when are necessary.