

ECE 229: Real-Time Systems (3 cr.)

Alexandridis

Real-time concepts. Designing and developing a real-time system. Clock-driven and priority-driven real-time systems. Concurrent processes. Distributed real-time systems. Programming and software issues. Hardware/software integration. Developing and debugging tools. Real-time operating systems.

Prerequisites: ECE 201 or permission of the instructor

(Fall)

Textbooks:

1. P.A. Laplante, *Real-Time Systems Design and Analysis: An Engineer's Handbook*, IEEE
2. R. Grehan, R. Moote, I. Cyliax, *Real-Time Programming: A Guide to 32-bit Embedded Development*, Addison-Wesley
3. N. Nissanke, *Realtime Systems*, Prentice Hall (optional)

Contents:

1. Basic real-time concepts.
2. Designing and developing real-time systems
3. Real-time events
4. Hardware/software integration
5. Distributed real-time systems
6. Real-time communication
7. Midterm examination
8. Priority-driven real-time systems
9. Clock-driven real-time systems
10. Programming and software issues
11. Real-time operating systems
12. Resource management
13. Developing and debugging tools
14. Real-time data-acquisition and control systems
15. Final examination