1. Catalog Description – (3 credits) Develop a deep understanding of internals of the Linux Kernel and gain hands-on experience in systems programming by implementing device drivers and testing/verifying systems code for deadlock and race-freedom.

2. Pre-requisites:
   - C programming knowledge (for both EEL 4930 & EEL 5934)
   - EEL 3701C (or equivalent), EEL 3834 (or equivalent), and COP 4600 (or equivalent) (for EEL 4930)
   - COP4600 (or equivalent) or EEL 5737 (for EEL 5934).

3. Course Objectives – To learn the architecture and inner-workings of a real-world operating system and to learn how to write, test, and debug a device driver in the face of a complicated concurrency model.

4. Contribution of course to meeting the professional component (ABET only – undergraduate courses) NA.

5. Relationship of course to program outcomes: Skills student will develop in this course (ABET only undergraduate courses) NA.

6. Instructor – Dr. Tuba Yavuz
   1. Office location: 321 Benton Hall
   2. Telephone: 352-8460202
   3. E-mail address: tuba@ece.ufl.edu
   4. Class Web site: E-learning CANVAS.
   5. Office hours: M 5th, Th 5th periods

7. Teaching Assistant – Farhaan Fowze
   1. Office location: 320 Benton Hall
   2. Telephone:
   3. E-mail address: farhaan104@ufl.edu

8. Meeting times: MWF 3rd period.

9. Class/laboratory schedule - 3 class periods consisting of 50 minutes each


11. Material and Supply Fees - None

12. Textbooks and Software Required – None.

13. Recommended Reading -
   1. Title: Writing Linux Device Drivers
      2. Author: Jerry Cooperstein
      3. Publication date and edition: 2009, 1st
      4. ISBN number: 1448672384

1. Title: Linux Device Drivers
2. Author: Corbet, Rubini, & Kroah-Hartman
3. Publication date and edition: 2005, 3rd
4. ISBN number: 978-0-596-00590-0

13. Course Outline –

- Introduction to Operating Systems Concepts
- Processes, Files, Memory Management, IPC
- The Linux Kernel Architecture
- Hardware I/O
- Device Driver Model
- Implementing Device Drivers
- Debugging Device Drivers

14. Attendance and Expectations - Attendance is expected. Cell phones and other electronic devices are to be silenced. No text messaging during class or exams.

Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

15. Grading –

**Programming Assignments (40%)**:  
Assignment1: Advanced User-Space Programming
Assignment2: Pthreads
Assignment3: File Systems
Assignment4: A simple char device driver
Assignment5: A thread-safe char device driver
Assignment6: Testing the USB keyboard driver
Assignment7: Testing the USB mass-storage driver

**Exams (60%)**: There will be 3 closed books and notes exams (each weighs 20%).
- **Exam1**: Wednesday, February 10th (regular class time and place)
- **Exam2**: Wednesday, March 23rd (regular class time and place)
- **Exam3**: Wednesday, April 20th (regular class time and place)

16. Grading Scale –

A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or
better (C or better).” Note: a C-average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

17. Make-Up Exam Policy - If you have a University-approved excuse and arrange for it in advance, or in case of documented emergency, a make-up exam will be allowed

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and arrangements can be made for making up missed work. University attendance policies can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Otherwise, make-up exams will be considered only in extraordinary cases, and must be taken before the scheduled exam. The student must submit a written petition to the instructor two weeks prior to the scheduled exam and the instructor must approve the petition.

19. Honesty Policy – All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

"...failure to comply with this commitment will result in disciplinary action compliant with the UF Student Honor Code Procedures (http://www.dso.ufl.edu/sccr/procedures/honorcode.php)

20. Accommodation for Students with Disabilities – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

21. UF Counseling Services – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
   - UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
   - Career Resource Center, Reitz Union, 392-1601, career and job search services.

22. Software Use – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to
do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

23. Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.