Basic Information

Instructor: Tongping Liu
Email: Tongping.Liu@utsa.edu
Class Time: Tu/Th, 4:00pm-5:15pm
Class Room: NPB 1.226
Office: NPB 3.328
Office Hours: Tu: 1pm–4pm

Required Text Books

• Understanding the Linux Kernel (ULK), 3rd Edition, by Daniel Bovet and Marco Cesati;
• Linux Kernel Development (LKD), 3rd Edition, by Robert Love;

Course Description:
The emphasis of the course is on the internals of Linux Operating System. Topics include structure of Linux kernel, system booting, memory segmentation and paging, process creation and scheduling, interrupt handling, system calls, file systems, networking, device drivers and module programming. Modification of Linux OS kernel is required.

Brief Schedule:

—Introduction to Linux (ULK Chapter 1)
—Booting, Compilation, Initialization (ULK Appendix A.)
—Programs, Processes, and Threads (ULK Chapter 2, 3, 7)
—Interrupts and Exceptions (ULK Chapter 4)
—Memory Management (ULK Chapter 8, 9, 15, 17)
—System Calls (ULK Chapter 10)
—Device Drivers (ULK Chapter 13)
—Kernel Debugging
Prerequisites:

- CS 3423 (Systems Programming)
- CS 3843 (Computer Organization)
- CS 3443 (Applications Programming)
- CS 3733 (Operating Systems)
- C/C++ programming languages;

- If you have not met ALL of these prerequisites, you are not supposed to take this course.

Grade Policy:

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
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<tr>
<td>First Midterm</td>
<td>20%</td>
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<tr>
<td>Second Midterm</td>
<td>20%</td>
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<tr>
<td>Final</td>
<td>35%</td>
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<tr>
<td>Projects &amp; Assignments</td>
<td>24%</td>
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<tr>
<td>Evaluation</td>
<td>1%</td>
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Notes on participation: The attendance and active participation is required for this course. Course evaluation will be 1 point. For people with a full attendance, your final score will be multiplied by 10% in the end. For people attending more than 90% classes, your final score will be multiplied by 5%. For people attending more than 80% classes, your final score will be multiplied by 1%.

Final Grade Distribution:

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>&gt;= 96.00</td>
<td>A+</td>
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<tr>
<td>93.00 - 96.00</td>
<td>A</td>
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<tr>
<td>90.00 - 92.99</td>
<td>A-</td>
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<tr>
<td>87.00 - 89.99</td>
<td>B+</td>
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<tr>
<td>83.00 - 86.99</td>
<td>B</td>
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<tr>
<td>80.00 - 82.99</td>
<td>B-</td>
</tr>
<tr>
<td>77.00 - 79.99</td>
<td>C+</td>
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<tr>
<td>&lt;= 59.99</td>
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Course Policies:

- General
  - Exams are closed books, closed notes.
  - No makeup will be given except with university sanctioned excuses.

- Project Assignments
Undergraduates will have four project assignments. Graduate students will have one more assignment additionally, which you should investigate one specific topic by reading the source code of Linux Kernel and give a presentation on the class.

Project assignments should be finished independently but can be discussed. Borrowing and providing solutions are considered to be plagiarism and will be reported. Also, they will result in a FAIL in this course.

Assignments can turn in two days late, but with a 30% off. After two days, we will not accept the assignment.

Every one will get a chance to turn in the project late without punishment in the whole semester.

Common Syllabus Information:
http://provost.utsa.edu/syllabus.asp

Common Questions about the course, assignments or exams:

Please post those questions in the “HelpForum” of Blackboard system since other students may have similar questions. It is not efficient to answer those questions one by one. However, you are welcome to send me personal questions, where the rule is further discussed in the following.

Sending Emails:

I will receive tons of emails everyday. Thus, please put the keyword “CS4853” or “CS5463” and your ABC123 in your email subject or body so that I can find corresponding emails very quickly. Those emails without these keywords will not be answered!!