NATIONAL TECHNOLOGICAL UNIVERSITY
NEEI 6341 –Fall 2006 - 4 Units
Digital Integrated Circuits
Professor Jan Rabaey
(UC Berkeley EECS 141)

Textbook

Course web site
TBA

Lecture Schedule
Special Note: This syllabus reflects the sequence of lectures as videotaped in the Spring of 2004.

TBA

Conference Call: Prof. Rabaey will host a conference call at some point during the semester. Details will be provided when available.

Week of September 4

Conference Call Sign-Up: Contact the Cal VIEW office (e-mail or phone) to sign up for the introductory conf. call on Fri, September 8th.

Tues, September 5
Lecture #1 – Course Introduction

Thurs, September 7
Lecture #2 – IC Manufacturing and Design Rules

Fri, September 8th, 1pm
MANDATORY Introductory Conference Call: with consultant at 1pm PST.

Updated 8/30/2006
COURSE SYLLABUS – NEEI 6341

Tues, September 12  Lecture #3 – Design Metrics
Discussion Section #1

Thurs, September 14  Lecture #4 – CMOS Inverter; MOS Transistor Basics

Fri, September 15  HOMEWORK #1 DUE: must be postmarked by 9/15.

Tues, September 19  Lecture #5- MOS Transistor Model - VTC
Discussion Section #2

Thurs, September 21  Lecture #6 MOS Capacitances & Prop Delay

Fri, September 22  HOMEWORK #2 DUE: must be postmarked by 9/22.

Tues, September 26  Lecture #7- Performance/Power Consumption
Discussion Section #3

Thurs, September 28  Lecture #8 – Buffer sizing/Logical effort

Tues, October 3  Lecture #9 – CMOS scaling
Discussion Section #4

Thurs, October 5  Lecture #10 –Wires
Discussion Section #5

Fri, October 6  HOMEWORK #3 DUE: must be postmarked by 10/6.

Tues, October 10  Lecture #11 – Wire Models

Thurs, October 12  Lecture #12 – CMOS Logic
Discussion Section #6

Week of October 16  Conference Call Sign-Up: Contact the CalVIEW office (e-mail or phone) to sign up for the conference call on Fri, October 27.

Tues, October 17  Lecture #13 – Designing for Speed & Power

Thurs, October 19  Lecture #14 – Pass Transistor Logic
Discussion Section #7

Fri, October 20  HOMEWORK #4 DUE: must be postmarked by 10/20.

Tues, October 24  Lecture #15 – Dynamic Logic

Updated 8/30/2006  2
<table>
<thead>
<tr>
<th>Date</th>
<th>Event/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thurs, October 26</td>
<td>Lecture #16 – Adders</td>
</tr>
<tr>
<td></td>
<td>Discussion Section #8</td>
</tr>
<tr>
<td>Fri, October 27</td>
<td>Conference Call: with consultant at 1pm for midterm review.</td>
</tr>
<tr>
<td>Mon. October 30</td>
<td>MIDTERM EXAM: You can take between Oct 30 and Nov 3. Must be faxed/postmarked by Nov. 3.</td>
</tr>
<tr>
<td>Tues, October 31</td>
<td>Lecture #17 – Adders &amp; Multipliers</td>
</tr>
<tr>
<td>Thurs, November 2</td>
<td>Lecture #18 – Power in CMOS</td>
</tr>
<tr>
<td></td>
<td>Discussion Section #9</td>
</tr>
<tr>
<td>Fri, November 3</td>
<td>MIDTERM EXAM DUE: You can take between Oct 30 and Nov 3. Must be faxed/postmarked by Nov. 3.</td>
</tr>
<tr>
<td>Week of November 6</td>
<td>Conference Call Sign-Up: Contact the CalVIEW office (e-mail or phone) to sign up for the conference call on Fri, December 17th.</td>
</tr>
<tr>
<td>Tues, November 7</td>
<td>Lecture #19 – Power in CMOS</td>
</tr>
<tr>
<td>Thurs, November 9</td>
<td>Lecture #20 – Sequential Circuits</td>
</tr>
<tr>
<td></td>
<td>Discussion Section #10</td>
</tr>
<tr>
<td>Fri, November 10</td>
<td>Conference Call: with consultant at 1pm TBA for project kickoff.</td>
</tr>
<tr>
<td>Fri, November 17</td>
<td>HOMEWORK #5 DUE: must be postmarked by 11/17.</td>
</tr>
<tr>
<td>Tues, November 21</td>
<td>Lecture #21 – Latches, Registers</td>
</tr>
<tr>
<td></td>
<td>Discussion Section #11</td>
</tr>
<tr>
<td>Thurs, November 23</td>
<td>THANKSGIVING HOLIDAY</td>
</tr>
<tr>
<td>Tues, November 28</td>
<td>Lecture #22 – Timing, Clock Distribution</td>
</tr>
<tr>
<td>Thurs, November 30</td>
<td>Lecture #23 – Interconnect Issues</td>
</tr>
<tr>
<td></td>
<td>Discussion Section #12</td>
</tr>
<tr>
<td>Fri, December 1</td>
<td>HOMEWORK #6 DUE: must be postmarked by 12/1.</td>
</tr>
</tbody>
</table>
COURSE SYLLABUS – NEEI 6341

Tues, December 5  
Lecture #24 – Power distribution

Thurs, December 7  
Lecture #25 – Memory  
Discussion Section #13

Week of December 11th  
Conference Call Sign-Up: Contact the CalVIEW office (e-mail or phone) to sign up for the conference call on Fri, December 15.

Tue, December 12  
Lecture #26 – Memory

Tues, December 14  
Lecture #27 – Perspectives

Fri, December 15  
PROJECT DUE: must be postmarked by 12/15.

Friday, December 15, 1pm  
Conference Call: with consultant at 1pm for final exam review.

Mon. December 18  
HOMEWORK #7 DUE: must be postmarked by 12/18.

Mon. December 18 - 22  
FINAL EXAM DUE: must be postmarked by 12/22.