COURSE SYLLABUS – IC 541CA

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Fall 2001
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NATIONAL TECHNOLOGICAL UNIVERSITY
IC 541CA – Fall 2001 - 4 Units
Digital Integrated Circuits
Professor Jan Rabaey
(UC Berkeley EECS 141)

Textbooks

Course web site
http://bwrc.eecs.berkeley.edu/Classes/ICDesign/ic541ca_f01/

Lecture Schedule
Special Note: This syllabus reflects the sequence of lectures as it was videotaped in the Fall of 2000.

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

TBA Conference Call Sign-Up: You MUST call the Cal VIEW office at (510) 642-5776 to sign up for the introductory conf. call with Mike on Aug. 29.

Tues, August 28 Lecture #1 – Course Introduction
Tues, August 29 MANDATORY Introductory Conference Call: with Mike from 10-11am PDT.
Thurs, August 30 Lecture #2 – Design Metrics
Mon, September 3 Labor Day Holiday
Tues, September 4 Lecture #3 – CMOS Inverter

Updated 7/30/2001
Thurs, September 6  
Lecture #4 – IC Manufacturing and Design Rules

Fri, September 7  
**HOMEWORK #1 DUE:** must be postmarked by 9/7.

Tues, September 11  
Lecture #5 – Voltage Transfer Characteristic

Thurs, September 13  
Lecture #6 – MOS Capacitances & Prop Delay

Fri, September 14  
**HOMEWORK #2 DUE:** must be postmarked by 9/14.

Tues, September 18  
Lecture #7 – Power Consumption & Technology Scaling

Thurs, September 20  
Lecture #8 – Wire Models

Fri, September 21  
**HOMEWORK #3 DUE:** must be postmarked by 9/21.

TBA  
**Conference Call Sign-Up:** You MUST call the Cal VIEW office at (510) 642-5776 to sign up for the conf. call with Mike on September 26.

Tues, September 25  
Lecture #9 – Wire Models

Wed, September 26  
**Exam Conference Call:** with Mike from 10-11am PDT for Exam 1 review/questions

Thurs, September 27  
Lecture #10 – Complementary CMOS Logic Design

Fri, September 28  
**HOMEWORK #4 DUE:** must be postmarked by 9/28.

TBA  
**Conference Call Sign-Up:** Please call the Cal VIEW office at (510) 642-5776 to sign up for the conf. call with Prof. Rabaey on TBA.

Week of October 1-5  
**MIDTERM EXAM #1 DUE:** must be postmarked by 10/5.

Tues, October 2  
Lecture #11 – Complementary CMOS Optimization

Thurs, October 4  
Lecture #12 – Low Energy Design + Ratioed Logic Design

TBA  
**Conference Call Sign-Up:** You MUST call the Cal VIEW office at (510) 642-5776 to sign up for the conf. call with Mike on October 10.

Updated 7/30/2001
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<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Tues, Oct 9</td>
<td>Lecture #13 – Pass-transistor Logic Project Launch</td>
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<tr>
<td>Wed, Oct 10</td>
<td>Project Conference Call: with Mike from 10-11am PDT for project questions/discussion</td>
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<tr>
<td>Thurs, Oct 11</td>
<td>Lecture #14 – Dynamic Circuitis</td>
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<td>Thurs, Oct 12</td>
<td>HOMEWORK #5 DUE: must be postmarked by 10/11.</td>
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<td>Fri, Oct 13</td>
<td>Columbus Day Holiday (note: HW is due on the 12th)</td>
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<td>Tues, Oct 16</td>
<td>Lecture #15 – Dynamic + Low-energy Design</td>
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<td>Thurs, Oct 18</td>
<td>Lecture #16 – Sequential Circuits Latches and Flip-flops</td>
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<td>Fri, Oct 19</td>
<td>HOMEWORK #6 DUE: must be postmarked by 10/19.</td>
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<tr>
<td>TBA</td>
<td>Conference Call Sign-Up: You MUST call the Cal VIEW office at (510) 642-5776 to sign up for the conf. call with Mike on October 24</td>
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<tr>
<td>Tues, Oct 23</td>
<td>Lecture #17 – Sequential Circuits Latches and Flip-flops</td>
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<td>Wed, Oct 24</td>
<td>Exam Conference Call: with Mike from 10-11am PDT for Exam 2 review/questions.</td>
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<td>Thurs, Oct 25</td>
<td>Lecture #18 – Sequential Circuits Multi-vibrators</td>
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<tr>
<td>Fri, Oct 26</td>
<td>HOMEWORK #7 DUE: must be postmarked by 10/26. PROJECT PHASE #1 DUE: must be postmarked by 10/26.</td>
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<td>Sun, Oct 29 (2 am)</td>
<td>Daylight Savings Time ends (Fall back). All remaining conference calls are at 10am PST</td>
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<td>Week of Oct 29-November 2</td>
<td>MIDTERM EXAM #2 DUE: must be postmarked by 11/2.</td>
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<td>Tues, Oct 30</td>
<td>Lecture #19 – Review for Midterm #2</td>
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<td>Wed, Oct 31</td>
<td>Halloween Holiday</td>
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<td>Thurs, Nov 1</td>
<td>Lecture #20 – Arithmetic</td>
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Tues, November 6  
Lecture #21 – Arithmetic

Thurs, November 8  
Lecture #22 – Interconnect-Capacitive

Fri, November 9  
HOMEWORK #8 DUE: must be postmarked by 11/9.

Mon, November 12  
Veterans Day Holiday

TBA  
Conference Call Sign-Up: You MUST call the Cal VIEW office at (510) 642-5776 to sign up for the conf. call with Mike on November 14.

Tues, November 13  
Lecture #23 – Interconnect – Resistive

Wed, November 14  
Project Conference Call: with Mike from 10-11am PST for project questions/discussion

Thurs, November 15  
Lecture #24 – Interconnect + Timing

Fri, November 16  
HOMEWORK #9 DUE: must be postmarked by 11/16.

Tues, November 20  
Lecture #25 – Timing + Memory

Wed, November 21  
Lecture #26– Semiconductor Memory

Thurs. November 22  
Thanksgiving Holiday

TBA  
Conference Call Sign-Up: You MUST call the Cal VIEW office at (510) 642-5776 to sign up for the conf. call with Mike on November 30.

Tues, November 27  
Lecture #27 – Overview and Discussion

Wed, November 28  
Exam Conference Call: with Mike from 10-11am PST for Final Exam questions/discussion

Fri, November 30  
HOMEWORK #10 DUE: must be postmarked by 11/30. PROJECT PHASE #2 DUE: must be postmarked by 11/30.

Week of December 3-7  
FINAL EXAM DUE: must be postmarked by 12/7.