Catalog Description

- Introduces digital systems, circuits, and computers. Topics include binary systems and codes, digital logic gates and circuits, microelectronics and integrated circuits, coding and multiplexing, multivibrators, shift registers, counters, A/D converters, and elementary computer architecture.
- Prerequisite(s): Grade of C or better in MATH 125 or MATH 112.
- Notes: Not intended for those majoring in electrical or computer engineering.
- Hours of Lecture or Seminar per week: 3 Hours of Lab or Studio per week: 2

Instructor

- Home page of Prof. K. J. Hintz with office room number, office hours, and contact information.

Lecture (Spring 2016)

- ECE 301, Section 001
- Tuesday and Thursday, 1500-1615
- January 19, 2016 through May 05, 2016

Lecture Location

- Innovation Hall, Rm 204

Laboratory/Lecture/Homework Teaching Assistants

- Section 201: Varsha Reddy Kamreddy, vkanredd@masonlive.gmu.edu
- Section 202: Varsha Reddy Kamreddy, vkanredd@masonlive.gmu.edu
- Section 203: Varsha Reddy Kamreddy, vkanredd@masonlive.gmu.edu

Course Credit

- 3 hours

Office of Disability Services

- If you are a student with a disability and you need academic accommodations, please see me and contact the Office of Disability Services (ODS) at 703.993.2474.
- All academic accommodations must be arranged through the ODS. http://ods.gmu.edu

Honor Code

- You are encouraged to collaborate with other students on homework and studying for the examinations.
- The normal honor code applies to all examinations.
- Any violation of the Honor Code will be vigorously pursued.
- GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process.
Examinations

- Makeup exams are rarely given, and then, only at the sole discretion of the instructor.
- Requests for a delayed Final Exam due to multiple tests (>2) in one day will ONLY be considered if proper forms are completed and in my hands prior to the mid-semester break.
- All exams will be closed book, closed notes, and no electronic devices.
- Students who are more than 15 minutes late for an exam may not be admitted and may be assigned a grade of zero for the exam.

Grading

- The course cumulative grade is on a strict numerical basis based on the weighted sum of the following:
  - 20%: First Exam
  - 20%: Second Exam
  - 20%: Final Exam
  - 20%: Homework
  - 5%: In-class quizzes
  - 15% Labs (all labs must be satisfactorily completed to receive a passing course grade)
- At the sole discretion of the instructor, +/- grades may be assigned within these ranges:
  - A: 90-100
  - B: 80-90
  - C: 70-80
  - F: < 70
- Numerical grades are not rounded.

Attendance at lectures is expected and random in-class quizzes will be given and graded.

Homework

- Homeworks are due by midnight on the day specified on Mason BlackBoard.
- There will be no late homeworks.
- Homeworks will be uploaded through the Mason Blackboard.

GMU Email Account

- Students must use their Mason email accounts—either the existing “MEMO” system or a new “MASONLIVE” account to receive important University information, including messages related to this class.
- See http://masonlive.gmu.edu for more information.

Classroom Etiquette

- Cellphones will be turned off during class. If you have an emergency and need to have a cellphone on, speak to me before class and sit near the door.
- Electronic devices (e.g., laptops, or texting devices) are discouraged in class.
- Lectures may not be recorded in any form without the express written permission from the instructor.
Required text

- Stephen Brown and Zvonko Vranesic
- Textbook on reserve: The textbook is listed under the course number in the reserves catalog with the call number TK7888.4 .B76 2009

University Policies

- The University Catalog, [http://catalog.gmu.edu](http://catalog.gmu.edu), is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at [http://universitypolicy.gmu.edu/](http://universitypolicy.gmu.edu/).
- All members of the university community are responsible for knowing and following established policies.
<table>
<thead>
<tr>
<th>Name</th>
<th>Begin Date</th>
<th>HW Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Overview</td>
<td>1/19/16</td>
<td>1</td>
</tr>
<tr>
<td>Introduction</td>
<td>1/21/16</td>
<td>1</td>
</tr>
<tr>
<td>Combinational Logic I</td>
<td>1/26/16</td>
<td>2.1-2.5</td>
</tr>
<tr>
<td>Combinational Logic II</td>
<td>1/28/16</td>
<td>2.6-2.8</td>
</tr>
<tr>
<td>Introduction to VHDL</td>
<td>2/2/16</td>
<td>2.9, 2.10, 6.6, App. A</td>
</tr>
<tr>
<td>Circuit Design</td>
<td>2/4/16</td>
<td>2.1-2.8</td>
</tr>
<tr>
<td>Karnaugh Maps I</td>
<td>2/9/16</td>
<td>4.1-4.2</td>
</tr>
<tr>
<td>Karnaugh Maps II</td>
<td>2/11/16</td>
<td>4.3-4.4</td>
</tr>
<tr>
<td>Timing Analysis &amp; Hazards</td>
<td>2/16/16</td>
<td>2.9.5, 3.8.5, 9.6</td>
</tr>
<tr>
<td>Binary Arithmetic I</td>
<td>2/18/16</td>
<td>5.1-5.4</td>
</tr>
<tr>
<td>Binary Arithmetic II</td>
<td>2/23/16</td>
<td>5.7-5.8</td>
</tr>
<tr>
<td>Exam # 1</td>
<td>2/25/16</td>
<td></td>
</tr>
<tr>
<td>Arithmetic Circuits I</td>
<td>3/1/16</td>
<td>5.5</td>
</tr>
<tr>
<td>Arithmetic Circuits II</td>
<td>3/3/16</td>
<td>5.6.5, 5.6.5</td>
</tr>
<tr>
<td>Spring Break</td>
<td>3/8/16</td>
<td></td>
</tr>
<tr>
<td>Spring Break</td>
<td>3/10/16</td>
<td></td>
</tr>
<tr>
<td>Multiplexers</td>
<td>3/13/16</td>
<td>6.1, 6.6</td>
</tr>
<tr>
<td>Decoders and Encoders</td>
<td>3/17/16</td>
<td>6.2-6.4</td>
</tr>
<tr>
<td>Technology, structural VHDL</td>
<td>3/22/16</td>
<td>3.1-3.9, 5.5, 5.7</td>
</tr>
<tr>
<td>One-bit memory elements I</td>
<td>3/24/16</td>
<td>7.1-7.4</td>
</tr>
<tr>
<td>One-bit memory elements II</td>
<td>3/29/16</td>
<td>7.5-7.7, 7.15</td>
</tr>
<tr>
<td>Registers</td>
<td>3/31/16</td>
<td>7.6, 7.13, 7.14, 10.1</td>
</tr>
<tr>
<td>Sequential machines I</td>
<td>4/5/16</td>
<td>8.1, 8.9</td>
</tr>
<tr>
<td>Exam #2</td>
<td>4/7/16</td>
<td></td>
</tr>
<tr>
<td>Sequential machines II</td>
<td>4/12/16</td>
<td>7.9, 8.7</td>
</tr>
<tr>
<td>Sequential machines III</td>
<td>4/14/16</td>
<td>8.2, 8.3, 8.5, 8.6, 8.11</td>
</tr>
<tr>
<td>Sequential machines IV</td>
<td>4/19/16</td>
<td></td>
</tr>
<tr>
<td>Sequential machines V</td>
<td>4/21/16</td>
<td>8.4</td>
</tr>
<tr>
<td>Memories</td>
<td>4/26/16</td>
<td></td>
</tr>
<tr>
<td>Arithmetic and Logic Units (ALL)</td>
<td>4/28/16</td>
<td></td>
</tr>
<tr>
<td>Final Exam, 1330-1635, May 5</td>
<td>5/5/16</td>
<td></td>
</tr>
</tbody>
</table>

*Week 1: 1/17/16 - 1/23/16
Week 4: 2/20/16 - 2/26/16
Week 5: 2/28/16 - 3/3/16
Week 6: 3/5/16 - 3/11/16
Week 7: 3/13/16 - 3/19/16
Week 8: 3/21/16 - 3/27/16
Week 9: 3/29/16 - 4/4/16
Week 10: 4/6/16 - 4/12/16
Week 11: 4/14/16 - 4/20/16
Week 12: 4/22/16 - 4/28/16
Week 13: 5/6/16 - 5/12/16
Week 14: 5/14/16 - 5/20/16
Week 15: 5/22/16 - 5/28/16
Week 16: 6/1/16 - 6/7/16
Week 17: 6/9/16 - 6/15/16
Week 18: 6/17/16 - 6/23/16
Week 19: 6/25/16 - 7/1/16
Week 20: 7/3/16 - 7/9/16