

### Course Syllabus for CET 2113C – Digital Systems II - CRN 16189 – 3 Credit Hours

**Course Description:** Intermediate lecture/laboratory course in computer technology. Introduces various digital subsystems (logic assemblies) and their use in digital computing and control systems and provides analytical tools necessary to perform analyses and problem diagnoses. Topics include counter/shift register systems and applications; digital subsystems using integrated circuit logic chips encoding/decoding techniques; data interfacing and busing; multiplex/demultiplex systems; analog/digital conversion techniques; static/dynamic memory systems; and computer system organization. Laboratory projects and demonstrations provide practical insight into capabilities and limitations of alternative methods of data transfer, storage and interface conversion commonly utilized in digital computing or control system applications. (Special Fee: \$64.00)

#### Prerequisites: CET 2112C

**Class Time and Location:** 

Lecture: Mondays from 1 PM – 2:50 PM, University Center (Building 11), Room 238

Lab: Mondays from 3:05 PM – 4:30 PM, University Center (Building 11), Room 244

**Textbook:** *Digital Systems: Principles and Applications,* 11<sup>th</sup> Ed., by Ronald J. Tocci

(ISBN# 0-13-172579-3)

Lab Manual: Digital Systems Laboratory Manual by Dr. Nasser Hedayat

#### **Professor's Information:**

Instructor:	Dr. Hall	
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Email:	dhall@valenciacollege.edu	
Office Hours:	Posted online and outside my office do	oor

#### **Student Performance Assessment:**

Pre-Labs (Multisim)	
Lab Reports	
Exams	
Lab Exam	5%
Final Exam	
Attendance and In Class Pa	rticipation15%

A: 90% - 100% B: 80% - <90% C: 70% - <80% D: 60% - <70% F: < 60%

Important Dat	tes:
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Monday, September 3 <sup>rd</sup>	Labor Day - Credit Classes Do Not Meet
Tuesday, September 4 <sup>th</sup>	Drop/Refund Deadline
Thursday, October 11 <sup>th</sup>	College Night - Credit Classes Do Not Meet
Friday, November 2 <sup>nd</sup>	Withdrawal deadline for "W" Grade
Wednesday-Sunday, November 21 <sup>st</sup> -25 <sup>th</sup>	Thanksgiving Holidays - Credit Classes Do Not Meet
Monday-Sunday, December 10 <sup>th</sup> -16 <sup>th</sup>	Final Exams Week

**DISCLAIMER:** Changes in this syllabus may be made at anytime at the instructor's discretion.

Week #	I ♥ Digital Systems Course Activities	Weekly Digital System Fun
1 [08/27]	<ul> <li>Introductions</li> <li>Course Overview</li> <li>Chapter 7: Counters &amp; Registers</li> </ul>	
2 [09/03]	Labor Day - Credit	Classes Do Not Meet
3 [09/10]	<ul> <li>Chapter 7: Counters &amp; Registers (continued)</li> <li>Experiment A2: Introduction to Logic Analyzer</li> </ul>	
4 [09/17]	<ul> <li>Chapter 7: Counters &amp; Registers (continued)</li> <li>Experiment 12 Pre-Lab</li> </ul>	Due Online Before Class Today: Experiment A2 Lab Report
5 [09/24]	<ul> <li>Chapter 7: Counters &amp; Registers (continued)</li> <li>Experiment 12: Sequential Logic Circuits/Binary Counters with Flip-Flops</li> <li>Experiment 13 Pre-Lab</li> </ul>	Due Online Before Class Today: Experiment 12 Pre-Lab
6 [10/01]	<ul> <li>Chapter 7: Counters &amp; Registers (continued)</li> <li>Experiment 13: Sequential Logic Circuits/Asynchronous Binary Counters</li> <li>Experiment 14 Pre-Lab</li> </ul>	Due Online Before Class Today: → Experiment 12 Lab Report → Experiment 13 Pre-Lab
7 [10/08]	<ul> <li>Chapter 7: Counters &amp; Registers (continued)</li> <li>Experiment 15 Pre-Lab</li> <li>Experiment 14: Presettable Counters</li> </ul>	Due Online Before Class Today: → Experiment 13 Lab Report → Experiment 14 Pre-Lab
8 [10/15]	<ul> <li>Chapter 9: MSI Logic circuits</li> <li>Experiment 16 Pre-Lab</li> <li>Experiment 15 Exam: Designing a Synchronous Counter</li> </ul>	<ul> <li>Due Online Before Class Today:</li> <li>➢ Experiment 14 Lab Report</li> <li>➢ Experiment 15 Pre-Lab</li> <li>➢ Complete Experiment 15 in 1.5 hours in the Open Lab <ul> <li>(No signature required)</li> </ul> </li> </ul>

9 [10/22]	<ul> <li>Chapter 9: MSI Logic circuits (continued)</li> <li>Experiment 17 Pre-Lab</li> <li>CH 7 Exam</li> <li>Experiment 16 Exam: Special Counters/Shift Register Counters</li> </ul>	Due Online Before Class Today:         ▶ Experiment 15 Lab Report         ▶ Experiment 16 Pre-Lab         ▶ Complete Experiment 16 in 1.5 hours in the Open Lab (No signature required)         Suggested EPP Fun to Complete Before Class Today:         CH 7 Exam Preparation Problems
10 [10/29]	<ul> <li>Chapter 9: MSI Logic circuits (continued)</li> <li>Experiment 18 Pre-Lab</li> <li>Experiment 17 Exam: MSI Logic Circuits/Decoders and Encoders</li> </ul>	<ul> <li>Due Online Before Class Today:</li> <li>➢ Experiment 16 Lab Report</li> <li>➢ Experiment 17 Pre-Lab</li> <li>➢ Complete Experiment 17 in 1.5 hours in the Open Lab         <ul> <li>(No signature required)</li> </ul> </li> </ul>
11 [11/05]	<ul> <li>Chapter 11: Interfacing with the Analog World</li> <li>CH 9 Exam</li> <li>Experiment 18 Exam: MSI Logic Circuits/Multiplexers and Demultiplexers</li> </ul>	Due Online Before Class Today:> CH 9 Exam Preparation Problems> Experiment 17 Lab Report> Experiment 18 Pre-Lab> Complete Experiment 18 in 1.5 hoursin the Open Lab(No signature required)
12 [11/12]	<ul> <li>Chapter 8: Integrated-Circuit Logic Families</li> <li>CH 11 Exam</li> <li>Experiment 11 Exam: Troubleshooting One Shot Circuit</li> </ul>	Due Online Before Class Today:
13 [11/19]	<ul> <li>Chapter 12: Memory Devices</li> <li>CH 8 Exam</li> <li>Experiment 19 Exam: Programmable Counter/Frequency Divider</li> </ul>	Due Online Before Class Today:         ▶ Experiment 11 Lab Report         ▶ Complete Experiment 19 in 1.5 hours in the Open Lab (No signature required)         Suggested Fun to Complete Before Class         Today:         ▶ CH 8 Exam Preparation Problems Review sections 9-10 and 9-19 in

		preparation for Experiment 19
14 [11/26]	<ul> <li>CH 12 Exam</li> <li>Experiment 20 Exam: MSI Logic Circuits/Analog to Digital Converter</li> </ul>	Due Online Before Class Today: <ul> <li>Experiment 19 Lab Report</li> <li>Complete Experiment 20 in 1.5 hours in the Open Lab (No signature required)</li> <li>Suggested EPP Fun to Complete Before Class Today:</li> <li>CH 12 Exam Preparation Problems</li> <li>Review pages 787 – 792 in preparation for Experiment 20</li> </ul>
15 [12/03]	> Lab Exam	Due Online Before Class Today: → Experiment 20 Lab Report
16 [12/10]	Final Exam (Comprehensive)	Due Online Before Class Today:         ➤ All Grade Enhancement         Opportunities         [See Blackboard for more details]

Exam Preparation Problem (EPP) Fun	
Chapter 7: Counters and Registers	
1,2,3,5,13,14,35,43	
Chapter 9: MSI Logic Circuits	
1,4,5,8,10,14,15,31(a)	
Chapter 11: Interfacing with the Analog World	
1,2,3,4,5,6,10,12	
Chapter 8: Integrated-Circuit Logic Families	
4,6,8,9,11	
Chapter 12: Memory Devices	
1,3,7,9,11,19,24,34	

## **Rules and Comments:**

- Students are strongly encouraged to read the Valencia policy Manual <u>Student Code of</u> <u>Conduct</u> and <u>Computer Acceptable Usage</u> found at: <u>http://valenciacollege.edu/policies/policydetail2.cfm?PolicyCatID=10&PolicyID=3</u>
- You are expected to be in class <u>on time</u>. You are responsible for all information and/or assignments given during class, whether you are present or not.
- **NO LATE WORK** will be accepted (no exceptions).
- **NO MAKE UPS** on missed lab assignments or missed exams (no exceptions).
- **u** Students MUST complete the required pre-lab Multisim assignment before class begins.
- All lab experiments must be completed during class time. Labs performed in the University Center Open Lab will not be accepted unless prior permission from professor.
- Use pencil or erasable pen ONLY and <u>erase all errors</u> when recording data within your lab manual. Five points will be deducted on each lab report grade if non-erasable pen is used in the lab manual or for scratch outs done with any type of writing instrument.
- □ Lab reports are to be submitted in an organized, well documented, and structured manner representative of the student's best effort. No hand-written material will be accepted in the lab reports.
- As we embark upon completing various lab experiments within this course during which you will be recording various data within your lab manual, be diligent every step of the way to try and record an explanation of why you think your circuit is behaving as you are observing it during the lab and not to simply just note down your data observations without conveying some reason as to why they might be occurring.
- No audio or video recording allowed in class unless prior permission is granted from professor and every other student in the class.
- □ It is the student's responsibility to withdraw from the course. Any withdrawal after the withdraw deadline may result in earning an **F** as the overall grade for the course.
- If interested, you may calculate your most current grade in the course utilizing the "Student Performance Assessment" section listed on the first page of this syllabus along with what grades have been posted in Blackboard Learn and with what graded assignments have been returned in class to you thus far in the course. Your professor will calculate the final grade in the course that you have earned after the final exam has been

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given and will post this grade in Atlas for you to view at the end of the semester.

## **Student Core Competencies:**

The faculty members of Valencia College have established four Core Competencies that describe the learning outcomes for a Valencia graduate. They are: THINK, VALUE, COMMUNICATE, and ACT. These general competencies can be applied in many contexts and must be developed over a lifetime. They specify how learning can be expressed and assessed in practice. They enable students and faculty to set learning goals and assess learning within and across the many disciplines of human inquiry. Use the descriptions and examples of academic work for each to measure your own learning outcomes. Samples of the academic work are great additions to your Learning Portfolio. For further information competencies on student core please go to: www.valenciacollege.edu/competencies.

# **Expected Student Conduct:**

Valencia College is dedicated not only to the advancement of knowledge and learning but is concerned with the development of responsible personal and social conduct. By enrolling at Valencia College, a student assumes the responsibility for becoming familiar with and abiding by the general rules of conduct. The primary responsibility for managing the classroom environment rests with the faculty. Students who engage in any prohibited or unlawful acts that result in the disruption of a class may be directed by the faculty member to leave the class. Violation of any classroom or Valencia's rules may lead to disciplinary action up to and including expulsion from Valencia. Disciplinary action could include being withdrawn from class, disciplinary warning, probation, suspension, expulsion, or other appropriate and authorized actions. You will find the Student Code of Conduct in the current Valencia Student Handbook

**Students with disabilities** who qualify for academic accommodations must provide a letter from the Office for Students with Disabilities (OSD) and discuss specific needs with the professor, preferably during the first two weeks of class. The Office for Students with Disabilities determines accommodations based on appropriate documentation of disabilities (West Campus SSB 102, ext. 1523).

Valencia College is interested in making sure all our students have a rewarding and successful college experience. To that purpose, Valencia students can get immediate help with issues dealing with stress, anxiety, depression, adjustment difficulties, substance abuse, time management as well as relationship problems dealing with school, home or work. BayCare Behavioral Health Student Assistance Program (SAP) services are free to all Valencia students and available 24 hours a day by calling (800) 878-5470. Free face-to-face counseling is also available.