Basic Course Information

Semester:	**Spring 2018**	Instructor Name:	**R. Jimenez**
Course Title & #:	**DIGITAL LOGIC CIRCUITS. ELTR240**	Email:	ricardo.jimenez@imperial.edu
CRN #:	**20883**	Webpage (optional):	
Classroom:	**3110**	Office #:	**3114**
Class Dates:	**2/12/2018 -6/08/2018**	Office Hours:	**11 AM-12:00 PM**
Class Days:	**T/TR**	Office Phone #:	
Class Times:	6:00-8:35 P.M.	Emergency Contact:	
Units:	3		

Course Description

A continuation of ELTR220. The advanced study of applied digital electronic systems such as those found in computing, audiovisual, and other electromechanical equipment.

Student Learning Outcomes

1. Familiarize with Boolean Algebra and K-Maps.
2. Describe the function of Digital Microcontrollers
3. Analyze Digital sequential circuits in different configurations
4. Construct, test and troubleshoot various digital circuits.

Course Objectives

1. Understand the theory of the decimal, binary, and hexadecimal codes, which is the essential factor in making digital circuits operate properly.

2. Analyze and reduce digital circuits using Boolean Algebra and K Maps.

3. Explain the operation of combinatorial circuits in different configurations.

4. Apply K Maps in digital electronic circuits using logic gates.

5. Compare and contrast the newer digital logic families, such as HT and AC MOS.

6. Compare PLDs systems based on GAL architectures

7. Apply microcontrollers for control applications

8. Design software programs for PIC microcontrollers using Pic Basic language.

9. Design and test programs for PLCs using ladder logic.

10. Analyze new devices and systems proposed by authors in journals and trade magazines and appraise the value of these advances for redesign of systems.

Textbooks & Other Resources or Links

Digital Electronics Principles and Applications, Third Edition. Tokheim. Mc Graw Hill. ISBN: 0-07-830981-

The PIC Microcontroller Engineer's Notebook. R. Jimenez, © 2016. ISBN: 978-0-692-76419-0

Scientific Calculator CASIO fx-117ES or equivalent. All other materials with the exception of the text book and calculator will be supplied.

Course Requirements and Instructional Methods

Students will be given assignments to build and test each topic on a Protoboard. Each functional circuit will be considered for accumulative points for the Midterm and Final Test.

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

Course Grading Based on Course Objectives

Statement Of Grading Procedures:

1. Homework, Assignments: 10%
2. Lab. Experiments and Reports: 30%
3. Mid-Term Exam: 30%
4. Final Exam: 30%

Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class. It is the student's responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.

- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed by the instructor.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the General Catalog.
- Children in the classroom: Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.
- Lectures will be audio recorded occasionally for quality purposes.

Online Netiquette

- What is netiquette? Netiquette is internet manners, online etiquette, and digital etiquette all rolled into one word. Basically, netiquette is a set of rules for behaving properly online.
- Students are to comply with the following rules of netiquette: (1) identify yourself, (2) include a subject line, (3) avoid sarcasm, pejorative and profane language, (4) respect others' opinions and privacy, (5) acknowledge and return messages promptly, (6) copy with caution, (7) do not spam or junk mail, (8) be concise, (9) use appropriate language, (10) use appropriate emoticons (emotional icons) to help convey meaning, and (11) use appropriate intensifiers to help convey meaning [do not use ALL CAPS or multiple exclamation marks (!!!!)].

Academic Honesty

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the important of acknowledging and safeguarding intellectual property.

There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- Plagiarism is taking and presenting as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to "cite a source" correctly, you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment, or using or attempting to use materials, or assisting others in using materials that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Additional Student Services

Imperial Valley College offers various services in support of student success. The following are some of the services available for students. Please speak to your instructor about additional services which may be available.

- **Blackboard Support Site**. The Blackboard Support Site provides a variety of support channels available to students 24 hours per day.
- **Learning Services**. There are several learning labs on campus to assist students through the use of computers and tutors. Please consult your Campus Map for the Math Lab; Reading, Writing & Language Labs; and the Study Skills Center.
- **Library Services**. There is more to our library than just books. You have access to tutors in the Study Skills Center, study rooms for small groups, and online access to a wealth of resources.

Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313. Please contact them if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid Student Health Fee.
- **Student Health Center**. A Student Health Nurse is available on campus. In addition, Pioneers Memorial Healthcare District provide basic health services for students, such as first aid and care for minor illnesses. Contact the IVC Student Health Center at 760-355-6128 in Room 1536 for more information.
- **Mental Health Counseling Services**. Short-term individual, couples, family, and group therapy are provided to currently enrolled students. Contact the IVC Mental Health Counseling Services at 760-355-6196 in Room 2109 for more information.

Student Rights and Responsibilities

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC General Catalog.

Information Literacy

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC Library Department provides numerous Information Literacy Tutorials to assist students in this endeavor.

Anticipated Class Schedule/Calendar

Date or Week	Week #, Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
2/12/18	1. Number systems and Codes 2. Boolean Algebra and Reduction Techniques 3. Logic Families 4. Decoders, Encoders, and Comparators 5. Multiplexers and Demultiplexers 6. Sequential and Counter Circuits 7. Microprocessor fundamentals and applications 8. Microcontrollers and Assembler Language 9. Architecture of PIC microcontrollers 10. Instruction set for PIC microcontrollers 11. Design of routines for digital application 12. Design of routines for advanced applications 13. Routines for time-period measurements 14. Programmable Logic and Ladder Logic 15. Multisim software for digital applications 16. Final Examination .	