

EEE64 / CpE64 Course Syllabus

Instructor:

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Course Websites:

<http://gaia.ecs.csus.edu/~cpe64>
<https://moodle2.ecs.csus.edu/>
SacCT (Blackboard) <https://online.csus.edu/>
Canvas <http://www.csus.edu/lms/>

COURSE PREREQUISITES: .

This course does not require any calculus, physics, or chemistry background, but students must meet a programming prerequisite: either CSc 15 or CSc 25 or Engr 50. A high school course in “C” or Java is sufficient. In addition, students are expected to have Windows and Internet access experience.

The difficulty level of CpE/EEE 64 will match junior and senior level engineering design courses; students should reserve plenty of time to prepare for the labs and study time for this course.

COURSE OBJECTIVES to learn and be able to design with:

1. Binary number system.
2. Combinational and sequential logic.
3. Logic circuits and Trouble shoot them
4. Programmable Logic Devices: registers, memories and counters.

COURSE DESCRIPTION:

This course covers the following topics: logic gates, binary number system, conversion between number systems, Boolean algebra, Karnaugh maps (K-maps), digital combinational logic design, flip-flops, programmable logic devices (PLDs), counters, registers, memories, state diagrams, state machines, designing state machines circuits and transferring them into PLDs, and basic computer architecture. Lab emphasizes the use of software equation entry design tools, and the use of a logic simulation design tool. Lab assignments are design-oriented. Cross-listed as EEE 064. 4 units.

Specific type of circuits covered: Integrated circuits using the 7400 series Transistor-Transistor Logic (TTL) and Programmable Logic Devices (PLDs). In the lab we have hardware that allows the students to download compiled circuit models. These are downloaded to a PLD that is located on a circuit board with switches for inputs and LEDs for outputs.

Specific application software covered: Integrated Design Environment (IDE), Quartus from Altera for Verilog compilation and downloading to the PLD/FPGA and Mod Sim for simulation. (note: Quartus can be downloaded for free from www.altera.com)

LECTURES:

Exams: There will be two midterms and a final exam. The midterms and final exam will be open book. The lecture exams and Homework assignments will account for 3/4 (75%) of the course grade.

LABORATORY:

The Laboratory is used to program, test and debug and run various programming assignments. Lab is used mainly to get help from the instructor, for demonstrating student programs, and to turn lab reports in when due.

LAB Assignments: to receive full credit for a lab students must demonstrate correctly working programs to the instructor on the day that the demonstration is due.

Labs: There are up to 8 labs. The total score of lab is 1 /4 (25%) of the total course grade. Each Lab will have a pre lab, lab demo, and lab report.

Programming:

Programming will require spending some time on using various Integrated Design Environments (IDE) for editing, loading, running, and debugging.

Altera Corporation encourage students to install the IDE application software. (Quartus software is now available for free download.) CpE/E&EE 64 students will need email and Internet access to get licensing files for the application software. CpE/E&EE 64 students will also need an ECS account to use lab computers and class accounts.

Grading: The final grade for EEE64 – CpE64 will be a merger of Lecture & Lab (75% for Lecture and 25% Lab).

Important - you must pass **both lecture and lab** independently to pass this course!

Homework: Homework assignments will be made. It is to your advantage to know how to do the assignments because many similar problems will appear on the exams.

TEXTBOOKS:

Recommended:

[Logic and Computer Design Fundamentals](#), Mano & Kime. 4th Edition

ISBN: 0-13-198926-9

Optional:

[Open source ebooks](#)

ACADEMIC INTEGRITY:

Please refer to the University Policy Manual for Academic Honesty, Policy & Procedures:
<http://www.csus.edu/umanual/student/UMA00150.htm>

Library's Plagiarism Website (<http://library.csus.edu/content2.asp?pageID=353>)

The faculty of the Department of Electrical and Electronic Engineering expects all students to conduct their academic work with the high ethical standards of the engineering profession.

Each exam and programs must represent your own work. You may help other students by discussing assignments, but you must not copy anyone's solution. Violations of these standards of academic integrity will result in appropriate action.

Professionalism:

Employers frequently call faculty before hiring new graduates. The first question generally serves to verify that the student knows the ECS material. All the remaining questions cover the student's professionalism, integrity, punctuality, dependability, ability to work with others, and ability to follow instructions! The faculty at CSUS know many of the employers, and it is very important to us that our graduates meet the highest standards of professional responsibility. Thus you will absolutely be required to meet the lab deadlines in this class and they must be turned in at the time and date specified. Late assignments will not be accepted; all students must be present for all exams: do not schedule any travel prior to your exams. Failure to meet these standards will result in a grade of 0 for the lab assignment or exam missed. Allowances may be made for verified illness.

ABSOLUTELY NO CHEATING WILL BE TOLERATED! The penalties for cheating may include an F for the exam and/or for the course.

Students with Disabilities: If you are a student with a disability, I encourage you to contact services to Students with Disabilities: by telephone 916-278-6955, or 916-278-7239 (TTY); by email sswd@csus.edu; or on the Web at <http://www.csus.edu/sswd> .

Sac State Library:

As a Sac State student you have access to the various resources offered by the library such as book checkout, study areas, computer labs, online tutorials, research databases, etc. To learn more about available resources visit the [Sac State Library](http://library.csus.edu/) website (<http://library.csus.edu/>).

Student Computing Labs:

Students can use any of the IRT managed student computer labs on campus. Visit the University Labs website (<http://www.csus.edu/uccs/labs/generalinfo/about.stm>) for information about locations, hours, and resources available.

SacCT (WebCT):

SacCT is the course management system used on the Sac State campus for online courses or for courses that have some component online. To access a course on SacCT, you must login from the [SacCT Login Page](https://online.csus.edu) (<https://online.csus.edu>).

To learn more about SacCT visit the [Student Resources](http://www.csus.edu/webct/student/) webpage (<http://www.csus.edu/webct/student/>) where you can view online Tutorials, FAQ's and other help resources.

Writing Center:

For free, one-on-one help with writing in any class, visit the University Writing Center in Calaveras 128. The University Writing Center can help you at any stage in your reading and writing processes: coming up with a topic, developing and organizing a draft, understanding difficult texts, or developing strategies to become a better editor. To make an appointment or a series of appointments, visit the [Writing Center](http://www.csus.edu/writingcenter) in CLV 128 or call 278-6356. For current Writing Center hours and more information, visit the Web site at www.csus.edu/writingcenter

The descriptions and due dates are subject to change.