# **California State University, Sacramento**

# **College of Engineering & Computer Science Department of Electrical & Electronic Engineering**

# **EEE 117 – Network Analysis**

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| **Instructor :** | Dr. Tracy Toups |
| **Office :** | Riverside Hall 3032 |
| **Phone :** | (916) 278-6568 |
| **Email :** | [toups@csus.edu](mailto:toups@csus.edu) |
| **Office Hours :** | 1:00-2:30 Monday  1:00-2:30 Wednesday |
| **Class Web Resources :** | Moodle ( https://moodle2.ecs.csus.edu ) |
| **Prerequisites :** | ENGR 17, EEE 64 (may be taken concurrently) |
| **Co-requisites :** | EEE 117L (Lab) |
| **Required Text :** | “Electric Circuits” by Nilsson and Riedel, 10th Edition, Prentice Hall 2015, ISBN 0-13-376003-0 |

## **Course Description**

## Review of Sinusoidal steady state, phasors, complex power, three phase power, mutual inductance, series and parallel resonance. Introduction to application of Laplace transforms in network analysis, transfer functions, Bode plots, Fourier series, two-port circuits.

## **Course Objectives**

During this course, students will:

* Review sinusoidal steady state systems, complex power, 3-phase power.
* Review mutual inductance and series/parallel resonance.
* Introduce Laplace transforms in network analysis.
* Introduce transfer functions, and Bode plots.
* Introduce Fourier series and transform.
* Introduce two port networks.

## **Grading**

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| **Assignment** | **Percentage** |
| Quizzes | 10 % |
| Homework | 15% |
| 2 Midterm Exams (25% each) | 50 % |
| Final Exam (not comprehensive) | 25 % |
| **Total** | 100 % |

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| **Grade Letter** | **10 point scales** |
| **A** | 100 to 90 |
| **B** | 89.9 to 80 |
| **C** | 79.9 to 70 |
| **D** | 69.9 to 60 |
| **F** | 59.9 and below |

## **Course Policies**

1. **You are responsible for all material presented and announcements made in class whether or not you are present at the time**. Class attendance is therefore strongly encouraged. Students are also encouraged to visit the class Moodle page often, as material and announcements are typically posted there.
2. **You are expected to be on time for class and remain until class is officially over**. Students arriving late or leaving early disrupt the class and detract from the opportunity for others to learn. Therefore any student who is repeatedly late or leaves early will face disciplinary action, possibly including a reduction in their grade.
3. **No make-up exams or quizzes**. Make-up exams or quizzes will only be given under extraordinary circumstances, at the discretion of the instructor. Exams or quizzes missed due to an illness require a doctor’s note specifically stating that  
   you were too ill to attend class on the day of the exam in order for a make-up  
   to be considered. A note from the campus health center stating that you visited them that day is not sufficient.
4. **No late work will be accepted**. Assignments are due on the day and time stated. Those turned in late will only be accepted under extraordinary circumstances, at the discretion of the instructor. If a late submission is accepted, penalty points will be deducted based on the amount that the assignment is late.
5. **All grades are final two weeks after an assignment or exam is returned to the class**. Any suspected errors in grading should be brought to the attention of the instructor immediately. Judgments regarding the number of points to deduct for a particular error made in an assignment are not subject to review.
6. **All students are expected to obey the University Academic Honesty Policy at all times**. Students should review this policy, which is available online at <http://www.csus.edu/umanual/student/STU-0100.htm> While students are encouraged to discuss class material with their peers, all assignments turned in for credit should only be discussed in a general way. Any violations such as copying the work of other students or cheating on exams will be dealt with severely, up to and including assigning a grade of F for the course.
7. **Office hours are provided to allow students to ask questions outside class. Any additional meetings with the instructor are by appointment only.** However, students are highly encouraged to ask questions in class so everyone  
   can benefit. Remember, *the only dumb question is the one that doesn’t get asked!*
8. **Email should be used for urgent matters only**, such as notifying the instructor if you must miss an exam. Email should not be used to ask questions on class material more appropriately asked in class or during office hours. All emails should include a valid subject line briefly describing the topic of the email, not just “Hi” or other generic titles. All emails must also include your name, and the name of the class you are inquiring about. Do not include your student ID number in emails, as that is confidential information which should be carefully protected.
9. **It is expected that students will show consideration for others by putting cell phones into vibrate or other silent modes during class**, and by leaving the room to take any urgent calls. Repeated violations of this policy will result in  
   the offending party being prohibited from bringing their cell phone to class.
10. **Special accommodations will be made for students with conditions requiring them, providing that official documentation of the condition  
    is provided to the instructor no later than the second week of class**.  
    If you have a disability and require accommodations, you need to provide disability documentation to Services for Students with Disabilities (SSWD). For more information please visit the SSWD website at: <http://www.csus.edu/sswd/> They are located in Lassen Hall 1008 and can be contacted by phone at (916) 278-6955 (Voice) (916) 278-7239 (TDD only) or via email at [sswd@csus.edu](mailto:sswd@csus.edu).
11. **For assistance with ECS computer systems and software, please contact the ECS Help Desk at:** <http://www.ecs.csus.edu/computing/helpdesk.php>   
    This includes Moodle, Hydra, PSpice, Matlab, and all other software on ECS servers. The ECS Help Desk can also be reached in person in Riverside Hall 2011, or  
    at (916) 278-6690 and [helpdesk@ecs.csus.edu](mailto:helpdesk@ecs.csus.edu)
12. **For assistance with IRT computer systems and software, please contact the IRT Service Desk at:** <http://www.csus.edu/irt/ServiceDesk/index.html>   
    This includes SacCT, Collaborate, VPN, and all other non-ECS software.  
    The IRT Service Desk can also be reached in person in AIRC 2005, or  
    at (916) 2787337 and <http://www.csus.edu/irt/ServiceDesk/Forms/Email.html>   
      
    **Please do NOT contact Prof Toups regarding computer problems!**  
    I am not a computer specialist, and can not help fix your computer problems. Contacting me will not help fix your problem, it will just delay the time it takes  
    to get your problem solved. **Please contact either the ECS Help Desk or  
    the IRT Service Desk regarding ALL computer problems.**

## **EEE 117 - Lecture Schedule**

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| **Week** | **Topic** | **Text Reference** |
| **1** | Review of circuits I class | Chapter 1-8 |
| **2** | Sinusoidal steady state and phasors | Chapter 9 |
| **3** | Phasors, instantaneous/average power, and rms quantities | Chapter 9,10 |
| **4** | Complex power, power factor, transformers | Chapter 9,10 |
| **5** | three phase systems, three phase power | Chapter 11 |
| **6** | **Midterm Exam I** |  |
| **7** | Step/Impulse Functional, Laplace transforms | Chapter 12 |
| **8** | Laplace Transforms and Inverse Transforms | Chapter 12 |
| **9** | Inverse Transforms and circuit analysis | Chapter 12 |
| **10** | Circuit analysis using s domain, transfer function and steady state response. | Chapter 13 |
| **11** | AC analysis with Bode Diagrams | App. E |
| **12** | **Midterm Exam II** |  |
| **13** | High-pass and low-pass filter | App. E, Chapter 14 |
| **14** | Bandpass/reject filters and Op-Amp review | Chapter 14 |
| **15** | Active-Filters, Lowpass/Highpass | Chapter 15,16 |
| **16** | Fourier series and circuit analysis | Chapter 16 |