

Course Syllabus for EET2325C – RF Communication – CRN 11266

(3 Credit Hours)

Catalog Course Description: An introductory course that enables students to gain a technical working knowledge of electronic communication. It includes a broad range of topics such as AM and FM transmission and reception, transmission lines, Smith Chart, Active and Passive Filters, LC filters, SAW filters, Crystal filters, Oscillators, RF detectors, and Mixers. Classroom lectures are supplemented with laboratory projects to provide hands-on experience in the installation and theory of operation of the RF systems. (Special Fee: \$93.00)

Prerequisites: EET 1141C or departmental approval.

Class Time and Location: **Mixed Mode Course, Tuesday 5:30 – 7:30 PM @ West 11-246 (ATTENDANCE REQUIRED)**

Textbook(s): Principles Of Electronic Communication Systems, Louis Frenzel – 5th Ed. McGraw Hill
ISBN #978-1260597899

Lab Manual: Experiments Manual For Principles Of Electronic Communication Systems,
Louis Frenzel – 4th Ed. McGraw Hill ISBN # 978-1259166488

Professor's Information:

Instructor: Dr. V. Rajaravivarma
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Office Hours: Bldg. 9 – Room 118: Monday 1:30 – 2:30 PM
Monday 4:30 – 5:30 PM
Tuesday 1:30 – 2:30 PM
Tuesday 4:30 – 5:30 PM
E-mail/Canvas message: Wednesday 8:00 – 11:00 AM
Thursday 8:00 – 11:00 AM
Friday 8:00 - 10:00 AM
Phone/video call/Office 9-118 in person: **by appointment**

Student Performance Assessment:

Evaluation		
Lab Work:	20%	90 - 100 % = A
Homework ¹ :	10%	80 - 89 % = B
Exams ² (three):	45%	70 - 79 % = C 60 - 69 % = D
Final Exam ³ :	25%	59 - 0 % = F

¹ No Late work will be accepted.

² No make-up exams will be given.

³ **Final Exam will be comprehensive**

Important Dates:

Drop/Refund Deadline	August 28 th
No Show Reporting Period	August 30 th – September 8 th
Labor Day	September 4 th
Veterans Day	November 10 th
Student-Initiated Withdrawal Deadline (“W” Grade)	October 27th
Thanksgiving Break	November 22 nd – November 26 th
Final Exam	December 5 th Tuesday @ 5:30 PM
Final Grades Viewable in Atlas	December 12 th

DISCLAIMER: **Any Changes in the policy and/or schedule of this syllabus may be made at the discretion of the instructor at any time during the semester.**

Course Outline for EET 2325C RF Communication; CRN11266 Fall 2023			
	Topics	Lab Exercise	Homework
Week 1 8/22/2023	Introduction, Course Overview & Syllabus; Introduction to Electronic Communication		Chapter 1 Submit by August 26, 2023 Saturday Midnight
Week 2 8/29/2021	The Fundamental of Electronics	1 – RLC Band pass filter/LC tank circuit Submit by September 2, 2023 Saturday Midnight	Chapter 2 Submit by September 2, 2023 Saturday Midnight
Week 3 9/5/2023	Amplitude Modulation Fundamentals		Chapter 3 September 9, 2023 Saturday Midnight
Week 4 9/12/2023	Review	2 – Measuring percentage of AM waveform (3 – 1) Submit by September 16, 2023 Saturday Midnight	
Week 5 9/19/2023	Exam 1 – Chapters 1 → 3 on Tuesday September 19, 2023 @ 5:30 PM		
Week 6 9/26/2023	Amplitude Modulator and Demodulator		Chapter 4 Submit by September 30, 2023 Saturday Midnight
Week 7 10/3/2023	Fundamentals of Frequency Modulation	3 – Diode Detector (4-3) Submit by October 7, 2023 Saturday Midnight	Chapter 5 Submit by October 7, 2023 Saturday Midnight
Week 8 10/10/2023	FM Circuits	4 – Frequency Modulation (5-1) Submit by October 14, 2023 Saturday Midnight	Chapter 6 Submit by October 14, 2023 Saturday Midnight
Week 9 10/17/2023	Review		

Week 10 10/24/2023	Exam 2 – Chapters 4 → 6 on Tuesday October 24, 2023 @ 5:30 PM		
Week 11 10/31/2023	Digital Communication Techniques	5 – Frequency Demodulation (6-3 & 6-4) with PLL and Pulse Average Discriminator Submit by November 4, 2023 Saturday Midnight	Chapter 7 Submit by November 4, 2023 Saturday Midnight
Week 12 11/7/2023	Radio Transmitters		Chapter 8 Submit by November 11, 2023 Saturday Midnight
Week 13 11/14/2023	Exam 3 – Chapters 7 & 8 on Tuesday November 14, 2023 @ 5:30 PM		
Week 14 11/21/2023	Communication Receivers	6 – Impedance matching (8-5) simulation only) Submit by November 27, 2023 Monday Midnight	Chapter 9 Submit by November 27, 2023 Monday Midnight
Week 15 11/28/2023	Review		
Week 16 12/5/2020	Final Exam – (Comprehensive) on Tuesday December 5, 2023 @ 5:30 PM		

Homework #	Chapter	Questions	Problems
1	1	8, 9, 10, 16, 21, 22, 27	1, 2, 3
2	2	3, 8, 12, 13, 14	1, 4, 5, 7, 8, 14, 15, 19, 20, 24
3	3	5, 6, 11, 22, 27	2, 5, 7, 10, 12, 16
4	4	3, 5, 9, 11, 14, 19	1, 2, 3
5	5	2, 6, 14, 17, 23, 28, 30	1, 2, 4, 8
6	6	4, 8, 9, 11	1, 2, 3, 4
7	7	2, 5, 8, 9, 11, 13, 15, 16, 21, 27, 31	1, 2, 3, 4, 5, 6
8	8	2, 4, 9, 21, 24, 30	1, 2, 5, 7, 11, 13, 15, 16
9	9	1, 5, 8, 23, 33, 38, 55	1, 3, 6, 9, 11, 13, 14, 16

Learning Outcomes

- Students will study the subject of communications systems, transmitters, channel and receivers.
- Students will study the modulation and generation of AM signals.
- Students will learn about the generation of FM and its immunity to noise.
- Students will learn about the relationship between a transmitter and its antenna.
- Students will learn about filter systems including low- pass, high-pass, band-pass filters, SAW, and crystal filters.
- Students will learn about RF systems including different RF detectors and mixers.
- Student will learn about microwave systems including waveguides and resonators.

Attendance Policy

- Since this is a mixed-mode course, everyone is required to attend the weekly class meeting.
- Students are encouraged to ask questions by sending an e-mail or Canvas message to the instructor.
- Students who are not participating in online activities may be withdrawn from the course, at the discretion of the instructor.

Assignment Due Dates and Late Work

- **No late assignments** be accepted. Late assignments will be given a grade of zero (0).
- **All assignments must be uploaded as a PDF to Canvas** on the due date.
 - Canvas will not accept anything besides a PDF. Make sure you know how to save your files as a PDF.
 - **DO NOT WAIT UNTIL THE LAST MINUTE TO SUBMIT AN ASSIGNMENT.** If you wait until the last minute, and have an issue submitting the assignment – you will receive a grade of zero. Turn your assignments in early enough to notify the instructor if you are having issues. It is your responsibility to make sure all work is turned in by the deadline.
- **It is your responsibility to make sure your files are uploaded properly.** If I cannot read/open/access your file, you will receive a grade of zero (0) for the assignment.

Lecture Content

- Because this is an online course, the lecture content will be delivered online. Lecture videos will be posted weekly; it is **required** that students watch the videos for each topic **and submit weekly assignments related to the lecture topics.**

Course Communication Policy

- Important information about the course will be posted to Canvas and sent to every student's Atlas e-mail account. It is the student's responsibility to check Atlas e-mail and Canvas daily, for announcements pertaining to the course.

Exams

- The midterm and the final exam will be administered at a **common time. The entire class will take the exam at the exact same time.**
- This means you must be available to take the midterm and final exam during the date and time posted on the course syllabus. You must be available the same way that you would be available for an on-campus exam in a face-to-face course.
- Exams will be delivered online; it is your responsibility to have a working computer and any other required hardware/software prior to the start of the exam.

Lab Requirements & Written Report:

- A typed lab report will accompany every exercise done in this course. A PDF file of the lab

COVER PAGE: Includes Title of the Laboratory, your name, Course Title & Number, Submitted to: Instructor Name, Department Label, and Date of Submission – all in the same order.

INTRODUCTION: What are your goals or objectives in this lab? Explain what you are attempting to learn. In your lab manual or your lecture notes, look up the theory behind what experiment you are performing and discuss away.

PARTS LIST: All parts and equipment used should be listed in this section.

DISCUSSION: *An in-depth description of the background and theoretical information researched relevant to the experiment. When applicable, governing laws and/or equations should be included.*

1. In your own words discuss the important topics related to the experiment. Use the textbook and other resources to assist you with the necessary information required for this section of the report.
2. Include **sketches, diagrams, drawings and pictures taken** of the experimental Set-Up and how you intend to fulfill your purpose.

VALIDATION OF DATA AND RESULTS:

Measured data and calculations; presentation of data through tables and graphs; sketch of experimental configuration; and discussion of experimental results, sources of error(s), and accuracy of measurements.

Refer specifically to the data collected during your experiment. Discuss any trends that you observed in your data. Do these data trends support the theory behind this lab? Why or why not?

ANSWERS TO LAB QUESTIONS: Some lab exercises have questions at the end. They must be answered in this section of the Lab Report.

CONCLUSION: Briefly summarize the results of the experiment. Did the experiment yield the desired results? Give your interpretation of the results. What has been learned, recommendation for future work or improvements in the experiment.

Makeup Policy

No make-up exams are permitted. If there will be an issue being present for an exam, speak to the instructor immediately.

Extra Credit Policy

- No opportunities will be provided during this course. Make it a priority to discuss your progress with the instructor EARLY - do not wait until the final exam is approaching if you are concerned about your grade.

Student Code of Conduct and Core Competencies

Students are strongly encouraged to read the Valencia policy Manual Student Code of Conduct and Computer Acceptable Usage and Student Core Competencies found at the following links:

<http://valenciacollege.edu/generalcounsel/policy/>

<http://valenciacollege.edu/competencies>

Illness Statement:

“If you are unable to participate in the course due to illness, family emergency, etc., please communicate with me as soon as possible in order to create a plan to complete any missed assignments so that your learning can progress in your course. In the case of a prolonged online absence, please communicate with me as soon as possible in order to create a plan for the best course of action.”

Students with Disabilities

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 (WC SSB 102, ext. 1523)

Distance Tutoring & Technology Support at Valencia: You can easily access Valencia’s *free* distance tutoring and tech support from a computer, laptop or mobile device.

Distance tutoring services are provided fully online via Zoom. Through this service, you will receive real-time assistance via a Valencia tutor. Online tutoring is offered in: mathematics, sciences, accounting & economics, computer programming, EAP and foreign languages, and writing.

Online Learning Technology Support services are also available. Students can receive assistance with navigating: Canvas, OneDrive, Zoom, YouTube, and Microsoft Office (Word, Excel, & PowerPoint). Support is also provided for video editing (via iMovie and MovieMaker) and converting documents from a Mac to PC. Tech support is available live (on-demand) via Zoom, by appointment, or via email. Students are encouraged to use the 24/7 Canvas Help located inside Canvas by clicking on the “Help” icon.

To get started using the Distance Tutoring and Learning Technology Support services, please visit www.valenciacollege.edu/tutoring. Through this site, you can view the schedule of tutors/tech support assistants, find available times, learn more about the services, and access a collection of supplemental resources that are available 24/7.

Hours of Operation:
Monday-Friday: 8 am – 10 pm
Saturday & Sunday: 9 am – 7 pm

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