

Revised: 11/2009
By: R. McKinney

Nashville State Community College
Information and Engineering Technology Division
Electrical Engineering Technology

Course Syllabus

EETH 2220 ELECTRONIC COMMUNICATIONS

2 Credits
2 Class Hours

An introductory course in electronic communications. Topics covered will include signal generation, amplitude modulation, transmission and reception, single sideband systems, angle modulation transmission, angle modulation receivers, FM stereo and two-way FM, television, transmission lines, electro magnetic wave propagation, antennas and waveguides, microwave communications, and satellite communications.

Prerequisite: EETH 1210

Instructor and Term Specific Information

Instructor:
Office Location:
Phone Number:
Email Address:
Office Hours:

Learning Outcomes

EETH 2220	
1.	Evaluate the advantages and disadvantages of amplitude modulation (AM) transmission and reception
2.	Evaluate the advantages and disadvantages of frequency modulation (FM) transmission and reception
3.	Evaluate the effect on electro-magnetic waves as they travel through different medium and different atmospheric conditions
4.	Evaluate the advantages and disadvantages of different antenna configurations
5.	Evaluate the advantages and disadvantages of microwave transmission and reception, both earth station to earth station and satellite to earth station

Specific Activities

Upon completion of this course, the student will be able to:

1. explain the ideas involved in signal analysis with emphasis on noise impact and communication basics
2. identify selected oscillator circuits and calculate reference frequencies
3. explain the concept of "AM" modulation and be able to calculate associated AM parameters (such as coefficient of modulation, local oscillator frequency given a specific RF frequency, carrier power, etc.)
4. mathematically and graphically analyze "AM" circuits
5. identify all the components of an "AM" receiver with their respective characteristics
6. explain the components of and operating characteristics of phase-locked loop circuits
7. mathematically analyze a phase-locked loop circuit
8. explain the single-side band circuit and identify its advantages and disadvantages
9. explain the concepts involved in angle modulation (both phase and frequency)
10. identify basic components in both an AM and an FM transmitter circuit
11. explain the operational concepts of selected detector circuits
12. analyze FM transmissions using Bessel functions
13. mathematically solve transmission line parameters (such as standing wave ratios, input impedance, etc.)
14. explain the pertinent concepts in information propagation
15. explain the propagation patterns of selected antennae
16. explain the operational concepts and appropriate circuits involved in a television receiver
17. describe the basics of a ground based microwave communication system

18. explain the operation of a satellite communication system, including frequency allocations and transmissions parameters
19. Use computer simulations to demonstrate the operation of concepts covered

Performance Assessment

A midterm and final exam will be administered consisting of both quantitative questions based on assigned homework and conceptual essay type questions where the student will explain in his own words an understanding of the material. These essays are graded for both technical accuracy and clarity. A written technical report is required on a topic requiring more depth of knowledge than can be found in the text and requires extensive research using the Internet. This information must additionally be presented to the class in a PowerPoint format to demonstrate his understanding of the material. This presentation is evaluated on a 100 point sheet that is standard for the EET program.

Student Supplied Materials

TEXTBOOK:

Electronic Communications Systems, Fundamentals Through Advanced, Wayne Tomasi, 5th Edition, Prentice Hall, 2004, 9780130494924, 0130494925

Grading Policy

Midterm Exam	30%
Technical Report	30%
Class Presentation	10%
Final Exam	30%
	100%

Conversion from numerical score to letter grade		
Letter Grade	From	To
A	90	100
B	80	89
C	70	79
D	60	69
F	0	59

Schedule

Week 1	Chapter 1
Week 2	Chapter 2
Week 3	Chapter 3
Week 4	Chapter 4
Week 5	Chapter 5
Week 6	Chapter 6
Week 7	Chapter 7 & Midterm Exam
Week 8	Chapter 7
Week 9	Chapter 8
Week 10	Chapter 14
Week 11	Chapter 15
Week 12	Chapter 24
Week 13	Chapter 25
Week 14	Chapter 26 Classroom Presentation Technical Report Due

Attendance policy

“A student is expected to attend all scheduled classes and laboratories. Students should refer to each course syllabus to obtain the course attendance policies. A student who misses class for two consecutive weeks without contacting the instructor or who violates the instructor’s stated attendance policy will be administratively withdrawn from the course and given a grade of “WF”. The college is not responsible for a student not receiving official information, if the student failed to notify the college of any of the changes stated above.” Nashville State Community College Catalog

“Class attendance and punctuality requirements are contracted between the faculty and the students, through specific expectations for attendance and punctuality and specific consequences that are outlined by individual faculty members in the printed syllabus for each course. Students are expected to attend classes regularly and on time and are responsible for giving explanations/rational for absences and lateness directly to the faculty member for each course in which they are enrolled. In cases where student absences are the result of emergency circumstances (e.g., death in the family, a student’s serious injury or incapacitating illness), for which students are unable to make immediate contact with faculty, the student may contact the Dean of Students Office for assistance in providing such immediate notification to faculty. However, the student remains

responsible for verifying the emergency circumstances to faculty and for discussing arrangements with faculty for completion of course work requirements.”

ADA compliance statement (from Student Handbook)

“Nashville State complies with the Americans with Disabilities Act. If you wish to request any special accommodations for any courses in which you are enrolled, contact the Student Disabilities Office. Such services must have proof of documentation that is not over three years old. Contact the Disabilities Coordinator at 353-3592.”

Academic and Classroom Misconduct

“**Nashville State has a zero tolerance policy for disruptive conduct in the classroom.** Please consult your Student Handbook for more specific details. The instructor has primary responsibility for control over classroom behavior and maintenance of academic integrity. He/she can order temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or conducts which violates the general rules and regulations of the College. Disruptive behavior in the classroom may be defined as, but not limited to, behavior that obstructs or disrupts the learning environment (e.g., offensive language, harassment of students and professors, repeated outbursts from a student which disrupt the flow of instruction or prevent concentration on the subject taught, failure to cooperate in maintaining classroom decorum, etc.) the continued use of any electronic or other noise or light emitting device which disrupts others (e.g., disturbing noises from beepers, cell phones, palm pilots, lap-top computers, games, etc.).”