S. Jamal Mirlohi  
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Telephone: (410)-334-2879  

E-mail: jmirlohi@worwic.edu  

Office Hours:  
Monday        4:00—5:25   PM  
Tuesday        9:25—10:25 AM  
Tuesday        12:45—2:00 PM  
Wednesday      10:35—11:55 AM  

Class Time:  
Tuesday  10:30 AM –12:30   PM  
Thursday 10:30 AM –12:30   PM  

Course Description  
This course introduces the basic elements of communication systems. Topics include modulation, transmission, amplification, radio frequency (RF) circuits, microwave circuits, fiber optic, and voice and data communication. Hands-on activities are emphasized through the use of filters, bandwidth, and voltage and power calculation and the use of oscilloscopes.  
Prerequisites: EET 120 and EET 205, or permission of the department head.  
Textbook:  
Lecture: Miller, Beasley, Modern Electronic Communication (9th Ed.), New Jersey: Prentice Hall, 2005  

Course Objectives: Listed below are course objectives and associated learning outcomes:  

<table>
<thead>
<tr>
<th>Course Objectives</th>
<th>Assessment Goals</th>
<th>Assessment Strategies</th>
</tr>
</thead>
</table>
| Describe a basic communication system.  
(GEO 4) | Design transistor AM modulator and explain its operation.  
Draw block diagram of AM receiver.  
Calculate and measure total transmitted power and modulating index. | Exam questions, quizzes, and graded lab exercises. |
| Apply the principles of the use of the (dB) and calculate S/N ratio and NF.  
(GEO 4) | Perform dBm measurements using spectrum analyzer.  
Calculate the overall noise figure and noise ratio for the system.  
Describe several techniques for making noise measurements. | Exam questions, quizzes, and graded lab exercises. |
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<tbody>
<tr>
<td>Describe the need for automatic gain control and show how it can be implemented. (GEO 4)</td>
<td>Describe how the gain of a transistor can be controlled. Describe the function of Auxiliary AGC. Perform AM transmitter measurements using spectrum analyzers.</td>
<td>Exam questions, quizzes, and graded lab exercises. Test 1 10/6</td>
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<tr>
<td>Analyze the operation of complete AM and FM receiver. (GEO 4)</td>
<td>Perform a test analysis on the power levels at each stage of an AM and FM systems. Define the sensitivity and selectivity of a radio receiver. Recognize and analyze RF and IF amplifiers.</td>
<td>Exam questions, quizzes, and graded lab exercises.</td>
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<tr>
<td>Define angle modulation and describe the two categories. (GEO 4)</td>
<td>Analyze FM signal with respect to modulation index, sidebands, and power. Provided various schemes and circuits to generate FM. Explain the operation of the PLL and describe how it can be used as an FM discriminator.</td>
<td>Exam questions, quizzes, and graded lab exercises.</td>
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<tr>
<td>Describe the basics of digital communication systems. (GEO 4)</td>
<td>Detail the operation of a complete radio-telemetry system. Describe the fundamentals of TDMA and how it’s used to transport data. Describe six combinations for transmitting analog or digital signals.</td>
<td>Exam questions, quizzes, and graded lab exercises. Test 2 11/3</td>
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<tr>
<td>Describe the physical characteristics of standard transmission lines. (GEO 4)</td>
<td>Analyze wave propagation and reflection for various line configurations. Describe how standing waves are produced and calculate SWR and Z0.</td>
<td>Exam questions, quizzes, and graded lab exercises.</td>
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</table>
**Course Objectives**

Describe a basic communication system.

*(GEO 4)*

**Assessment Goals**

- Design transistor AM modulator and explain its operation.
- Draw block diagram of AM receiver.
- Calculate and measure total transmitted power and modulating index.

**Assessment Strategies**

- Exam questions, quizzes, and graded lab exercises.

- **Test 3 12/1**

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**COURSE GUIDELINES**

The course will be 3 hours lecture and 3 hours laboratory per week.

**Tentative Schedule**

<table>
<thead>
<tr>
<th>Week</th>
<th>Chapters</th>
<th>All assignments due on</th>
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<tbody>
<tr>
<td>1,2</td>
<td>1</td>
<td>09/22</td>
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<tr>
<td>3</td>
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<td>09/29</td>
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<td>4</td>
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<td>10/06</td>
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<td>6,7</td>
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<td>9</td>
<td>11/24</td>
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<td>12</td>
<td>12</td>
<td>12/01</td>
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<tr>
<td>13</td>
<td>Review</td>
<td>12/08</td>
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</tbody>
</table>

**Electronic Literacy Assignment**

An Electronic library research paper exploring some aspect of Communication Electronic Circuits will be required with the following minimum requirements: Reference from The electronic library database collection. Due week 12: Cover page with name, title and date; body with Introduction, report and summary. The paper shall be not less than three full pages, and a bibliography from the electronic library database page with a minimum of four total references.

The grading rubric for the paper:

- **Cover Page** 5%
- **Report:** 70%
  - Grammar 10%
  - Style 20%
  - Organization 30%
  - Content 10%
- **Show evidence in development of this ELA of thinking critically and reasoning logically** 10%
- **Bibliography** 15%
- **TOTAL** 100%
COURSE EVALUATION
The grade will be based on 1000 points which will be divided as follows:

- Electronic Library database Assignment = 50 points
- Class Preparation & Participation = 50 points
- Monthly Quizzes = 450 points
- Competency = 100 Points
- Comprehensive Final Exam = 200 points
- Laboratory Exercises = 150 points

TOTAL 1,000 points

Letter grade will be assigned as follows:  
- A = 900-1000 points, B = 800-899 points, C = 700-799 points, D = 600-699 points, F - Less than 600 points

ACADEMIC HONESTY POLICY:
Students are expected to maintain a high level of academic performance. Cheating and plagiarism are defined in the college catalog. Infractions of this policy will result in the student's failure for the assignment or test.

*Addresses GEO objectives 8

EMERGENCY INFORMATION STATEMENT
In the event of severe inclement weather or other emergency, information about the closing of the college will be communicated via e2Campus and the College's website. Faculty will communicate with students about their courses and course requirements, such as assignments, quiz and exam dates, and class and grading policies, via Blackboard. Students will be responsible for completing all assignments in accordance with class policies.

SERVICES FOR STUDENTS WITH DISABILITIES
Wor-Wic provides reasonable accommodations for students with disabilities, in compliance with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973. If you are in need of accommodations, please contact the counseling office at (410) 334-2899. For more information, see Wor-Wic's Services for Students with Disabilities web page.

Professor reserves the right to modify this syllabus during the semester to better facilitate students’ learning needs.

STATEMENT CONCERNING USE OF BLACKBOARD IN COURSE:
Blackboard is being used as a supplementary site in this course. To access course content in Blackboard you need to have access to Internet connection, (other requirements may apply). Computers that meet these requirements are available on campus in BH 217, HH 100, GH 204, FOH 305, and AHB 108.

Please follow these directions to access course syllabi and any other materials posted for this course:
Login Information:
From WorWic home page, point to “Quick Links” (top right) and click the “Blackboard Login” link. Enter your Wor-Wic user ID and password (same as your Wor-Wic email user ID and password). Don’t know your user ID or password? Contact Student Services.
STATEMENT CONCERNING USE OF ACADEMIC INTEGRITY AND COMPUTER USAGE POLICY:

All students logging into Blackboard affirm that they understand and agree to follow Wor-Wic Community College policies regarding academic integrity and the use of College resources as described in the college catalog. Wor-Wic Community College considers the following as violations of the computer usage policy:

Using the campus computing network and facilities to violate the privacy of other individuals.
Sharing of account passwords with friends, family members or any unauthorized individuals

Violators are subject to college disciplinary procedures.

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Grading Rubric

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>A</th>
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<th>B</th>
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<th>C</th>
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<th>F</th>
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</thead>
</table>
| **Practical**  
(Use of technology to obtain information GEO 7) | Each assignment demonstrates an understanding of the objective. The correct use of commands and syntax is evident. Assignments always meet and exceed stated requirements. | Most assignments demonstrate an understanding of the objective. The correct use of commands and syntax is evident. Assignments meet and usually exceed stated requirements. | Some assignments demonstrate an understanding of the objective. The correct use of commands and syntax is evident. Assignments meet the stated requirements. | Assignments incomplete or missing. Shows little or no effort in assigned work. Assignment does not meet stated requirements. |
| **Theory**  
(Use of Technology to communicate information GEO 7) | Each of the problems/answers is accurate and demonstrates understanding of the objective. Well formatted and saved in the appropriate file format. Work always exceeds stated requirements. | Most of the problems/answers are accurate and demonstrates understanding of the objective. Well formatted and saved in the appropriate file format. Work usually exceeds stated requirements. | Some of the problems/answers are accurate and demonstrates understanding of the objective. Formatted and saved in the appropriate file format. Work meets stated requirements. | Problems/answers usually show no understanding of the objective. Work does not meet the stated requirements. |