A. COURSE INFORMATION
Course number/section: EEEN-3320_001
Class meeting time: MWF 08:00-08:50AM
Class location: OCNR-258
Course Website: https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION
Instructor: Dr. Pablo Rangel
Office location: EN 308
Office hours: MTW 1:00 PM-3:00PM
Telephone: 825-3712
Email: pablo.rangel@tamucc.edu
Appointments: send an e-mail request for appointment, with proposed time.

C. COURSE DESCRIPTION
Catalog Course Description
Frequency domain and time domain response of linear systems; analog modulation methods including amplitude modulation, frequency modulation and phase modulation; signal and noise modeling using probabilistic descriptions; narrowband random processes and the performance of analog modulation techniques in the presence of noise; design of communication links.

Extended Course Description
This course introduces the student to signal representation and transmission for communication systems. Statistical processes are covered in the context of signal communication and transmission. Fourier transforms are reviewed for frequency domain representation of signals. Probability and statistics are used to represent random processes in communication.

D. PREREQUISITES AND COREQUISITES
Prerequisites: ENGR 2305 - Electrical Circuits (or equivalent); MATH 3342 Applied Probability and Statistics (or equivalent)
Corequisites: None

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Website: https://bb9.tamucc.edu. This will be used primarily for student interface with information and assignments. Check it daily!!!
F. **STUDENT LEARNING OUTCOMES AND ASSESSMENT**

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. Understand signals in communication systems
2. Analyze frequency domain and time domain response of linear systems
3. Apply amplitude, frequency and phase modulation for signal representation
4. Formulate signals and noise using probability and statistical metrics
5. Design filters for signal noise removal in communication system applications
6. Understand data communication as random processes
7. Design communication links

G. **INSTRUCTIONAL METHODS AND ACTIVITIES**

Methods and activities for instruction include the following: lectures, in-class exercises, homework assignments, examinations, library research, and oral presentation and final report.

H. **MAJOR COURSE REQUIREMENTS AND GRADING**

Assessment is based on two midterm exams, lab reports (possible), homework, pop quizzes, and a final exam. Expect a quiz when homework is due. The final exam is comprehensive. You may examine the final exam within four weeks after the final grades are assigned.

Homework is due at the beginning of class on the classroom desk on the due date. Any time thereafter is considered late and will need to be accepted by instructor. A deduction of points may be given. Leaving it on my inbox does not guarantee it will be accepted. If submitting it early the assignment needs to be labeled clearly on front of it.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL</th>
<th>Total Score</th>
<th>Tentative Grade</th>
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<tbody>
<tr>
<td>Homeworks</td>
<td>10</td>
<td>90 ≤ total</td>
<td>A</td>
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<tr>
<td>Quizzes/In-Class Exercises</td>
<td>10</td>
<td>80 ≤ total &lt; 90</td>
<td>B</td>
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<tr>
<td>Critical Review/Presentation</td>
<td>10</td>
<td>70 ≤ total &lt; 80</td>
<td>C</td>
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<tr>
<td>Exam I</td>
<td>20</td>
<td>60 ≤ total &lt; 70</td>
<td>D</td>
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<tr>
<td>Exam II</td>
<td>20</td>
<td>total &lt; 60</td>
<td>F</td>
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<tr>
<td>Final Exam</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
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<tr>
<td>WEEK</td>
<td>CHAPTERS/READING</td>
<td>TOPICS</td>
<td>EXAMS</td>
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<tr>
<td>3</td>
<td>Ch. 1</td>
<td>Introduction to Communication Systems</td>
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<td>4-5</td>
<td>Ch. 2</td>
<td>Signals and Linear Systems</td>
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<td>6-7</td>
<td>Ch. 3</td>
<td>Amplitude Modulation</td>
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<td>7-8</td>
<td>Ch. 4</td>
<td>Angle Modulation</td>
<td>Exam I</td>
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<td>9-10</td>
<td>Ch. 5</td>
<td>Probability and Random Processes</td>
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<td>11-12</td>
<td>Ch. 6</td>
<td>Effect of Noise on Analog Communication Systems</td>
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<tr>
<td>13-14</td>
<td>Ch. 8</td>
<td>Digital Modulation Methods in an Additive White Gaussian Noise Channel</td>
<td>Exam II</td>
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<tr>
<td>15</td>
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<td>Student Team Presentations</td>
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Please consult the Academic Calendar for Holidays and class drop deadlines [https://www.tamucc.edu/academics/calendar/2019_fall.html](https://www.tamucc.edu/academics/calendar/2019_fall.html)

<table>
<thead>
<tr>
<th>Final Exam:</th>
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<tbody>
<tr>
<td>Friday December 6, 2019</td>
<td>Final Exam</td>
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<tr>
<td>8:00 am – 10:30 am</td>
<td><a href="https://registrar.tamucc.edu/Register%20for%20Classes/Final_Exams.html">https://registrar.tamucc.edu/Register%20for%20Classes/Final_Exams.html</a></td>
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Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.
J. COURSE POLICIES

Attendance/Tardiness
You are advised to attend all lectures. If you miss a class period, you are responsible for whatever is covered or announced during your absence. There will be no make-ups for in-class exercises or quizzes. The students are expected to display responsible conduct in the classroom, including but not limited to adhering to the rules and regulations, and respecting the instructor and fellow classmates.

Late Work and Make-up Exams
Late work, scheduled exam absences are not accepted unless there exists legitimate excuse (illness, death in the immediate family, etc.) and adequate documentation is furnished. If a make-up were to be needed it could be a degree higher in difficulty.

Extra Credit
Any will be labeled as such on assignments, exams, and quizzes, etc. Other extra credit to be announced in class as needed.

Cell Phone Use
Cell phone use is prohibited once class begins. They are to be silenced and put away where they are not seen. If a call is expected take it out of the class. Anyone that interrupts class due to cell phone will be asked to leave.

Laptop Use
May be permitted if used for current class work; other uses other than this class is not permitted.

Food in Class
No food or drinks permitted. An exception is bottled water with a cap or sealable lid. Most coffee mugs are not sealable.

Missed Exam
You will receive a zero for a missed exam, unless you have accommodations with Instructor or have a legitimate excuse. You are to communicate any issues immediately.

Participation
To be announced in class when extra points are given.

K. COLLEGE AND UNIVERSITY POLICIES

- Academic Integrity (University)

University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to
penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.
During an assignment you are allowed to have only what is permitted by instructor, anything else (cell, notebook, book, etc.) encountered in your possession will be considered cheating and a proceeding to penalized and document such an act will take place which could include removal from University.

- **Classroom/Professional Behavior**
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University
Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

http://disabilityservices.tamucc.edu/

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

### L. OTHER INFORMATION

- **Academic Advising**
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.
GENERAL DISCLAIMER
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.