EEEN 3345 Electronic Devices and Circuits
Electrical Engineering Program, Department of Engineering
Spring 2020

A. COURSE INFORMATION
   Course number/section:  EEEN-3345_001
   Class meeting time: TR 09:30-10:45AM
   Class location:  EL111
   Course Website: https://bb9.tamucc.edu

B. INSTRUCTOR INFORMATION
   Instructor:  Rafael Fox
   Office location: EN-216
   Office hours: TT 11am-12pm
   Telephone: (361) 825-2593
   Email: rafael.fox@tamucc.edu
   Appointments: send an e-mail request for appointment, with proposed time.

C. COURSE DESCRIPTION
   Catalog Course Description
   The applications of electronic devices, including linear and non-linear Op-Amp circuits, oscillators, wave-shaping circuits, active filters, rectifiers, voltage regulators, and power supplies; industrial electronics.

D. PREREQUISITES AND COREQUISITES
   Prerequisites: EEEN 3315 Circuit Analysis II
   Corequisites: None

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES
   Other notes will be supplied as needed.

Optional Textbook(s) or Other References
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. Evaluate electronic systems and their applications.
2. Specify electronic systems and their applications.
3. Design and prototype electronic systems use in mechatronics, automation, power and biomedical engineering.
4. Build electronic systems capable of doing wave-shaping, amplification (step up & step down), filtering, power supplying and rectification operations.
5. Test electronic systems and measure its response using electrical engineering instrumentations such as oscilloscopes in lab activities.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Methods and activities for instruction include the following: lectures, homework assignments, laboratory exercises, and examinations.

H. MAJOR COURSE REQUIREMENTS AND GRADING

Assessment is based on two midterm exams, lab reports, 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>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>10</td>
<td>90 ≤ total</td>
<td>A</td>
</tr>
<tr>
<td>Quizzes/Project-Labs</td>
<td>15</td>
<td>80 ≤ total &lt; 90</td>
<td>B</td>
</tr>
<tr>
<td>Midterm Exam I</td>
<td>20</td>
<td>70 ≤ total &lt; 80</td>
<td>C</td>
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<tr>
<td>Midterm Exam II</td>
<td>20</td>
<td>60 ≤ total &lt; 70</td>
<td>D</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30</td>
<td>total &lt; 60</td>
<td>F</td>
</tr>
<tr>
<td>Attendance*</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>Course Folder**</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>TOTAL</td>
<td>100</td>
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</table>
**Course Folder**

This consists of a simple letter size two pocket folder where all graded and returned assignments will be placed. On the left side place Exams (1 & 2) followed by Quizzes (1 to ?). On the right side place your HW (1 to ?) followed by any labs (1 to ?), then any other assignments. It must be complete and organized for full credit.

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>CHAPETERS/READING</th>
<th>TOPICS</th>
<th>EXAMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Handout Ch. 21,22 [B]</td>
<td>Introduction to Electronic Devices and Industrial Electronics / Course Requirements</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ch. 21,22 [B]</td>
<td>Resonance Decibels, Filters, and Bode Plots</td>
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<tr>
<td>3</td>
<td>Ch. 12 [F]</td>
<td>The Operational Amplifier (Op-Amp)</td>
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<tr>
<td>4</td>
<td>Ch. 12 [F]</td>
<td>Op-Amp Non-Ideal DC and Non-DC Characteristics</td>
<td>Lab1</td>
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<tr>
<td>5</td>
<td>Ch. 13 [F]</td>
<td>Basic Op-Amp Circuits</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Ch. 13 [F] Ch. 14 [F]</td>
<td>Special-Purpose Integrated Circuits</td>
<td>Midterm 1</td>
</tr>
<tr>
<td>7</td>
<td>Ch. 15 [F]</td>
<td>Active Filters</td>
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<tr>
<td>8</td>
<td>Ch. 16 [F]</td>
<td>Oscillators</td>
<td>Lab2</td>
</tr>
<tr>
<td>9</td>
<td>-----</td>
<td>SPRING BREAK</td>
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<tr>
<td>10</td>
<td>Ch. 16 [F]</td>
<td>Oscillators</td>
<td>Midterm 2</td>
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<tr>
<td>11</td>
<td>Ch. 17 [F]</td>
<td>Voltage Regulators</td>
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<tr>
<td>12</td>
<td>Ch. 17 [F]</td>
<td>Voltage Regulators</td>
<td>Lab3</td>
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<tr>
<td>13</td>
<td>Ch. 18 [F]</td>
<td>Communication Devices and Methods</td>
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<tr>
<td>14</td>
<td>Handout</td>
<td>Power Devices Survey: Transformers, Power Supplies and Power Converters</td>
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<tr>
<td>15/16</td>
<td>Handout</td>
<td>Mechatronics Devices Survey: Actuators, Motors, Transducers, Sensors, PLC, FPGAs and Microcontrollers</td>
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Please consult the Academic Calendar for Holidays and class drop deadlines

https://www.tamucc.edu/academics/calendar/2019_spring.html

**Final Exam:**
Thursday – May 14, 2020 @ 8am

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 must attend all lectures. Grading for Attendance will be deducted after the first day of class without a legitimate excuse/cause. A **1% deduction** from attendance will apply. Tardy counts for 1/3 of an absent. After 20 minutes late counts for ½ absent.

You are responsible for any materials covered or handed out or announcements made in your absence, therefore make arrangements with classmates when this happens. Records of your attendance will be maintained. Tardiness without the prior consent of the instructor is not accepted and will be penalized. Being tardy consistently without consent can be basis to be removed from class or not be permitted to enter class. This is a disruption to other classmates, impolite and not of an ethical person.

**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.

• **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)**
  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. 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.