

**NEW YORK CITY COLLEGE OF TECHNOLOGY**  
**The City University of New York**

**DEPARTMENT:** Electrical and Telecommunications Engineering  
Technology

**SUBJECT CODE** EET 2141/ET 352  
**AND TITLE:** Communications Electronic Laboratory

**COURSE DESCRIPTION:** An intermediate course developing skills required of technicians in experimenting with electronic circuits, interpreting and analyzing data to verify principles, and writing technical reports. Experiments in application of transistors, diodes, integrated circuits, resonant circuits, radio frequency voltage and power amplifiers, oscillators, amplitude modulation, and demodulation are performed.

**PREREQUISITE:** EET 1241/ET 252

**PRE OR COREQUISITE:** EET 2140/ET 313

**TEXTBOOK:** Department Lab Manual

**COURSE OBJECTIVES/  
COURSE OUTCOMES:** Upon completion of this course students will possess the ability to:

1. Construct electronic circuits and schematic diagrams in a timely professional manner (ABET Criteria 2a, 2b, 2c, 2e, 2f, and 2g).
2. Interpret and measure data from various circuits in electronic communications (ABET Criteria 2c and 2d).
3. Simulate electronic circuits with Multisim software to verify principles and measured data (ABET Criteria 2a, 2b, 2c, 2e, 2f, and 2g).
4. Write technical report including plots and tables of theoretical and experimental data (ABET Criteria 2a, 2b, 2c, 2e, 2f, and 2g).

**TOPICS:** Topics include basic op-amp circuits, active low pass filter, active band pass filter, Colpitts oscillator, Wien bridge oscillator, square wave oscillator, voltage controlled oscillator, analog multipliers, balanced modulator and AM, detection of AM waves, and phase lock loop and FM detection.

**LAB HOURS:** 3

**CREDITS:** 1

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October 2006

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**GRADING POLICY:** ET 2141/ET 352

Lab report and class participation 60%  
Midterm Exam: 20%  
Final Exam 20%

<u>Letter Grade</u>	<u>Numerical Grade Ranges</u>	<u>Quality</u>
A	93-100	4.0
A-	90-92.9	3.7
B+	87-89.9	3.3
B	83-86.9	3.0
B-	80.82.9	2.7
C+	77-79.9	2.3
C	70-76.9	2.0
D	60-69.9	1.0
F	59.9 and below	0.0

**Class policy:**

1. Students are required to attend all regularly scheduled class meetings.
2. Students are required to be on time for all class meetings.
3. Students are responsible for all material covered by the instructor in class whether they are present or not. If a student must be absent, it is their responsibility to find out what was missed from either the instructor or a fellow student.
4. Students are expected and encouraged to see the instructor for extra help outside of class as soon as difficulty in understanding the material is encountered. Students who do not grasp the material the material from a given day's class will not be able to understand the material in subsequent classes.
5. Students are expected and encouraged to use online options, such as Blackboard and e-mail, for additional help and advice
6. Students are expected to work all homework and test problems.
7. Students are expected to keep a class notebook.
8. Students require submitting a laboratory report next week after the experiment is conducted.
9. Research paper is due the week before the final examination.
10. No food or drink is allowed in the classroom at any time.
- 11.

**Weekly Schedule**

<b>WEEK</b>	<b>EXPERIMENT</b>
<b>1-2</b>	<b>Operational Amplifier</b>
<b>3-4</b>	<b>Active LP &amp; HP Filters</b>
<b>5</b>	<b>Active Band Pass Filters</b>
<b>6</b>	<b>Modified Colpitts Oscillator</b>
<b>7</b>	<b>Wien-Bridge Oscillator</b>
<b>8</b>	<b>Square Wave Oscillator using the 556 dual Timer Midterm Examination</b>
<b>9</b>	<b>Voltage-Controlled Oscillator</b>
<b>10-11</b>	<b>Analog Multipliers</b>
<b>12</b>	<b>Balanced Modulator and Amplitude Modulation</b>
<b>13</b>	<b>Detection of AM Waves</b>
<b>14</b>	<b>Phase Locked Loop</b>
<b>15</b>	<b>Final Exam</b>