CASPER COLLEGE COURSE SYLLABUS  
ELTR 2600 Electronic Communications

Semester/Year: Spring 2015

Lecture Hours: 3  
Lab Hours: 3  
Credit Hours: 4.5

Class Time:  
Lec: 11:00 - 10:50 a.m. and 1:00-1:50 p.m.  
Days: M, W  
Lab: 2:00 - 4:50 p.m.  
Days: W  
Room: GW 216/214

Instructor’s Name: Megan Graham

Instructor’s Contact Information:  
Office Number: GW 116  
Office Phone: 268-2539  
Email: mgraeham@caspercollege.edu

Office Hours: M. T, W, Th 12:00 -1:00 p.m. and M, W 5:00 –6:00 p.m.

Course Description:  
Emphasis is on radio receivers and transmitters, antennas, amplitude and frequency modulation, FM stereo multiplex circuits, and microwave techniques. Experiments explore concepts of radio reception and methods of testing and troubleshooting the circuits involved in communication systems.

Statement of Prerequisites:  
Completion of ELTR-1700 or permission of the instructor.

Institutional Outcomes:  
☐ Demonstrate effective oral and written communication  
☐ Use the scientific method  
☐ Solve problems using critical thinking and creativity  
☐ Demonstrate knowledge of diverse cultures and historical perspectives  
☐ Appreciate aesthetic and creative activities  
☐ Use appropriate technology and information to conduct research  
☐ Describe the value of personal, civic, and social responsibilities  
☐ Use quantitative analytical skills to evaluate and process numerical data

Program Goals:  
1. To provide comprehensive training in the fields of electronics technology, so that the associate degree graduate is technically qualified to obtain employment in the electronics industries or an allied field.  
2. To provide the necessary training for graduates to continue on to advanced training in an electronics program or a related four-year program.
**Course Goals:**
To acquaint the student with some of the major communication systems in use today. To enable the student to gain skills required to test, troubleshoot, and repair defective elements in basic communication systems.

**Course Objectives:**
To provide the student:
1) The understanding of the basic functions of all communication systems.
2) The opportunity to build and test modulators and demodulator of the basic analog communications systems.
3) Skills to read complex schematics of analog and digital communications system.

**Methodology:**
Lectures will present information necessary for the student to understand reading assignments. Lab experiments will be used to prove theories and information presented in lectures and homework assignments.

**Evaluation Criteria:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Labs</td>
<td>30%</td>
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<tr>
<td>Tests</td>
<td>60%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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**Required Text, Readings, and Materials:**

**Class Policies: Last Date to Change to Audit Status or to Withdraw with a W Grade:**
April 16, 2015

**Student Rights and Responsibilities:** Please refer to the Casper College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Casper College Student.

**Chain of Command:** If you have any problems with this class, you should first contact the instructor to attempt to solve the problem. If you are not satisfied with the solution offered by the instructor, you should then take the matter through the appropriate chain of command starting with the Department Head/Program Director, the Dean, and lastly the Vice President for Academic Affairs.

**Academic Dishonesty:** (Cheating & Plagiarism) Casper College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Casper College Student Code of Conduct for more information on this topic.
**ADA Accommodations Policy:** If you need academic accommodations because of a disability, please inform me as soon as possible. See me privately after class, or during my office hours. To request academic accommodations, students must first consult with the college’s Disability Services Counselor located in the Gateway Building, Room 344, (307) 268-2557, bheuer@caspercollege.edu. The Disability Services Counselor is responsible for reviewing documentation provided by students requesting accommodations, determining eligibility for accommodations, and helping students request and use appropriate accommodations.

**Safety:** Personal and equipment safety standards will be strictly enforced. It is the individual’s responsibility to develop a safe work attitude.
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<thead>
<tr>
<th>Week</th>
<th>Chapter</th>
<th>Lecture</th>
<th>Lab</th>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Introduction to RF, Spectrum and Noise</td>
<td>EX 1: Amplifiers and Noise</td>
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<tr>
<td>2</td>
<td>1</td>
<td>Decibels and Fourier Analysis</td>
<td></td>
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<tr>
<td>3</td>
<td>1</td>
<td>RF Oscillators, Filters and Amplifiers</td>
<td>EX 2: Compression Amplifiers</td>
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<tr>
<td>4</td>
<td>1, 2</td>
<td><strong>Test 1: CH 1</strong>&lt;br&gt;AM Fundamentals</td>
<td>EX 3: RF Oscillators</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>AM Transmission</td>
<td>EX 4: DSBFC Modulation and Demodulation</td>
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<tr>
<td>6</td>
<td>3, 7</td>
<td>AM Reception</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>2, 3</td>
<td><strong>Test 2: CH 2, 3</strong></td>
<td>EX 5: AM Radio Measurements&lt;br&gt;&lt;em&gt;Spring Break&lt;/em&gt;<strong>&lt;br&gt;EXP 1-5 are due by midterms</strong></td>
</tr>
<tr>
<td>8</td>
<td>5, 7</td>
<td>Frequency Synthesizers&lt;br&gt;FM Fundamentals</td>
<td>EX 6: Frequency Synthesizer</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>FM Transmitters</td>
<td>EX 7: FM Digital Radios CPS</td>
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<tr>
<td>10</td>
<td>6, 7</td>
<td>FM Receivers</td>
<td>EXP 8: FM Transmitter Tests</td>
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<tr>
<td>11</td>
<td>5, 6, 7</td>
<td><strong>Test 3: CH 5, 6,7</strong></td>
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<tr>
<td>12</td>
<td>10</td>
<td>Wireless Digital Radio</td>
<td>EX 9: FM Receiver Tests</td>
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<tr>
<td>13</td>
<td></td>
<td>Trunked Radio Systems</td>
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<tr>
<td>14</td>
<td>12, 13</td>
<td>Transmission Lines&lt;br&gt;Wave Propagation</td>
<td>EXP 10: Transmission Line Impedance</td>
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<tr>
<td>15</td>
<td>14</td>
<td>Antennas</td>
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<td><strong>Final Exam as scheduled</strong></td>
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**Homework:**

- Use grid paper
- List the chapter and problem numbers in the title
- Neatly written or typed
- Include important elements of the problem
- Include work process – not just the answer
- Late HW will not be graded

**Lab Reports:**

- Use grid paper
- Be typed or neatly written
- Include all circuit diagrams
- Properly labeled data in data tables or graphs
- Analysis of results – by using your own data make conclusions about what happened in the lab– be sure to use your own results
- Late Labs will not be graded