1. Course number and name: 055:050 - Communication Systems

2. Credit and contact hours: 3

3. Coordinator: Soura Dasgupta

   a. Other supplementary materials:
      http://www.ece.ucsb.edu/wcsl/Publications/ch2thru6_dec2012.pdf Chapter 5

5. Specific course information
   b. Prerequisites: 055:043 and 22S:039.
   c. Required for electrical track.

6. Specific goals for the course – please see next page

7. Brief outline of topics to be covered
   a. Fourier Analysis and Filtering
   b. Power and Time averaged Correlation
   c. Amplitude Modulation and Demodulation
   d. Angle Modulation
   e. Probability and Random Variables
   f. Random Processes
   g. Noise Analysis of Modulation Schemes
   h. Exams
### Specific Course Goals: Basis for Assessment and Mapping onto Outcomes

<table>
<thead>
<tr>
<th>Course Learning Goal</th>
<th>Program Outcome</th>
<th>Class Activities</th>
<th>Basis for Assessment</th>
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<tbody>
<tr>
<td>1. Understanding of basic communication systems</td>
<td>J(*)</td>
<td>Class discussion, homework</td>
<td>Homework, midterm and final exams</td>
</tr>
<tr>
<td>2. Understanding of Fourier analysis and their role in designing communication systems.</td>
<td>A(<em>) , E(</em>) , K(*)</td>
<td>Class discussion, homework</td>
<td>Homework, midterm and final exams</td>
</tr>
<tr>
<td>3. Understanding of random variable and concepts of random processes.</td>
<td>A(<em>) , E(</em>) , K(*)</td>
<td>Class discussion, homework</td>
<td>Homework, midterm and final exams</td>
</tr>
<tr>
<td>4. Understanding of various analog modulation and demodulation schemes and their pros and cons</td>
<td>A(<em>) , E(</em>) , K(*)</td>
<td>Class discussion, homework</td>
<td>Homework, midterm and final exams</td>
</tr>
<tr>
<td>5. Understanding of SNR analysis of analog communication systems.</td>
<td>A(<em>) , B(</em>) , C(<em>) , E(</em>) , K(*)</td>
<td>Class discussion, homework</td>
<td>Homework, midterm and final exams</td>
</tr>
<tr>
<td>6. Understanding of contemporary topics</td>
<td>J(*)</td>
<td>Class discussion, homework</td>
<td>Essay type questions</td>
</tr>
</tbody>
</table>

o denotes moderate contribution to the outcome  
• denotes substantial contribution to the outcome