I. Course Description
This course studies concept and the principle of analog electrostatics such as direct current circuit, alternating current circuit, semiconductor, semiconductor diode, rectifying circuit, concept of amplification, bipolar transistor amplifiers, field effect amplifiers and their application in daily life.

II. Standard of Competence
After conducting this course, the students can understand analog electronics concepts and has ability to apply in the daily life.

III. Activity

<table>
<thead>
<tr>
<th>Meeting#</th>
<th>Basic Competence</th>
<th>Essentials Concept</th>
<th>Learning Strategy</th>
<th>Learning Materials/References</th>
<th>Character</th>
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</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Introduction</td>
<td>· Sillaby · Course Contract</td>
<td>Discussion and information</td>
<td>Sillaby</td>
<td>responsible</td>
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<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>To understand the principle of analog electronics</td>
<td>· Semiconductor · Diodes · Junction Diodes</td>
<td>Discussion and information</td>
<td>A1, A2</td>
<td>Confident complying, appreciating</td>
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<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>To understand the characteristics of semiconductor</td>
<td>· Intrinsic Semiconductor · Extrinsic Semiconductor · N-type Semiconductor · P-type Semiconductor</td>
<td>Discussion and information</td>
<td>A1, A2, B2</td>
<td>Responsible, thinking logically, creatively, innovatively,</td>
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<td>4&lt;sup&gt;th&lt;/sup&gt;, 5&lt;sup&gt;th&lt;/sup&gt;, 6&lt;sup&gt;th&lt;/sup&gt;</td>
<td>Junction Diodes</td>
<td>· N-type material · P-type material · PN Junction</td>
<td>Discussion and information</td>
<td>A1, A2, B3</td>
<td>Responsible, thinking logically,</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Key Concepts</td>
<td>Discussion and Information</td>
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</table>
| 7th, 8th | Rectifying Circuits and DC Power Supplies (1st) | • Forwarded-Biased Junction  
• Reverse-Biased Junction  
• Load Line Analysis of Diode Circuit  
• The Half-wave Rectifier  
• Voltage Regulation  
• Ripple Factor  
• Ratio of Rectifications  
• TUF | Discussion and information | A1, A2, B1, B3 |
| 9th | Mid Term | | | |
| 10th | Rectifying Circuits and DC Power Supplies (2nd) | • The Full-wave Rectifier  
• The Bridge Rectifier  
• Comparison of Rectifier Circuits | Discussion and information | A1, A2, B2 |
| 11th | Zener Diodes | • Zener Diode Specifications  
• The Voltage Regulator Circuit  
• Design of Voltage Regulator Circuit  
• Effect of Supply Voltage Variations  
• Zener Diode Breakdown Mechanism  
• Reference Zener Diode | Discussion and information | A1, A2, B1, B3 |
| 12th | General Amplifier Characteristics | • Concept of Amplification  
• Amplifier Notation  
• Current Gain, $A_i$  
• Voltage Gain, $A_v$  
• Power Gain, $A_p$ | Discussion and information | A1, A2, B3 |
| 13th, 14th | Bipolar Transistor Amplifier | • Amplifier Input Resistance, \( R_i \)  
• Amplifier Output Resistance, \( R_o \) | Discussion and information | A, B1, B2 | Responsible, thinking logically, creatively, innovatively, discipline, curious |
|---|---|---|---|---|---|
| 15th | The Common-Base Amplifier and The Common-Emitter Amplifier | • Basic characteristics of the Transistor  
• Basic Transistor Amplifier  
• Transistor Input Characteristics  
• Transistor Collector Characteristics, CE  
• Collector Cutoff Current, \( I_{CEO} \)  
• Forward Current Transfer Ratio, CE | Discussion and information | A1, A2, B3 | Responsible, thinking logically, creatively, innovatively, discipline, curious |
| 16th | Field Effect Transistors | • Advantages and Disadvantages of the FET | | A1, A2 | |
• Basic Construction of the JFET
• Characteristic Curves of the JFET
• Principle of Operation of the JFET
• Frequency Response of the FET Amplifier

IV. References

A. Compulsory:

B. Additional:

V. Evaluation

<table>
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<tr>
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<td>2</td>
<td>Assignment</td>
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<td>Midterm Exam</td>
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<tr>
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<td>Final Exam</td>
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100%

Yogyakarta, August 16th, 2010

Pujianto, M.Pd.