2013 Scanning Sheet. Assignment Description:_____ Instructor:_____ Date:_____ Scanned File Name:_____

| ABET Outcomes | | | | | | | | | | | Rubric or | Example | B D E | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H | I | J | K | student % | problem | Outcome # | EE 342 Electronics Design Laboratory (1) – Outcomes Reviewed 2013 |
| | 2 | 2 | 2 | 2 | | 1 | | 1 | | 1 | | B1 | 1 | Utilize laboratory equipment such as the oscilloscope, function generator and multimeter to measure amplifier, filter and oscillator response in the time and frequency domain; to determine circuit characteristics with respect to bias currents and voltages, gain, bandwidth, etc. to verify their design efforts. |
| | 2 | 2 | 2 | 2 | | 1 | | 1 | | 1 | | | 2 | Characterize junction diodes, and utilize them in half wave and full wave rectifiers. |
| | 2 | 2 | 2 | 2 | | 1 | | 1 | | 1 | | D2 E2 | 3 | Design, simulate with SPICE, and implement a full wave rectifier circuit in lab. Characterize the full wave rectifier circuit to meet the specified design. |
| | 2 | 2 | 2 | 2 | | 1 | | 1 | | 1 | | | 4 | Characterize bipolar junction transistors, field effect transistors and utilize them in low frequency and high frequency amplifiers. Design, simulate with SPICE an amplifier circuit, and implement the design in lab. for electrical characterization to meet the designed specifications. |
| 2 | 2 | 2 | 2 | 2 | | 1 | | 1 | | 1 | | | 5 | Demonstrate knowledge of the various types of feedback utilized in amplifier circuits, evaluate feedback circuits utilized in DC bias and AC operation and understand the contribution of the feedback network to DC and AC stability in small signal and power amplifier design. |
| | 2 | 2 | 2 | 2 | | 1 | | 1 | | 1 | | | 6 | Simulate a bipolar junction transistor differential pair, using SPICE, for operational amplifier applications. |
| | 2 | 2 | 2 | 2 | | 1 | | 1 | | 1 | | | 7 | Demonstrate knowledge of the basic operation, advantages and limitations of operational amplifiers. |
| | 2 | 2 | 2 | 2 | | 1 | | 1 | | 1 | | | 8 | Demonstrate knowledge of the use of transistors and operational amplifiers in oscillator design. |
| 2 | 2 | 2 | 2 | 2 | | 1 | | 1 | | 1 | | B2 D1 E1 | 9 | Design an amplifier circuit, analyze its characteristics and performance capabilities, use SPICE to simulate the amplifier response and verify the design by assembling and testing the amplifier circuit. |

1=supporting contribution
2=significant contribution

| Rubric |
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| 5: Excellent Mastery of Outcome By Vast Majority of Students |
| 4: Good Mastery of Outcome By Vast Majority of Students |
| 3: Adequate Mastery of Outcome By Majority of Students |
| 2: Marginal Mastery of Outcome By Most Students |
| 1: Lack of Mastery of Concept By Most Students |

Improvement Suggestions or Comments:

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| a. an ability to apply knowledge of mathematics, science, and engineering |
| b. an ability to design and conduct experiments, as well as to analyze and interpret data |
| c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability |
| d. an ability to function on multi-disciplinary teams |
| e. an ability to identify, formulate, and solve engineering problems |
| f. an understanding of professional and ethical responsibility |
| g. an ability to communicate effectively |
| h. the broad education necessary to understand the impact of engineering solution in a global, economic, environmental, and societal context |
| i. a recognition of the need for, and an ability to engage in life-long learning |
| j. a knowledge of contemporary issues |
| k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice |