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

ABET Outcomes											Rubric or	Example		
A	B	C	D	E	F	G	H	I	J	K	student %	problem	Outcome #	**EE 240 Evaluation of Circuits (1) – Outcomes Reviewed 2013**
										2			1	Use basic laboratory instrumentation (multimeter and oscilloscope) to measure currents and voltages associated with DC and AC circuits.
										2			2	Determine accuracy limitations for various laboratory instruments with changes in scale.
2	2			1									3	Perform a statistical analysis. Using a multimeter, they will obtain the average value and standard deviation for a sample of resistors with the same color code value and the same color coded tolerance specification. They will compare resistor tolerances, as specified by the color code, with the standard deviation obtained in the lab exercise.
	1												4	Construct series, parallel and series-parallel DC and AC circuits (calculate currents and voltages using Ohm's law, Kirchoff's current and Law, Kirchoff's voltage law, voltage divider rule, current divider rule, nodal method, mesh method, and superposition) and measure the currents and voltages for the circuit in the laboratory using the multimeter and oscilloscope. Students will compare their calculated values with measured voltages and currents, obtained using the multimeter and oscilloscope, for the actual circuits that have been fabricated in lab.
2	2												5	Plot the power transfer graph for a simple DC and AC series circuit by using the multimeter to measure output voltage and the load. Students can calculate the power absorbed by the load. Using the graph, they can, then, verify the maximum power transfer rule.
2										1			6	Construct operational amplifier circuits; initially calculating output/input voltages for an inverting amplifier, summing amplifier, non-inverting amplifier. Students will compare calculated values with the values obtained, using the multimeter and oscilloscope, for the circuits fabricated in lab.
2										1			7	Use the oscilloscope to evaluate the transient responses (output current and voltage) for a series R-L and R-C circuit. Students will compare measured values with calculated values.
2										1			8	Use the oscilloscope to determine the transient response and step response (output current and voltage) for an R-L-C circuit. Students will compare measured values with calculated values.
2										2			9	Use circuit simulation tools. In exercises 4, 5 and 8 students will be able to simulate DC and AC circuit response using PSPICE. Students will compare their PSPICE results with calculated values. Then, they will compare their PSPICE results with laboratory results.

1=supporting contribution
2=significant contribution

Rubric
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:

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