

E344 Assignment 2: Rubric (28 Aug 2019)		
		50
System design	Mark 1 page only	
	System diagram (Indication of power sources, voltage levels, selected op-amps)	1
	Consideration of total current draw on regulator(s)	1
Voltage transducer	Mark 5 pages only	
	Short description of theory used (e.g. different types of opamp circuits) with references	1
	Design rationale of how 18VAC will be converted to low voltage analogue	1
	Calculation of requisite op-amp component values (e.g. resistances, capacitors)	1
	Calculation of delta input vs delta output (impact of deviations on the input, e.g. noise)	1
	Consideration of opamp limits (e.g. differential input, input limits, common mode)	1
	Figure: Circuit diagram (clearly legible)	1
	Figure: Simulation at nominal input voltage and nominal analogue value out, and transition of 1V change in input level.	1
	Table of results with signal generator as per instructions (Table 1 in instr.)	1
	Table of results with actual voltages as per instructions (Table 2 in instr., and include curve-fit formula if used.)	1
	Figure: Measurement (channel 1 = AC input, channel 2 = analogue output) for mid range	1
	Figure: (AC Coupled) of noise on signal (zoomed in sufficiently for time and voltage)	1
	Meets full range requirement?	1
	Meets resolution requirement?	1
Current transducer	Mark 5 pages only	
	Short description of theory used (e.g. different types of opamp circuits) with references	1
	Design rationale of how 0->285 mA will be converted to low voltage analogue	1
	Calculation of requisite op-amp component values (e.g. resistances, capacitors)	1
	Calculation of delta input vs delta output (impact of deviations on the input, e.g. noise)	1
	Consideration of opamp limits (e.g. differential input, input limits, common mode)	1
	Figure: Circuit diagram (clearly legible)	1
	Figure: Simulation at nominal current level and nominal analogue value out, and transition of 10mA change in input level.	1
	Table of results with signal generator as per instructions (Table 3 in instr.)	1
	Table of results with actual input as per instructions (Table 4 in instr., and include curve-fit formula if used)	1
	Figure: Measurement (channel 1 = AC input, channel 2 = analogue output) for mid range	1
	Figure: (AC Coupled) of noise on signal (zoomed in sufficiently for time and voltage)	1
	Meets full range requirement?	1
	Meets resolution requirement?	1
Phase shift transducer	Mark 5 pages only	
	Short description of theory used (e.g. different types of opamp circuits) with references	1
	Design rationale of how phase shift will be converted to low voltage analogue	1
	Calculation of requisite op-amp component values (e.g. resistances, capacitors)	1
	Calculation of delta input vs delta output (impact of deviations on the input, e.g. noise)	1
	Consideration of opamp limits (e.g. differential input, input limits, common mode)	1
	Figure: Circuit diagram (clearly legible)	1
	Figure(s): Simulation with two nominal input levels (e.g. 1k and 22uF load; 1k and 33uF) and nominal analogue value out	1
	Table of results with actual input as per instructions (Table 5 in instr.)	1
	Figure: Measurement (channel 1 = AC input, channel 2 = analogue output) for mid range	1
	Figure: (AC Coupled) of noise on signal (zoomed in sufficiently for time and voltage)	1
	Meets full range requirement?	1
	Meets resolution requirement?	1
System tests	Mark 1 page only	
	Figure: Picture of whole PCB with barcoded ID.	1
	Noise and rail voltages measured with all three systems running together	1
	Measure current drawn by system.	1
Appendices		
	GitHub snapshot	1
General		
	Presentation of figures, references and formulas (Does it look professional?)	3
	Language (Lucid, logical and professional writing?)	3