El   Robert W Erickson   ⚙

ECEN 4517/5517 Power Electronics and PV Lab

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Edit Rubric - Exp 4 final report: ECEN5517 ▼

| Properties | **Levels and Criteria** |

➕ **Add Criterion**   ➕ **Add Level**   ▦ **Add Criteria Group**   ↕ **Reorder Criteria**

Criteria ▼	Full credit ▼	Partial credit ▼	No credit ▼
Document PWM controller circuit diagram ▼	3 points	2 points	0 points
Measured waveforms of all 16 pins of UC3525 ▼	8 points	4 points	0 points
Document power stage schematic ▼	6 points	3 points	0 points
Document inductor design and measured L values ▼	3 points	2 points	0 points
Open loop measured waveforms and meter readings: vds, Vg, Ig, V, I, efficiency, at 200V and 85 W ▼	10 points	5 points	0 points
Updated loss budget, measurements and calculations, suggestions for improvement ▼	13 points	7 points	0 points
Measured data: Gvd magnitude and phase ▼	5 points	2 points	0 points
Fit magnitude asymptotes to measured Gvd that follow Bode plot rules ▼	3 points	2 points	0 points
Fit phase asymptotes to measured Gvd that follow Bode plot rules ▼	3 points	2 points	0 points
Analytical expression for measured Gvd(s)	2 points	1 point	0 points

with numerical values of parameters				
Simulation of Gvd: schematic and output plots	▼	5 points	2 points	0 points
Fit magnitude asymptotes to simulated Gvd that follow Bode plot rules	▼	3 points	2 points	0 points
Fit phase asymptotes to simulated Gvd that follow Bode plot rules	▼	3 points	2 points	0 points
Analytical expression for simulated Gvd(s) with numerical values of parameters	▼	2 points	1 point	0 points
Compare measured and simulated Gvd(s)	▼	2 points	1 point	0 points
Analytical derivation of Gvd(s); compare with measured and simulated	▼	5 points	3 points	0 points
Optional extra credit: add damping network. Document calculations, element values, and implementation.	▼	10 points	5 points	0 points
Feedback: proposed compensated T(s) mag and phase asymptotes	▼	5 points	2 points	0 points
Feedback: proposed op amp compensator Gc(s) mag and phase asymptotes, and op amp circuit	▼	5 points	2 points	0 points
Expected crossover frequency and phase margin, with supporting calculations	▼	3 points	2 points	0 points
Load test: Vg, V, Ig, I, D, efficiency at the two extreme points of load range. Calculate regulation.	▼	3 points	2 points	0 points
Line test: Vg, V, Ig, I, D, efficiency at the two extreme points of Vg range. Calculate regulation.	▼	3 points	2 points	0 points
Soft start: document circuit and value used.	▼	5 points	2 points	0 points

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Oscilloscope output voltage waveform of turn-on transient.			
Overall Score ▾	**Level 3** **74 or more** ▾	**Level 2** **49 or more** ▾	**Level 1** **0 or more** ▾

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