ECE445/545 Presentations

In-Class Presentation:

Task: To present the design of your lab converter. In particular, show the results of two different computer simulations:

1) LTSpice: Model your power stage and control circuit in LTSpice by using the device models that LTSpice provides.
   Purpose of this task:
   i. To verify that your switching power device (MOSFET) is being driven properly.
   ii. To gain some experience with a Spice based simulator.

2) Matlab simulator provided by the instructor: Using a diode based model of your power stage, simulate the power stage only.
   Purpose of this task:
   i. To gain familiarity with the Matlab based simulator (which we will use further next term to obtain accurate frequency responses of various transfer functions, a feature not present in Spice based simulators).
   ii. A comparison of the simulation results obtained with the Spice based simulator can be presented.

Deliverables:

Each group should submit:
1) A hard-copy of your report at the time of the presentation.
2) An electronic copy, via email, of the LTSpice and Matlab input files for the simulators.

In-Lab Demonstration:

Task: Demonstrate proper operation of your power stage and control circuit under CCM and DCM. Change of mode is achieved by load change only.

The demonstration will be conducted in the Circuits Lab. At the start of the demonstration clearly state the following:

1) Converter name
2) Operating frequency
3) Output power level in CCM

Deliverables:

Each group should submit at the start of the presentation a complete circuit diagram of the demonstrated circuit showing how all elements/devices are connected.