

The class project is a group effort and every group is composed of 2 students.

There are 20 projects for students to choose from as follows

Project No.	Converter Type	Input Voltage	Output Voltage	Power Level
1 & 17	Buck CCM	40 – 50 v	30 v	500 W
2 & 18	Boost CCM	20 – 30 v	40 v	600 W
3 & 19	Inverting Buck-Boost CCM	30 – 60 v	–45 v	300 W
4 & 20	Cuk CCM	30 – 60 v	–45 v	1 kW
5	Sepic CCM	30 – 60 v	45 v	1 kW
6	Flyback CCM	24 – 36 v	5 v	500 w
7	Forward CCM	100 – 120 v	20 v	2 kW
8	Buck DCM	10 – 20 v	5 v	100 w
9	Boost DCM	5 – 10 v	12 v	150 w
10	Inverting Buck-Boost DCM	5 – 15 v	–10 v	120 w
11	4 Switch Buck Boost	50-100 V	75 V	1 kW
12	Buck CCM	400 – 500 v	300 v	5 KW
13	Boost CCM	200 – 300 v	400 v	4 kW
14	Buck-Boost CCM	300 – 600 v	–450 v	2 kW
15	Cuk CCM	300 – 600 v	–450 v	5 kW
16	Sepic CCM	300 – 600 v	450 v	6 kW

The project design report will be due on 05/25/2021.

- *The project design report should include the following:*
 - 1- *A converter design report to show the reasoning behind your choices of inductance and capacitance levels in your design.*
 - 2- *A Bode plot (frequency response) simulation plot of your converter.*
 - 3- *The full schematics of your converter including gate drivers, PWM chips, RC circuits, current sensors, voltage sensors, etc...*
 - 4- *A compensator design report to show the method of selection of your RC network to track an output voltage.*
 - 5- *A complete simulation file including all the necessary waveforms and justifying all the chosen components sizing (you have to show the system ability to track the output voltage at different dynamic conditions).*
 - 6- *The full specs for all the needed components in your circuit.*
 - 7- *A printed circuit board designed for your schematics.*
 - 8- *A list of the suggested components for purchase (Bill of Material).*
 - 9- *One section at the end explaining how the work was split between the group members.*

Note: Feel free to deviate from the provided specs as long as you are using the assigned converter. However, you can not copy the specs of another assigned converter.