

# University of Engineering and Technology Lahore

## EE 212L: Semiconductor Devices

### Semester Project

Submission Deadline: 21-02-2021

#### Problem Statement

Design and simulate a variable power supply which takes an AC input of 230V rms at 50 Hz and gives a DC output that can vary in the range of 0-30V and maximum output load current should be 1-1.5A.

You can choose any software for simulation.

#### Project Report requirements

1. Circuit Design [15]
  - a. Block Diagram: This part will consist of a properly labelled block diagram showing the complete power supply design and highlighting all the main blocks in the circuit.
  - b. Design Explanation: In this part a detailed explanation will be given about the working of each block and role of all circuit components used in each block.
  - c. Design Calculation: All the designed values of each circuit component along with their (handwritten) calculations should be given in this part. Any assumptions made should also be highlighted.
2. Circuit Simulation [10]
  - a. Circuit diagram: Attach a properly labelled screenshot of the simulated circuit.
  - b. Results: Show the results of the variable voltage output.
  - c. Input and output waveforms: Attach the waveforms for the input and output voltages.
3. Conclusion/comments. [5]

This part will discuss the results and how they compare with the desired output. Also, add any assumptions taken, and improvements for the design.

#### Submission instructions

All the reports should be in PDF format and renamed with your roll numbers (2019-EE\_XX/YY). Also, upload the simulation file along with the report.

Any plagiarism will result in 0 marks in the project.

The project has 20% weightage.

- 15% for report and simulation
- 5% on campus viva