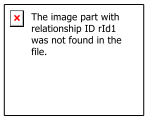

Lahore University of Management Sciences

EE452L/552L – Power Electronics Lab

Fall 2023

Instructor	Hafsa Qamar
Room No.	9-221A
Office Hours	TBD
Email	hafsa.qamar@lums.edu.pk
Telephone	X8495
TA	TBD
TA Office Hours	TBD
Course URL (if any)	

Course Learning Outcomes

EE452L: The students should be able to:

- CLO1: Apply the knowledge of different Power Electronic components and circuits in lab environment
- CLO2: Design and simulation of circuits on LT Spice and PSIM
- CLO3: Work effectively as a group in the lab environment
- CLO4: Breakdown tasks in project stages and plan completion
- CLO5: Evaluate impact of Power Electronics on Environment and Sustainability

Relation to EE Program Outcomes

EE-452 CLOs	Related PLOs	Levels of Learning	Teaching Methods	CLO Attainment checked in
CLO1	PLO1	Psycho 3	Instructions, Lab tasks	Lab, Project
CLO2	PLO5	Psycho 3	Instructions, Lab Tasks	Lab, Project
CLO3	PLO9	Aff3	Instruction, Lab Tasks	Lab, Project
CLO4	PLO11	Cog3	Lab tasks	Project
CLO5	PLO7	Cog3	Lab tasks	Project

Labs (1+n weeks → simulation + performance)

1.	Switching characteristics of Devices – Power Diodes and Power Mosfets	1+1 weeks
2.	AC – DC Conversion: SCRs and Phase Controlled Rectifiers – Characteristics, Half wave controlled rectification, R-L Load, Full Bridge Rectification	1+2 weeks
3.	DC-DC Conversion: Buck Converter – Design, Simulation and Implementation of CCM and DCM operation. Effect of parasitics	1+1 weeks
4.	DC – AC Conversion: Inverter – Design, Simulation, and Implementation of Square wave with resonant filter and PWM inverter with LP filter	1+1 weeks
5.	DC Motor Drive – Optional extra lab	1+1 weeks
6.	Course Project: Design, Simulation, and Implementation of Application Specific PE converter	03 weeks