



Module PMRF-ISSS062/2023

Design of Controller for Power Converter Applications

Name of the PMRF student

SURJAKANTA MAZUMDER

Required background of the students taught

B.Tech/ M.Tech in Electrical Engineering. Basic understanding of Control Systems, Network Theory, Power Electronics is necessary.

Online session coordinator

Will be chosen from the list of registrants

Details of the content of the module

This course is dedicated for Electrical Engineers who has keen interest in Power Electronic Converter Control.

Week 1-2: Basic Introduction of Power Converters

- DC-DC Converters (Choppers)
- DC-AC Converters (Inverters)
- AC-DC Converters (Rectifiers)

Week 3-4: Plant Modeling Methods and Control Requirements

- State-Space Averaging
- Waveform Averaging
- Circuit Averaging

Week 5: Brief Introduction of Linear Control System

- Feedback Control
- Nested Loop Control

Week 6: Tools for Control System Analysis

- Nyquist Plot
- Bode Plot
- Root-Locus Plot

Week 7-8: Controller Design

- Chopper Application
- Inverter Application
- Rectifier Application

Week 9-10: Digital Realization of the Controller



Schedule of the module

Start Date: 2nd December 2023

End Date: 4th February 2024 (Tentative)

Lectures: Weekly, Saturday and Sunday: 10 AM to 11 AM

Doubt Solving Classes: Biweekly, Friday: 7pm to 8 pm

Meeting link : Will be shared later

Contact email ID: issforum@gmail.com

Registration link:
<https://forms.gle/5BsQC5dRrf9Epe8n9>