University of Mosul
College of Engineering
Department of Electrical Engineering
Power & Machine laboratory
3 P&M Lab

Introduction:

The power and Machines Laboratory is specialized in conducting experiments and tests related to electrical machines, power electronics, and control systems, among others. This laboratory was established by the efforts of the Electrical Engineering department staff, where 28 practical experiments were prepared during the two semesters. The beneficiaries of this laboratory are students in the third stage, as well as postgraduate students (Master's and Ph.D.), and all faculty members who wish to conduct scientific research in this field.

Table of Experiments Semester 1

Name of Experiment	Sequence of Experiment
Single-Phase Transformer Open and Short Circuit Tests	1
Speed and Direction Control of D.C shunt Motor using voltage control method	2
Three -Phase Power Measurements	3
Thyristor Controllable Rectification Circuit	4
Three-phase full-wave Rectifier	5
The Operational Amplifier	6
Encoder decoder circuit	7
Speed Control of D.C shunt Motor using field control method and armature voltage method	8
No load and load test of D.C. shunt generator	9
Single phase transformer load test	10
The triac light dimmer control circuit	11
DC-DC Converters	12
Design of a timer using the IC-555	13
Integrating and differentiating circuit	14

Table of Experimens Semester 2

Name of Experiment	Sequence of Experiment
Load test of D.C. series generator.	1
Three-phase induction motor (No-load & Locked rotor test).	2
Determination of regulation of an alternator by Synchronous Impedance Method.	3
PWM signal generation to control a D.C. chopper using Arduino.	4
Motor drive.	5
Design of a timer using the IC-555.	6
Shift Registers.	7
Parallel Operation of Two Single-phase Transformers	8
Three-phase induction motor. (Directional control and star –delta starting).	9
Three-phase Synchronous generator (Load test).	10
Full Bridge Inverter.	11
Automatic Control of Motor Drive ACH555	12
The concept of Analog to digital converter (ADC) using Arduino.	13
Introduction to PLC and Ladder Logic Programming.	14

Laboratory staff

Lab Supervisor: Dr. Yasser Mohamed Younis - Assistant Professor

Lab Manager: Omar Tarath - Instructor

Lab Staff:
1. Dr. Mohammed Nateq - Assistant Professor
2. Fawaz Yasin Abdullah - Lecturer
3. Ahmed Bassam - Assistant Lecturer
4. Abdulhakeem Nabeel - Assistant Lecturer
5. Marwan Hussein - Assistant Lecturer
6. Amina Abdulmoneim - Assistant Lecturer
7. Zaid Ayad - Assistant Lecturer
8. Omar Nizar - Engineer
9. Saud Maan - Engineer