

Faculty of Electrical Engineering
M.E. Electrical Drives and Embedded Control
(R 2017) Semester – I
EB5111 EMBEDDED SYSTEMS AND DRIVES LABORATORY I
(Requirements for a batch of 25 students)

| Sl. No. | Description of Equipment | Quantity required (R) | Quantity available (A) | Deficiency (R - A) |
|----------------|--|------------------------------|-------------------------------|---------------------------|
| 1. | 1200 V/25 A IGBT, Snubber Capacitor , Resistors, Bread Board, Load Resistors, 1000 V High Voltage Probe, DSO, Gate pulse generation circuit, DC power Supply | 1 | | |
| 2. | 600 V/25 A MOSFET , Snubber Capacitor , Resistors, Bread Board, Load Resistors, 1000 V High Voltage Probe, DSO, Gate pulse generation circuit, DC power Supply | 1 | | |
| 3. | MATLAB-SIMULINK/SCILAB/Any Equivalent Simulation Tool | 1 | | |
| 4. | 8/16/32 bit Microcontroller Development Kit with its IDE (Any Microcontroller with ADC peripheral, minimum of 6 PWM outputs) | 3 | | |
| 5. | Microcontroller based pulse generation circuit, IR 2110 IC, opto coupler IC's, Resistors, capacitors, bread boards, DC power supply, DSO | 1 | | |
| 6. | Quad Op- Amp IC's (LM2902/LM324 or its equivalent), 8/16/32 bit Microcontroller Development Kit with its IDE (Any Microcontroller with ADC peripheral), Hall Effect Current Sensor, Hall Effect Voltage Sensor, Resistors, Bread Boards, DSO | 1 | | |

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|----|--|---|--|--|
| 7. | Discrete Components for Fabricating 500 W Buck Converter - 1200 V/25 A IGBT, Heat Sink for IGBT, Snubber Capacitor for IGBT, 350 V Electrolytic Capacitor, 5 Amps High Frequency Inductor, microcontroller based pulse generation circuit, Driver circuit, Resistive Load, Inductive Load, High Voltage Probe, DSO | 1 | | |
| 8. | Any open Source PCB designing Software (Example Ki-CAD), Copper Clad Board, Capacitors, Regulator IC's, Resistors , Capacitors, Ferric Chloride, Acetone, PCB drilling M/C, Soldering Accessories | 1 | | |

Faculty of Electrical Engineering
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EB5211 EMBEDDED SYSTEMS AND DRIVES LABORATORY II
(Requirements for a batch of 25 students)

| Sl. No. | Description of Equipment | Quantity required (R) | Quantity available (A) | Deficiency (R - A) |
|----------------|--|------------------------------|-------------------------------|---------------------------|
| 1. | Power module for DC converter for separately excited DC machine 0.5HP Speed Sensor, display meters, controller circuit, DSO | 1 | | |
| 2. | Power module for DC chopper for separately excited DC machine 0.5HP Speed Sensor, display meters, microcontroller based control circuit, DSO | 1 | | |
| 3. | IGBT inverter power module , 3 phase induction Motor 0.5HP, Microcontroller based control circuit, display meters, | 1 | | |
| 4. | Power module, BLDC motor(0.5HP), DSP based control circuit, sensor circuit, display meter, DSO | 1 | | |
| 5. | SRM motor-0.5 HP, PIC DSP/TMS DSP Processor based control circuit, speed sensor, Power module, Display meter, DSO | 1 | | |
| 6. | Simulation Package Like MATLAB/SCILAB | 3 | | |
| 7. | FPGA Development Kit | 4 | | |