Faculty of Mechanical Engineering

B.E. Robotics and Automation
(R 2017) Semester – III
EC8312 ELECTRONIC CIRCUITS AND DIGITAL LABORATORY
Requirements for a batch of 30 students

Sl. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	0 - 30V RPS	12		
2.	0 - 50V RPS	2		
3.	0 - 5V RPS	2		
4.	0 - 30V Voltmeter	10		
5.	0 - 10V Voltmeter	5		
6.	0 -50V Voltmeter	2		
7.	0 - 1V Voltmeter	3		
8.	0 - 30mA Ammeter	5		
9.	0- 100mA AC Amplifier	2		
10.	Audio Oscillator	5		
11.	CRO (30 MHZ)	15		
12.	Diodes, Zener Diodes	20		
13.	Transistors (PNP & NPN)	10		
14.	UJT	10		
15.	SCR	10		
16.	JFET	10		
17.	MOSFET	10		
18.	DIAC & TRIAC	10		

19.	Photodiode	5		
20.	Photo Transistor	5		
21.	Required Passive Components	30		
22.	Variable Resistor	30		

Faculty of Mechanical Engineering
B.E. Robotics and Automation
(R 2017) Semester – III
CE8481 STRENGTH OF MATERIALS LABORATORY
Requirements for a batch of 30 students

Sl. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	UTM of minimum 400 kN capacity	1		
2.	Torsion testing machine	1		
3.	Izod impact testing machine	1		
4.	Hardness testing machine Rockwell	1		
5.	Vicker's / Brinnel	1		
6.	Beam deflection test apparatus	1		
7.	Extensometer	1		
8.	Compressometer	1		
9.	Dial gauges	1		
10.	Le Chatelier's apparatus	2		
11.	Vicat's apparatus	2		
12.	Mortar cube moulds	10		

Faculty of Mechanical Engineering

B.E. Robotics and Automation
(R 2017) Semester – IV
RO8411 ELECTRICAL MACHINES LABORATORY
Requirements for a batch of 30 students

SI. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	DC Shunt Motor with Loading Arrangement	3		
2.	Single Phase Transformer	4		
3.	DC Series Motor with Loading Arrangement	1		
4.	Three Phase Induction Motor with Loading Arrangement	2		
5.	Single Phase Induction Motor with Loading Arrangement	1		
6.	DC Shunt Motor Coupled With DC Compound Generator	2		
7.	DC Shunt Motor Coupled With DC Shunt Generator	1		
8.	Tachometer-Digital /Analog	8		
9.	Single Phase Auto Transformer	2		
10.	Three Phase Auto Transformer	1		
11.	Single Phase Resistive Loading Bank	2		
12.	Three Phase Resistive Loading Bank	2		
13.	SPST switch	2		

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B.E. Robotics and Automation

(R 2017) Semester – IV
ME8481 DYNAMICS LABORATORY

Requirements for a batch of 30 students

Sl. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	Cam follower setup	1		
2.	Motorised gyroscope	1		
3.	Governor apparatus - Watt, Porter, Proell and Hartnell governors	1		
4.	Whirling of shaft apparatus	1		
5.	Dynamic balancing machine	1		
6.	Two rotor vibration setup	1		
7.	Spring mass vibration system	1		
8.	Torsional Vibration of single rotor system setup	1		
9.	Gear Models	1		
10.	Kinematic Models to study various mechanisms	1		
11.	Turn table apparatus	1		
12.	Transverse vibration setup of a) cantilever	1		
	b) Free-Free beam	1		
	c) Simply supported beam.	1		

Faculty of Mechanical Engineering

B.E. Robotics and Automation
(R 2017) Semester – IV
RO8412 LIC AND CONTROL SYSTEMS LABORATORY
Requirements for a batch of 30 students

Sl. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	Dual, (0-30V) variable Power Supply	10		
2.	CRO 30MHz	9		
3.	Digital Multimeter	10		
4.	Function Generator 1 MHz	8		
5.	IC Tester (Analog)	2		
6.	Bread board	10		
7.	Computer (PSPICE installed)	1		

Faculty of Mechanical Engineering

B.E. Robotics and Automation

(R 2017) Semester – V
RO8511 CNC AND METROLOGY LABORATORY

Requirements for a batch of 30 students

Sl. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	CNC lathe	1		
2.	CNC milling machine	1		
3.	Production type CNC machining centre	1		
4.	CNC lathe and milling programming software (FANUC controller)	10		
5.	CNC lathe and milling programming software (Heidenhain controller)	5		
6.	Optical profile projector	1		
7.	Tool makers microscope	1		
8.	Measuring gauges for hole depth and height	5		
9.	Sine Bar0	1		

Faculty of Mechanical Engineering

B.E. Robotics and Automation

(R 2017) Semester – V
MT8781 ROBOTICS LABORATORY

Requirements for a batch of 30 students

SI. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	Computers with necessary accessories	30		
2.	Robotics Operating System	30		
3.	Verification of direct kinematics equations and inverse kinematics equations of 1DOF "R-configuration" robot	30		
4.	Verification of direct kinematics equations and inverse kinematics equations of 2DOF "R-R-configuration" robot	30		
5.	Printer	1		

Faculty of Mechanical Engineering

B.E. Robotics and Automation

(R 2017) Semester – VI
RO8611 AUTOMATION SYSTEM DESIGN LABORATORY
Requirements for a batch of 30 students

Sl. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	Basic Pneumatic Trainer Kit with manual and electrical controls	1		
2.	PNEUMOSIM software / Automation studio	10		
3.	8051 – Microcontroller kit with stepper motor and drive circuit LABVIEW software	2		
4.	machine vision system with software	1		
5.	stepper motors with PC interface cards	2		
6.	servo motor with PC interface card	1		
7.	ultrasonic, touch and non contact sensors	2		

Faculty of Mechanical Engineering

B.E. Robotics and Automation

(R 2017) Semester – VI
EE8661 POWER ELECTRONICS AND DRIVES LABORATORY
Requirements for a batch of 30 students

Sl. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	Device characteristics(for SCR, MOSFET, TRIAC,GTO,IGCT and IGBT kit with built-in / discrete power supply and meters)	2		
2.	SinglephaseSCRbasedhalfcontrolledconverterandfullycontrolledconverteralong with built-in/separate/firing circuit/module and meter	2		
3.	MOSFET based step up and step down choppers(Built in/ Discrete)	1		
4.	IGBT based single phase PWM inverter module/Discrete Component	2		
5.	IGBT based three phase PWM inverter module/Discrete Component	2		
6.	Switched mode power converter module/Discrete Component	2		
7.	SCR &TRIAC based 1 phase AC controller along with lamp or rheostat load	2		
8.	Cyclo converter kit with firing module	1		
9.	Dual regulated DC power supply with common ground	5		
10.	Cathode ray Oscilloscope	10		
11.	Isolation Transformer	5		
12.	Single phase Auto transformer	3		
13.	Components (Inductance, Capacitance)	3		
14.	Multimeter	5		

15.	LCR meter	3		
16.	Rheostats of various ranges	10		
17.	Work tables	10		
18.	DC and AC meters of required ranges	20		
19.	Component data sheets to be provided	1		

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B.E. Robotics and Automation

(R 2017) Semester – VII
RO8711 MODELING AND SIMULATION LABORATORY

Requirements for a batch of 30 students

SI. No.	Description of Equipment	Quantity required (R)	Quantity available (A)	Deficiency (R - A)
1.	3-D solid modeling CAD software	10		
2.	Multibody kinematic and dynamic analysis software	5		
3.	non linear / crash / impact analysis software	2		
4.	Metal forming / metal cutting simulation software	2		
5.	loading and strain measuring set up	1		
6.	workstation configuration computers	15		