



**DEENBANDHU CHHOTU RAM UNIVERSITY OF SCIENCE & TECHNOLOGY, MURTHAL,
SONEPAT, HARYANA-131039**

Apparatus / Softwares for B. Tech. in Electronics and Communication Engineering (4 Years)

	INFRASTRUCTURE	REQUIRED	AVAILABLE	DEFICIENCY
List of Labs / Equipments / Softwares				
S. No.	Name of Equipment / Softwares	Quantity		
2nd Year Labs: DIGITAL ELECTRONICS LAB, ANALOG ELECTRONICS LAB, DATA STRUCTURES LAB, NETWORK ANALYSIS & SYNTHESIS LAB, WORKSHOP TRAINING, DIGITAL CIRCUIT & SYSTEM LAB, ANALOG ELECTRONIC CIRCUITS LAB, POWER ELECTRONICS LAB, COMMUNICATION SYSTEMS LAB				
Name of the Lab: ECE-221B: DIGITAL ELECTRONICS LAB				
1.	Bread board with power supply	10		
2.	IC like 7400, 7402, 7404, 7406, 7408, 7410, 7420, 7432, 7485, 7486, 74150, 74154, 7447, 74147, LED, Seven segment display etc.	20 each		
3.	S-R, J-K, T & D-Type flip flop ICs	20 each		
4.	Multiplexer & De-multiplexer kit	03		
5.	Synchronous UP / DOWN decade counter using JK Flip flop kit	03		
6.	4 Bit comparator kit	03		
7.	3 bit synchronous counter kit	03		
8.	Half adder & full adder kit	03		
9.	4 bit shift register kit	03		
10.	555 Timer kit	03		
11.	Digital IC Tester	03		
12.	Asynchronous UP / DOWN decade counter using JK Flip flop kit	03		
13.	Bi-directional shift register kit	03		
14.	Function Generator	03		
15.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-223B: ANALOG ELECTRONICS LAB				
16.	Half Wave / Full wave Rectifier Kit	03		
17.	Capacitor Filter Kit	03		
18.	CC Amplifier as a buffer Kit	03		
19.	CE amplifier kit with voltage, current & power gain, etc.	03		
20.	Three Terminal IC Regulator Kit	03		
21.	Voltage Doubler Kit	03		
22.	FET common drain & common source kit	03		
23.	Zener diode voltage regulator kit	03		
24.	Zener diode characteristics kit	03		
25.	BJT characteristics kit	03		
26.	RC coupled amplifier kit	03		
27.	CRO 30 MHz.	05		
28.	Function generator 3 MHz	05		
29.	Digital multimeter	10		
30.	UPS (Depending on equipments load)	01		
Name of the Lab: EE-241B: NETWORK ANALYSIS & SYNTHESIS LAB				
31.	Function generators	4		
32.	Cathode Rays Oscilloscopes	4		
33.	D. C. Power Supplies	4		
34.	Bread Boards	4		
35.	Digital multi-meters	4		
36.	Capacitance Boxes	4		
37.	Inductance Boxes	4		
38.	Resistance Boxes	4		
Name of the Lab: CSE-211B: DATA STRUCTURES LAB				
39.	Computers (with latest configurations)	25		
40.	TURBO C++ compiler	25		
41.	UPS (Depending on equipments load)	01		

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Name of the Lab: ME-217B: WORKSHOP TRAINING				
42.	Machine shop containing Lathe machine, shaper, planer, slotter, milling machine, drilling machine, pedestal grinding machine, measuring instruments (like micrometer, vernier calliper etc.)	01		
43.	Sheet Metal Shop containing different types of stakes, working tables, mallets, snips	01		
44.	Forging Shop containing anvil, swage blocks, hammers, tongs, open hearth furnace	01		
45.	Welding shop containing transformers, rectifiers, welding booths & working benches, power hacksaw	01		
46.	Carpentry shop containing workin benches, different types of saws, table vices	01		
47.	Fitting shop containing power hacksaw, working benches, different marking and measuring instruments, surface gauge, surface plates, files, hand hacksaws	01		
48.	Foundry shop containing moulding boxes, different types of patterns, pit furnace or tilting furnace, moulding sand	01		
Name of the Lab: ECE-224B: DIGITAL CIRCUIT & SYSYTEM LAB				
49.	Bread board with power supply	10		
50.	IC like 7400, 7402, 7404, 7406, 7408, 7410, 7420, 7432, 7485, 7486, 74150, 74154, 7447, 74147, LED, Seven segment display etc.	20 each		
51.	S-R, J-K, T & D-Type flip flop ICs	20 each		
52.	Sequence detector kit	03		
53.	Synhronous counter kit	03		
54.	4 bit shift register kit	03		
55.	Digital trainer board	03		
56.	Digital IC Tester	02		
57.	Asynchronous sequential cicuit designing kit	03		
58.	Function Generator	03		
59.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-226B: ANALOG ELECTRONIC CIRCUITS LAB				
60.	CRO 20 MHz	05		
61.	Function generator 1 MHz	05		
62.	Digital Multimeter	10		
63.	DC power supply +/- 30 v, dual	10		
64.	Inverting, non Inverting amp, buffer training kit	03		
65.	Integrator training kit	03		
66.	Differentiator training kit	03		
67.	Adder, Subtractor training kit	03		
68.	Logarithmic amp training kit	03		
69.	Wein bridge oscillator training kit	03		
70.	Square wave generator training kit	03		
71.	RC coupled amp training kit	03		
72.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-228B: COMMUNICATION SYSTEMS LAB				
73.	Amplitude Modulation & Demodulation kit	03		
74.	Frequency Modulation & Demodulation kit	03		
75.	Pulse Amplitude Modulation & Demodulation kit	03		
76.	Pulse Width Modulation & Demodulation kit	03		
77.	Pulse Position Modulation & Demodulation kit	03		
78.	Pulse Code Modulation & Demodulation kit	03		
79.	Amplitude Shift Keying kit	03		
80.	Frequency Shift Keying kit	03		
81.	Phase Shift Keying kit	03		
82.	Quadrature Phase Shift Keying kit	03		
83.	CRO (30 MHz)	05		
84.	Function Generator (3 MHz)	05		
85.	DC Power Supply	05		

	INFRASTRUCTURE	REQUIRED	AVAILABLE	DEFICIENCY
86.	Multimeter	10		
87.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-230B: POWER ELECTRONICS LAB				
88.	CRO	05		
89.	Thyristor Characteristics kit	01		
90.	SCR Triggering kit (R & RC)	01		
91.	UJT Relaxation Oscillator kit	01		
92.	SCR Half Wave and Full Wave Bridge Controlled Rectifier kit	01		
93.	1-Phase Full Wave Bridge Controlled Rectifier using SCR and UJT with R and R-L Load kit (with & without freewheeling diode)	01		
94.	Three Phase Full-Wave Uncontrolled Rectifier Operation with R and R-L Load kit	01		
95.	Single Phase Cycloconvener kit	01		
96.	Training kit for Series operation of SCR ϕ	01		
97.	Training kit for Parallel operation of SCR ϕ .	01		
98.	Training kit for Speed Control of DC_motor using SCR ϕ	01		
99.	Training kit for Lamp-Dimmer Using Diac & Triac With Lamp Load.	01		
100.	Rheostats of different ranges	05		
101.	Power supplies different ranges	05		
102.	Voltmeters different ranges	05		
103.	Ammeters different ranges	05		
104.	Function Generators	02		
3rd Year Labs: ELECTRONIC MEASUREMENT & INSTRUMENTATION LAB, CONSUMER ELECTRONICS LAB, LINEAR INTEGRATED CIRCUIT LAB, MICROPROCESSORS & INTERFACING LAB, OBJECT ORIENTED PROGRAMMING LAB, MICROWAVE & RADAR ENGG LAB, CONTROL SYSTEM ENGG LAB, HDL BASED SYSTEM DESIGN LAB, MICROCONTROLLER LAB				
Name of the Lab: ECE-323B: ELECTRONIC MEASUREMENT AND INSTRUMENTATION LAB				
105.	Temp measurement using thermocouple kit	03		
106.	Temp measurement using Thermistor kit	03		
107.	Temp measurement using RTD Kit	03		
108.	Displacement measurement using inductive pick up kit.	03		
109.	Displacement measurement using capacitive pick up kit.	03		
110.	Displacement measurement using LDR kit	03		
111.	Displacement measurement using L.V.D.T. kit	03		
112.	Strain gauge kit with weight	03		
113.	Pressure measurement using Piezo electric pick-up kit	03		
114.	Speed measurement of dc motor with help of magnetic pick-up Kit	03		
115.	CRO	05		
116.	Spectrum Analyzer	02		
117.	Frequency meter	03		
118.	Function Generator	03		
119.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-325B: CONSUMER ELECTRONICS LAB				
120.	Monochrome T.V Demonstration kit	01		
121.	Colour T.V Demonstration kit	01		
122.	Digital camera Demonstration kit	01		
123.	Microwave oven Demonstration kit	01		
124.	Washing Machine Demonstration kit	01		
125.	Demonstration kit for display devices like Plasma, LCD, LED, DMD	01		
126.	Air conditioner Demonstration kit	01		
127.	Refrigerator Demonstration kit	01		
128.	Transmitter & Receiver Demonstration kit	01		
129.	Training kit for frequency response of Microphone	01		
130.	Training kit for frequency response of Loudspeaker	01		
131.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-327B: LINEAR INTEGRATED CIRCUITS LAB				
132.	CRO 20 MHz	05		

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133.	Function generator 1 MHz	05		
134.	Digital Multimeter	10		
135.	DC power supply +/- 30 v, dual	10		
136.	Inverting, non Inverting amp, buffer training kit using OP-AMP 741	03		
137.	Integrator training kit using OP-AMP 741	03		
138.	Differentiator training kit using OP-AMP 741	03		
139.	Adder, Subtractor training kit using OP-AMP 741	03		
140.	Logarithmic amp training kit using OP-AMP 741	03		
141.	Wein bridge oscillator training kit using OP-AMP 741	03		
142.	Square wave generator training kit using OP-AMP 741	03		
143.	Clipper & Clamper training kit using OP-AMP 741	03		
144.	IC 741	20		
145.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-329B: MICROPROCESSORS & INTERFACING LAB				
146.	8086 Microprocessor trainer kit	15		
147.	8086 Microprocessor simulator 20 Users	01		
148.	Module of Traffic light controller	03		
149.	Module of stepper motor	03		
150.	Module of seven segment display	03		
151.	Module of A/D converter	03		
152.	Module of D/A converter	03		
153.	Computer System	10		
154.	CRO (30 MHz)	03		
155.	Digital Multimeter	03		
156.	DC Power Supply	03		
157.	UPS (Depending on equipments load)	01		
Name of the Lab: CSE-216B: Object Oriented Programming Lab				
158.	Computers (with latest configurations)	25		
159.	TURBO C++ compiler	25		
160.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-322B: Microwave & Radar Engineering Lab				
No. of Microwave Bench:- 04 (Having following Components)				
161.	Slide screw tuner \times -Bandq	04		
162.	Cooling fan standing.	04		
163.	Klystron tube (imparted) 2k25	04		
164.	Isolator \times -Bandq	04		
165.	Frequency meter \times -Bandq	04		
166.	Variable attenuator \times -Bandq	04		
167.	Slotted section \times -Bandq	04		
168.	Detected mount \times -Bandq	04		
169.	Movable short \times -Bandq	04		
170.	Matched termnation \times -Bandq	04		
171.	BNC Cable \times -Bandq	04		
172.	Tuanable probe \times -Bandq	04		
173.	Waveguide stand \times -Bandq	04		
174.	Pin . modulator \times -Bandq	04		
175.	TNC Cable \times -Bandq	04		
176.	Fixed attenuator 3 db \times -Bandq	04		
177.	Fixed attenuator 6 \times -Bandq	04		
178.	Fixed attenuator 10 db \times -Bandq	04		
179.	Magic Tee \times -Bandq	04		
180.	Directional coupler 3 db \times -Bandq	04		
181.	Directional coupler 10 db \times -Bandq	04		
182.	T-Circulator \times -Bandq	04		
183.	T-Circulator \times -Bandq	04		
184.	E-Plane Tee	04		
185.	H-Plane Tee	04		
186.	Slotted section with probe carriage \times -Bandq	04		
187.	3-pon ferrite circulator \times -Bandq	04		
188.	UPS (Depending on equipments load)	01		

	INFRASTRUCTURE	REQUIRED	AVAILABLE	DEFICIENCY
Name of the Lab: EE-332B: Control System Engineering Lab				
189.	A.C. Modular Servo System for Position & Speed control kit	1		
190.	D.C. Modular Servo System for Speed & Position Control kit	1		
191.	Process control Simulator kit	1		
192.	A.C. Servo Motor Speed Torque Characteristics kit	1		
193.	D.C. Servo Motor Speed Torque Characteristics kit	1		
194.	Synchro Transmitter & Receiver kit	1		
195.	Magnetic Amplifier	1		
196.	Lead-Lag Compensating Network kit	1		
197.	Stepper motor Controller kit	1		
198.	PID Temperature Controller kit	1		
199.	Digital Multi-meter	4		
200.	PCs	2		
201.	DC Regulated Power Supplies	2		
202.	Function generators	2		
203.	Cathode Rays Oscilloscopes	2		
204.	Tachometer	1		
205.	Stop Watch	1		
206.	MATLAB Software	5 users license		
207.	Ammeters (AC)	2		
208.	Ammeters (DC)	2		
Name of the Lab: ECE-326B: HDL Based System Design Lab				
209.	EDA tool with features of compiler, simulator, synthesizer & programmer, 20 users	01		
210.	FPGA kit	05		
211.	Workstations/computers	20		
212.	Digital Storage Oscilloscope 50 MHz	02		
213.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-330B: Microcontroller Lab				
214.	Microcontroller Training / Development KIT (8051)	10		
215.	Simulation Software 10 User	01		
216.	8051 Microcontroller Evaluation Board	10		
217.	PIC Microcontroller Evaluation Board	10		
218.	Module D.C. Motor, Stepper Motor, Intelligent Colour LCD	05 each		
219.	CRO 30 MHz	05		
220.	Computer System	10		
221.	DC Power Supply	10		
222.	Bread Board	10		
223.	IC 8051	20		
224.	Component for Power on Circuit (8051)	20 SET		
225.	USB Programmer	5		
226.	Universal Programmer	2		
227.	PIC Series Micro Controller ICs (16X, 18 X)	50		
228.	UPS (Depending on equipments load)	01		
4th Year Labs: DIGITAL SIGNAL PROCESSING LAB using MATLAB, PLC LAB, SATELLITE COMMUNICATION LAB, VLSI DESIGN LAB, PROJECT LAB, DATA COMMUNICATION & NETWORK LAB, Seminar				
Name of the Lab: ECE-423B: Digital Signal Processing Lab using MATLAB				
229.	MATLAB Software 25 Users with Signal processing tool box.	01		
230.	Printer	01		
231.	Workstations	25		
232.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-421B: PLC Lab				
233.	PLC Boards with software with a provision to simulate process control systems such as bottling plant, car parking, tank level control, light intensity variation, motor control, digital electronic design & traffic light control	05		
234.	Computers/workstations	05		
235.	UPS (Depending on equipments load)	01		

	INFRASTRUCTURE	REQUIRED	AVAILABLE	DEFICIENCY
Name of the Lab: ECE-425B: Satellite Communication Lab				
236.	Satellite Trainer Kit (TX, RX, Transponder, Monitor, Mike, Camera etc)	03 set		
237.	D.S.O. 100 MHz	03		
238.	Function Generator 100 MHz	03		
239.	UPS 1 KVA, with 1 hr. Battery backup	01		
240.	Logic Analyzer	01		
241.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-427B: VLSI Design Lab				
242.	EDA simulation tool, 20 users	01		
243.	Workstations/ Computers	20		
244.	UPS (Depending on equipments load)	01		
Name of the Lab: ECE-424B: Data Communication & Network Lab				
245.	Advanced LAN trainer kit system with three topology	02		
246.	RS232 Serial Data Communication trainer with Interfaces, LCD kit, Relay / Buzzer kit, DC Motor, Stepper Motor, 7 Segment display interface	02		
247.	ISDN Trainer system	01		
248.	Two wire line, coaxial cable, optical fiber cable	02		
249.	QPSK Modulation kit	02		
250.	QAM Modulation kit	02		
251.	FSK Modulation kit	02		
252.	Computers	05		
253.	UPS (Depending on equipments load)	01		
Name of the Lab: Project Lab				
254.	Film making unit	01		
255.	PCB Curing machine	01		
256.	Photo Resist DIP coating machine	01		
257.	Double sided U.V. Exposure unit	01		
258.	Proto. etch-etching machine	01		
259.	PCB Drilling machine	01		
260.	PCB Shearing machine	01		
261.	PCB Tinning machine	01		
262.	Proto Dye /develoer unit	01		
263.	Bread board with power supply	20		
264.	Sodering iron	30		
265.	Desolder pump	20		
266.	Multimeter	15		
267.	CROs	10		
268.	DC Regulated power supply 0-30 V dual	10		
Name of the Lab: Seminar Lab/Room				
269.	Well furnished seminar room	01		
270.	Desktop Computers	01		
271.	LCD Projector for presentation	01		

Note: PCs & Project Lab may be kept common for 7th & 8th semesters.

Certified by the Director/Principal