



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

## Electronics and Communication Engineering

### Laboratory Equipment – Analog and Digital Communication Laboratory

This laboratory provides all hardware and software required to design and simulation of analog and digital communications with the applications using MATLAB software. The configuration of hardware and software used are detailed as follows:

Server Configuration: Dell VOSTRO 3268, form factor: 2U Rack Server, Processor Series: Intel® Xeon® 7100 Product Family, Processor Sockets: 2, Max Memory Capacity: 4GB DDR4, Max Storage Capacity: **160TB HDD**, Supports Intel C610 series chipset, Supported Power Supplies: 495W, 750W, 1100W.

1. **Operating System:** Microsoft – Microsoft – Windows 11 & amp.
2. **Connectivity:** 1000Mbps internet and LAN connected to campus server.
4. **Laboratory Equipment:**

S. No	Item	Make	Quantity	Cost per Unit (Rs.)	Total Cost (Rs.)
1	Amplitude modulation and demodulation kits	Professional Advanced Electronics	03	1,050	3,150
2	Amplitude modulation and demodulation kits	Physitech	02	1,250	2,500
3	Amplitude modulation and demodulation kits	Physitech	07	1,838	12,866
4	Balanced modulator kits	Professional Advanced Electronics	03	1,820	5,460
5	Balanced modulator kits	Physitech	03	2,175	6,525
6	Balanced modulator kits	Physitech	06	2,656	15,936
7	Synchronous detector kits	Professional Advanced Electronics	02	2,275	4,550
8	Synchronous detector kits	Physitech	10	2,888	28,880
9	Single Sideband suppression Carrier kits	Professional Advanced Electronics	02	3,640	7,280
10	Single Sideband suppression Carrier kits	Physitech	02	4,468	8,936
11	Single Sideband suppression Carrier kits	Physitech	08	5,438	43,504
12	Frequency modulation and demodulation kits	Professional Advanced Electronics	03	1,120	3,360
13	Frequency modulation and demodulation kits	Physitech	03	1,875	3,750
14	Frequency modulation and demodulation kits	Physitech	06	2,250	15,750
15	Spectrum analyzer kit	Professional Advanced Electronics	01	77,000	77,000
16	Spectrum analyzer kit	Physitech	01	2,40,625	2,40,625
17	Pre emphasis and de emphasis	Professional Advanced	03	1,365	4,095

	kits	Electronics			
19	Pre emphasis and de emphasis kits	Physitech	04	1,343	5,375
20	Time division multiplexing kits	Professional Advanced Electronics	01	2,500	25,00
21	Time division multiplexing kits	Professional Advanced Electronics	02	2,500	5,000
22	Time division multiplexing kits	Physitech	01	2,062	2,062
23	Time division multiplexing kits	Physitech	07	2,625	18,375
24	Frequency division multiplexing kits	Physitech	04	2,350	9,400
25	Frequency division multiplexing kits	Physitech	04	4,350	17,400
26	Frequency division multiplexing kits	Physitech	04	4,350	17400
27	Pulse amplitude modulation kits	Professional Advanced Electronics	03	1,225	3,675
28	Pulse amplitude modulation kits	Physitech	01	1,375	1,375
29	Pulse amplitude modulation kits	Physitech	08	1,688	13,504
30	Pulse Width Modulation kits	Professional Advanced Electronics	03	1,225	3,675
31	Pulse Width Modulation kits	Physitech	01	1,375	1,375
32	Pulse width modulation kits	Physitech	08	1,688	13,504
33	Pulse position modulation kits	Professional Advanced Electronics	03	1,225	3,675
34	Pulse position modulation kits	Physitech	01	1,375	1,375
35	Pulse position modulation kits	Physitech	06	1,688	10,128
36	Pulse position modulation kits	Physitech	03	1,688	5,064
37	Frequency synthesizer kits	Physitech	03	2,750	8,250
38	Automatic gain control kits	Physitech	01	9,500	9,500
39	Automatic gain control kits	Physitech	05	7,125	35,625
40	Automatic gain control kits	Physitech	06	7,125	42,750
41	Phase locked loop kits	Professional Advanced Electronics	03	1,260	3,780
42	Phase locked loop kits	Professional Advanced Electronics	03	1,780	5,340
43	Radio mixer tage	Sunseas Tech	04	6,000	24,000
44	NI-Spectrum analyzer (70MHz-6GHz)	National Instrumentation	01	1,56,175	1,56,175
45	NI-Signal Generator (50MHz-2.2GHz)	National Instrumentation	01	6,15,160	6,15,160

46	Function generators (0-1MHz)	Professional Advanced Electronics	12	5,440	65,280
47	Function generators (0-1MHz)	Physitech	10	3,563	35,630
48	Function generators (0-2MHz)	Sunseas Tech	02	18,750	37,500
49	Dual DC regulated power supply (0-30V)	Physitech	03	4,800	14,400
50	Dual DC regulated power supply (0-30V)	Sunseas Tech	10	7,800	78,000
51	Dual DC regulated power supply (0-30V)	Physitech	02	2,925	5,850
52	Digital storage oscilloscope (0-25MHz)	NIVIS	05	12,500	62,500
53	Digital storage oscilloscope (0-25MHz)	Professional Advanced Electronics	09	14,625	1,31,625
54	Digital multimeter	Professional Advanced Electronics	08	1,487	11,896
55	Sampling theorem kits	Physitech	02	2,240	4,480
56	Sampling theorem kits	Physitech	03	3,200	9,600
57	Sampling theorem kits	Physitech	07	2,625	18,375
58	Pulse amplitude modulation kits	Physitech	03	1,225	3,675
59	Pulse amplitude modulation kits	Physitech	08	1,688	13,504
60	Pulse width modulation kits	Physitech	03	1,225	3,675
61	Pulse width modulation kits	Physitech	08	1,688	13,504
62	Pulse position modulation kits	Physitech	03	1,225	3,675
63	Pulse position modulation kits	Physitech	06	1,688	10,128
64	Pulse position modulation kits	Physitech	03	1,688	7,500
65	Pulse code modulation kits	Physitech	03	7,500	22,500
66	Pulse code modulation kits	Physitech	01	6,187	6,187
67	Pulse code modulation kits	Sunseas Tech	05	19,670	98,350
68	Pulse shift keying kits	Physitech	03	4,000	12,000
69	Pulse shift keying kits	Physitech	01	2,937	2,937
70	Pulse shift keying kits	Sunseas Tech	05	11,970	59,850
71	Frequency shift keying kits	Physitech	01	2,750	2,750
72	Frequency shift keying kits	Physitech	02	2,750	55,00
73	Frequency shift keying kits	Physitech	01	2,062	2,062
74	Frequency shift keying kits	Sunseas Tech	05	11,970	59,850

75	D-Phase shift keying kits	Physitech	01	4,800	4,800
76	D-Phase shift keying kits	Physitech	02	4,800	9,600
77	D-Phase shift keying kits	Physitech	01	3,312	3,312
78	D-Phase shift keying kits	Physitech	05	25,650	1,28,250
79	D-Pulse code modulation kits	Physitech	02	8,000	16,000
80	D-Pulse code modulation kits	Physitech	01	8,000	8,000
81	D-Pulse code modulation kits	Physitech	01	6,531	6,531
82	D-Pulse code modulation kits	Sunseas Tech	05	25,650	1,28,250
83	Delta modulation kits	Physitech	02	3,500	7,000
84	Delta modulation kits	Physitech	01	3,500	3,500
85	Delta modulation kits	Physitech	01	2,750	2,750
86	Delta modulation kits	Sunseas Tech	05	23,940	1,19,700
87	Amplitude shift keying kits	Physitech	01	3,093	3,093
88	Amplitude shift keying kits	Sunseas Tech	07	11,970	83,790
89	Q- Phase shift keying kits	Physitech	01	8,250	8,250
90	Q- Phase shift keying kits	Sunseas Tech	05	25,650	1,28,250
91	Q-Phase shift keying kits	Sunseas Tech	03	28,250	84,750
92	Digital TDM pulse AM&DM kits	Sunseas Tech	05	17,250	86,250
93	QAM modulation & demodulation kits	Sunseas Tech	05	24,000	1,20,000
94	RF signal generators (100KHz-150MHz)	Professional Advanced Electronics	01	10,000	10,000
95	<b>Desktop Computer Systems:</b> Vostro 3902 desktop Intel core-i3-4150 processor/4GB DDR4-500GB SATA HDD / keyboard and mouse / NO ODD / 22"Monitor	DELL	15	21,154	3,17,310
<b>Total Cost (Rs.)</b>					<b>34,89,120</b>
<b>In Words- Rupees thirty five lakh ninety eight thousand nine hundred and sixty four Only</b>					

Date:

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