G. Narayanamma Institute of Technology and Science (For Women)
(AUTONOMOUS)
Department of Electronics and Communication Engineering

Communications lab

Analog and Digital Communications Lab

About the Center

Analog and Digital Communications (ADC) Lab has a carpet area of 81.48 sq.m.. The experiments are related to Analog communication (AM, DSB-SC, SSB-SC Etc) and Digital Communication (PCM, DPCM, DM, ASK, etc.) are performed. Each table is provided with one Function generator and one CRO (Dual -Channel) along with experimental kits. The ADC lab has equipment worth Rs.13,47,339/-.

In this lab students can learn fundamental concepts of analog and digital communication systems. This lab deals with analog signal characteristics, modulation techniques (e.g., AM, FM), and their applications & Digital signal properties, encoding methods (e.g., PCM, Manchester encoding), and their advantages over analog signals . The generation, modulation, and demodulation of analog signals and the encoding, decoding, and analysis of digital signals which include details of observations and measurements made during the experiment, such as signal amplitudes, frequencies, and quality assessments.

Faculty associated with lab

S. No	Name of the faculty	Designation	Area of Research
1	Dr.M.Vijaya Lakshmi	Assoc.Prof.	Wireless Networks
2	P.Satya Narayana Goud	Asst.Prof.	Signal and Image Processing
3	C. Sridhar Babu	Asst.Prof.	Communication and Signal Processing
4	Y.Prakash	Asst.Prof.	Communication Systems

Photos

Fig: **Analog and Digital Communications (ADC) Lab**

Facilities

Center for ***Communications lab (***ADC lab) can accommodate 24 students per session in class and 10 experimental tables provided with Function generator, CRO and kit. Students can be grouped into 8 batches with 3 in each group to perform experiments.

S.No	Major Equipment in Analog and Digital Communications Lab
1	Spectrum Analyzer
2	4-channel Digital oscilloscopes
3	Computer systems
4	120 MHz Arbitrary Function Generator

Softwares: Matlab R2022B

Hardware Kits

S.No	Name	Quantity
1	30MHz Oscilloscopes	**11**
2	3MHz Function Generators with 40MHz frequency counter	4
3	3MHz Function Generators	4
4	4-Channel Digital Oscilloscopes	4
5	Spectrum Analyzer	1
6	Digital Multimeters	4
7	120MHz Arbitrary Function Generator	1
	Experimental Kits	28
8	Amplitude modulation & demodulation Kit	1
9	Amplitude modulation & demodulation Kit	1

10	DSB-SC modulation & demodulation Kit	2
11	SSB-SC modulation & demodulation Kit	1
12	SSB-SC modulation & demodulation Kit	1
13	Frequency modulation modulation & demodulation Kit	2
14	Time Division Multiplexing and De-Multiplexing kit	2
15	Sampling theorem	2
16	Pulse Position modulation & demodulation Kit	2
17	PCM modulation & demodulation Kit	2
18	DPCM modulation & demodulation Kit	2
19	Delta modulation & demodulation Kit	2
20	FSK modulation & demodulation Kit	2
21	PSK modulation & demodulation Kit	2
22	ASK modulation & demodulation Kit	2
23	QAM kit	1
24	QPSK kit	1

Details of Faculty Professional Body Memberships

S. No	Faculty Name	Membership No.						
		IEEE	ISTE	IETE	ISOI	IEI	Internet Society	OTHERS
1	Dr. M. Vijaya Lakshmi		LM33684	M177653				
2	P.Satya Narayana Goud		LM95662					
3	C. Sridhar Babu							
4	Y.Prakash			M502938				

Academic projects carried out by Student Projects during 2021-22

Batch No.	Roll No.	Title of the Project	Name of the Supervisor
1	20251A0462 20251A0476 20251A0469	A real time wireless embedded soldier electronics for security	P. Satyanarayana Goud
2	19251A04D1 19251A04G7 19251A04C5	Vehicle Over-speed Indication through GSM	C. Sridhar Babu
3	18251A04B8 18251A0467 18251A0464 18251A0487	Security System using Raspberry Pi for Home Automation	C. Sridhar Babu

4	19251A0469 19251A0480 19251A0493 19251A0494	Solar Powered Vacuum Cleaner And Wet Cleaner Robot	Dr.M.VijayaLakshmi

Best academic projects from the Center for *Communications lab(ADC)* for the academic year 2020-21

S.No.	Project Title	Roll Nos	Description
1	Wireless Messaging System For Paralysis Patients	20251A0479 (Mylarapu Nikhitha) 20251a0467(Jarpula Swetha) 21255A0410 (Maneti Keerthana) 20251A0484(Patel Adithi)	The wireless messaging system for paralysis patient's project is to design, develope, and implement an innovative communication solution that addresses the unique challenges faced by individuals with paralysis. The primary focus is to empower these patients by providing them with a reliable and user-friendly means of expressing their needs, concerns, and emergencies to caregivers and medical professionals.
1	Greenhouse Monitoring Robot	20251A0407-Chittampally Sreeja 21255A0405-Panuganti Sirisha 20251A0415-K.Chandana Lakshmi 20251A0431-A.Sri Chandarja Reddy	The Greenhouse monitoring Robot monitors the temperature, humidity, and light inside the greenhouse while moving around the green house giving more accurate measurement. Our system is Dynamic.

Outcome of the Student Academic projects (2021-2022)

Papers published/communicated

S.No	Title of the Paper	Name of the Conference/Journal	Conference Dates/Journal vol.,Issue/Doi	Status of the paper(Submitted/Accepted/Published)
1.	Wireless Messaging System for Paralysis Patients	International Journal of Wireless Communications and Networking Technologies	Vol12,Issue 6; ISSN 2319 – 6629 ,https://doi.org/10.30534/ijwcnt/2023/011262023	Published
2	Greenhouse Monitoring Robot	International Journal of Robotics and Automation in Mechanics	Volume 1, Issue 1, 2023 January–June, DOI (Journal): 10.37591/IJRAM	Published

Any other Information like News Paper clippings