NATIONAL BOARD OF ACCREDITATION

Data Capturing Points of the Program Applied for NBA Accreditation– Tier I/II UG (Engineering) Institute Programs

Program Name : Electronics & Communication Engineering	**Discipline**: Engineering & Technology
Level : Under Graduate	**Tier**: 1
Application No: 10755	**Date of Submission**: 25-06-2025

PART A- Profile of the Institute

A1.Name of the Institute: HERITAGE INSTITUTE OF TECHNOLOGY	
Year of Establishment : 2001	Location of the Institute: NEAR RUBY HOSPITAL ON EMBYEPASS
A2. Institute Address:CHOWBAGA ROAD,ANANDAPUR P.O.-EAST KOLKATA TOWNSHIP	
City:Kolkata	State:West Bengal
Pin Code:700107	Website:WWW.HERITAGEIT.EDU
Email:ADMIN@HERITAGEIT.EDU	Phone No(with STD Code):033-66270614
A3. Name and Address of the Affiliating University (if any):	
Name of the University : Maulana Abul Kalam Azad University of Technology,	City: Nadia
State : West Bengal	Pin Code: 741249
A4. Type of the Institution: Deemed University	
A5. Ownership Status: Self financing	

A6. Details of all Programs being Offered by the Institution:

- No. of UG programs: **13**
- No. of PG programs: **7**

Table No. A6.1: List of all programs offered by the Institute.

Sr.No.	Discipline	Level of program	Name of the program	Year of Start	Year of Closed	Name of The Department
1	Computer Application	PG	Master in Computer Applications	2003	--	Computer Application
2	Engineering & Technology	PG	Applied Electronics & Instrumentation Engineering	2006	--	Applied Electronics and Instrumentation Engineering
3	Engineering & Technology	UG	Applied Electronics & Instrumentation Engineering	2001	--	Applied Electronics and Instrumentation Engineering
4	Engineering & Technology	UG	Biotechnology	2002	--	Biotechnology
5	Engineering & Technology	PG	Biotechnology	2007	--	Biotechnology
6	Engineering & Technology	UG	Chemical Engineering	2002	--	Chemical Engineering
7	Engineering & Technology	UG	Civil Engineering	2011	--	Civil Engineering
8	Engineering & Technology	UG	Computer Science and Business System	2020	--	Computer Science and Business System
9	Engineering & Technology	UG	Computer Science and Engineering	2001	--	Computer Science and Engineering
10	Engineering & Technology	PG	Computer Science and Engineering	2006	--	Computer Science and Engineering

11	Engineering & Technology	UG	Computer Science and Engineering (Artificial Intelligence & Machine Learning)	2021	--	Computer Science and Engineering (Artificial Intelligence and Machine Learning)
12	Engineering & Technology	UG	Computer Science and Engineering (Data Science)	2021	--	Computer Science and Engineering (Data Science)
13	Engineering & Technology	UG	Computer Science and Engineering (Internet of Things and Cyber Security including Blockchain Technology)	2022	--	Computer Science and Engineering (Internet of Things and Cyber Security including Blockchain Technology)
14	Engineering & Technology	UG	Electrical Engineering	2012	--	Electrical Engineering
15	Engineering & Technology	UG	Electronics & Communication Engineering	2001	--	Electronics and Communication Engineering
16	Engineering & Technology	PG	Electronics & Communication Engineering	2009	--	Electronics and Communication Engineering
17	Engineering & Technology	UG	Information Technology	2001	--	Information Technology
18	Engineering & Technology	UG	Mechanical Engineering	2011	--	Mechanical Engineering
19	Engineering & Technology	PG	Renewable Energy	2016	--	Chemical Engineering
20	Engineering & Technology	PG	VLSI	2011	--	Electronics and Communication Engineering

A7. Programs to be considered for Accreditation vide this Application:

Table No. A7.1: List of programs to be considered for accreditation.

Name of the Department	Having Allied Departments	Name of the Program	Program Level
Electronics and Communication Engineering	Yes	Electronics & Communication Engineering	UG
Applied Electronics and Instrumentation Engineering	Yes	Applied Electronics & Instrumentation Engineering	UG
Biotechnology	No	Biotechnology	UG
Chemical Engineering	No	Chemical Engineering	UG

Table No. A7.2: Allied Department(s) to the Department of the program considered for accreditation as above.
Cluster ID. Name of the Department (in table no. A7.1) Name of allied Departments/Cluster (for table no. A7.1)

Allied Department/Cluster Name	Program Name	Program Level
Applied Electronics and Instrumentation Engineering	Applied Electronics & Instrumentation Engineering	PG
Applied Electronics and Instrumentation Engineering	Applied Electronics & Instrumentation Engineering	UG

PART-B: Program information

B1. Provide the Required Information for the Program Applied For:

Table No. B1: Program details.
A. List of the Programs Offered by the Department:

SR.NO.	PROGRAM NAME	PROGRAM APPLIED LEVEL	YEAR OF START / YEAR OF CLOSED	SANCTIONED INTAKE	INCREASE/DECREASE INTAKE (if any)	YEAR OF INCREASE/DECREASE	CURRENT INTAKE	YEAR OF AICTE APPROVAL	AICTE/COMPETENT AUTHORITY ARROVAL DETAILS	ACCREDITATION STATUS	FROM	TO	NO. OF TIMES PROGRAM ACCREDITE
1	Electronics & Communication Engineering	UG	2001 / --	60	Yes	2011	180	2011	Eastern/1-446417219 76/2025/E OA	Granted accreditation for 3 years for the period (specify period)	2022	2025	5

List of the Allied Departments/Cluster and Programs:

SR.NO.	ALLIED DEPARTMENT NAME	PROGRAM NAME	PROGRAM APPLIED LEVEL	YEAR OF START / YEAR OF CLOSED	SANCTIONED INTAKE	INCREASE/DECREASE INTAKE (if any)	YEAR OF INCREASE/DECREASE	CURRENT INTAKE	YEAR OF AICTE APPROVAL	AICTE/COMPETENT AUTHORITY ARROVAL DETAILS	ACCREDITATION STATUS	FROM	TO
1	Applied Electronics and Instrumentation Engineering	Applied Electronics & Instrumentation Engineering	UG	2001 / --	60	No	NA	60	2001	Eastern/1-446417219 76/2025/E OA	Granted accreditation for 3 years for the period (specify period)	2022	20
2	Applied Electronics and Instrumentation Engineering	Applied Electronics & Instrumentation Engineering	PG	2006 / --	18	No	NA	18	2006	Eastern/1-44641721976/EOA	Granted provisional accreditation for two years for the period(specify period)	2017	20

B2. Detail of Head of the Department for the program under consideration:

A. Name of the HoD :	Prof.(Dr.) Prabir Banerjee (HOD)
B. Nature of appointment:	Regular
C. Qualification:	Ph.D

B3. Program Details

Table No.B3.1: Admission details for the program excluding those admitted through multiple entry and exit points.

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	2024-25 (CAY)	2023-24 (CAYm1)	2022-23 (CAYm2)	2021-22 (CAYm3)	2020-21 (CAYm4)	2019-20 (CAYm5)	2018-19 (CAYm6)

N=Sanctioned intake of the program (as per AICTE /Competent authority)	180	180	180	180	180	180	180
N1=Total no. of students admitted in the 1st year minus the no. of students, who migrated to other programs/ institutions plus no. of students, who migrated to this program	160	176	161	153	177	176	179
N2=Number of students admitted in 2nd year in the same batch via lateral entry including leftover seats	0	21	36	49	19	22	17
N3=Separate division if any	0	0	0	0	0	0	0
N4=Total no. of students admitted in the 1st year via all supernumerary quotas	8	9	8	8	8	8	9
Total number of students admitted in the program (N1 + N2 + N3 + N4) - excluding those admitted through multiple entry and exit points.	168	206	205	210	204	206	205

CAY= Current Academic Year. CAYm1= Current Academic Year Minus 1 CAYm2= Current Academic Year Minus 2. LYG= Last Year Graduate. LYGm1= Last Year Graduate Minus 1. LYGm2= Last Year Graduate Minus 2.

B4. Enrolment Ratio in the First Year

Table No. B4.1: Student enrolment ratio in the 1st year.

Year of entry	N (From Table 4.1)	N1 (From Table 4.1)	N4 (From Table 4.1)	Enrollment Ratio [(N1/N)*100]
2024-25 (CAY)	180	160	8	93.33
2023-24 (CAYm1)	180	176	9	102.78
2022-23 (CAYm2)	180	161	8	93.89

Average [(ER1 + ER2 + ER3) / 3] = 96.67≡ 20.00

B5. Success Rate of the Students in the Stipulated Period of the Program

Table No.B5.1: The success rate in the stipulated period of a program.

Item	(2020-21) LYG	(2019-20) LYGm1	(2018-19) LYGm2
A*= (No. of students admitted in the 1st year of that batch and those actually admitted in the 2nd year via lateral entry, plus the number of students admitted through multiple entry (if any) and separate division if applicable, minus the number of students who exited through multiple entry (if any).	204.00	206.00	205.00
B=No. of students who graduated from the program in the stipulated course duration	204.00	206.00	187.00
Success Rate (SR)= (B/A) * 100	100.00	100.00	91.22

Average SR of three batches ((SR_1+ SR_2+ SR_3)/3): 97.07

B6. Academic Performance of the First-Year Students of the Program

Table No.B6.1: Academic Performance of the First-Year Students of the Program.

Academic Performance	CAYm1(2023-24)	CAYm2(2022-23)	CAYm3 (2021-22)
Mean of CGPA or mean percentage of all successful students(X)	8.00	7.23	7.90
Y=Total no. of successful students	183.00	163.00	150.00
Z=Total no. of students appeared in the examination	183.00	163.00	150.00
API [X*(Y/Z)]	8.00	7.23	7.90

Average API[(AP1+AP2+AP3)/3] : 7.71

B7: Academic Performance of the Second Year Students of the Program

Table No.B7.1: Academic Performance of the Second Year Students of the Program.

Academic Performance	CAYm1 (2023-24)	CAYm2 (2022-23)	CAYm3 (2021-22)
X=(Mean of 2nd year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 2rd year/10)	7.50	6.90	8.38
Y=Total no. of successful students	193.00	189.00	201.00
Z=Total no. of students appeared in the examination	199.00	199.00	201.00
API [X * (Y/Z)]	7.27	6.55	8.38

Average API [(AP1 + AP2 + AP3)/3] : 7.40

B8. Academic Performance of the Third Year Students of the Program

Table No.B8.1: Academic Performance of the Third Year Students of the Program

Academic Performance	CAYm1 (2023-24)	CAYm2 (2022-23)	CAYm3 (2021-22)
X=(Mean of 3rd year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 3rd year/10)	7.96	7.90	8.46
Y=Total no. of successful students	188.00	201.00	197.00
Z=Total no. of students appeared in the examination	189.00	201.00	197.00
API [X*(Y/Z)]:	7.92	7.90	8.46

Average API [(AP1 + AP2 + AP3)/3] : 8.09

B9. Placement, Higher Studies, and Entrepreneurship

Table No.B9.1: Placement, higher studies, and entrepreneurship details.

Item	LYG (2020-21)	LYGm1(2019-20)	LYGm2(2018-19)
FS*=Total no. of final year students	204.00	206.00	197.00
X=No. of students placed	145.00	173.00	146.00
Y=No. of students admitted to higher studies	8.00	12.00	6.00
Z= No. of students taking up entrepreneurship	1.00	1.00	1.00
Placement Index(P) = (((X + Y + Z)/FS) * 100):	75.49	90.29	77.66

Average Placement Index = (P_1 + P_2 + P_3)/3: 81.15 Placement Index Points:

PART C: Faculty Details in Department and Allied Departments

(Data to be filled in for the Department and Allied Departments)

C1. Faculty details of Department and Allied Departments

Table No.C1: Faculty details in the Department for the past 3 years including CAY

Sr.No	Name of the Faculty	PAN No.	Highest degree	University	Area of Specialization	Date of Joining in this Institution	Experience in years in current institute	Designation at Time Joining in this Institution	Present Designation	The date on which Designated as Professor/ Associate Professor if any	Nature of Association (Regular/ Contract/ Ad hoc)	Currently Associated (Y/N)	In case of NO, Date of Leaving	IS HOD?

1	Prof.(Dr.) Prabir Banerjee (HOD)	XXXXXXX03F	Ph.D	JU	Ad hoc wireless networks, MIMO & 6G networks,	07/07/2008	16.10	Assistant Professor	Professor	05/08/2014	Regular	Yes		Yes
2	Prof. (Dr.) Anindya Sen	XXXXXXX01F	Ph.D	Univ. of Minnesota	Image processing ,Machine Learning, Embedded System, Microcontroller, Adhoc Network security	01/07/2014	10.11	Associate Professor	Professor	01/07/2017	Regular	Yes		No
3	Prof. Krishanu Datta	XXXXXXX49Q	M.Tech	IIT, KGP	Embedded memory design, Advance process Technology	01/09/2011	13.9	Associate Professor	Associate Professor		Regular	Yes		No
4	Prof. (Dr.) Shounak Dasgupta	XXXXXXX03A	Ph.D	JU	Communication system , Artificial intelligence	01/07/2014	10.11	Assistant Professor	Associate Professor	01/07/2017	Regular	Yes		No
5	Prof. (Dr.)Atanu Kundu	XXXXXXX71D	Ph.D	JU	Electronic Devices and Circuits	01/08/2007	17.10	Lecturer	Associate Professor	01/06/2021	Regular	Yes		No
6	Prof. (Dr.) Mousiki Kar	XXXXXXX47A	Ph.D	JU	Control System and electronic circuits	22/07/2008	16.10	Lecturer	Associate Professor	01/06/2021	Regular	Yes		No
7	Prof. (Dr.)Asima Adak	XXXXXXX96M	Ph.D	JU	Communication systems and digital logics	01/08/2007	17.10	Lecturer	Assistant Professor		Regular	Yes		No
8	Prof. (Dr.) Chandrima Roy	XXXXXXX87Q	Ph.D	JU	Control System , Cognitive neuro science	13/01/2012	13.4	Assistant Professor	Assistant Professor		Regular	Yes		No
9	Prof. (Dr.) Dulal Mandal	XXXXXXX05A	Ph.D	JU	Signal and image processing	11/07/2003	21.10	Lecturer	Assistant Professor		Regular	Yes		No
10	Prof.(Dr.) Kasturi Mukherjee	XXXXXXX59H	Ph.D	CU	Electronic devices and VLSI systems	15/07/2013	11.10	Assistant Professor	Assistant Professor		Regular	Yes		No
11	Prof.(Dr.) Prativa Agarwalla	XXXXXXX10N	Ph.D	CU	Control System , Computational Intelligence	13/07/2012	12.10	Assistant Professor	Assistant Professor		Regular	Yes		No
12	Prof.(Dr.) Sabyasachi Chatterjee	XXXXXXX17E	Ph.D	JU	Wireless communication and Digital system and Control system	01/01/2013	12.5	Assistant Professor	Assistant Professor		Regular	Yes		No
13	Prof. (Dr.) Sayantani Datta	XXXXXXX99K	Ph.D	CU	Communication systems and RF circuits	01/09/2004	20.9	Lecturer	Assistant Professor		Regular	Yes		No

14	Prof. (Dr.) Shib Sankar Bhowmick	XXXXXXX27R	Ph.D	JU	Machine Learning & Data analysis , Electronic Circuit and Systems	25/10/2010	14.7	Lecturer	Assistant Professor		Regular	Yes		No
15	Prof. (Dr.) Soumyo Chatterjee	XXXXXXX20N	Ph.D	JU	RF & microwave device modelling, Evolutionary algorithm	03/08/2007	17.10	Lecturer	Assistant Professor		Regular	Yes		No
16	Prof. (Dr.) Srabanti Pandit	XXXXXXX55A	Ph.D	JU	Nano scale CMOS Device, VLSI Design, Digital System	18/02/2013	12.3	Assistant Professor	Assistant Professor		Regular	Yes		No
17	Prof. (Dr.) Sriparna Bhattacharya	XXXXXXX75F	Ph.D	JU	Digital System, Antenna design, Communication system	04/07/2002	22.11	Lecturer	Assistant Professor		Regular	Yes		No
18	Prof. (Dr.) Susovan Mandal	XXXXXXX52C	Ph.D	JU	Analog Circuits, Microwave Engineering, Optics & photonics	01/09/2010	14.9	Lecturer	Assistant Professor		Regular	Yes		No
19	Prof. (Dr.) Tania Das	XXXXXXX52C	Ph.D	CU	Photonics, Optical metrology, EM biosensor, Microwave systems	01/08/2013	11.10	Assistant Professor	Assistant Professor		Regular	Yes		No
20	Prof. (Dr.) Tapas Chakraborty	XXXXXXX39G	Ph.D	JU	Microelectronics & Solar cell devices , Electronics Circuits & Systems	10/01/2012	13.4	Assistant Professor	Assistant Professor		Regular	Yes		No
21	Prof. Amrita Banerjee	XXXXXXX51H	M.Tech	CU	Nanoscale memory devices, VLSI systems	15/07/2013	11.10	Assistant Professor	Assistant Professor		Regular	Yes		No
22	Prof. Ananya Chattopadhyay	XXXXXXX46P	M.Tech	NIT, DGP	Wireless Communication , Digital Systems	10/07/2017	7.10	Assistant Professor	Assistant Professor		Regular	Yes		No
23	Prof. Arindam Ray	XXXXXXX96C	M.Tech	CU	Analog and Digital Circuits	16/02/2004	21.1	Lecturer	Assistant Professor		Regular	No	09/04/2025	No
24	Prof. Debamita Roy	XXXXXXX19A	M.Tech	CU	Solar Cell, VLSI Circuits	25/07/2016	8.10	Assistant Professor	Assistant Professor		Regular	Yes		No
25	Prof. Md. Shahnawaz	XXXXXXX48M	M.E.	JU	Devices & Circuits , Signal Processing	09/08/2010	14.9	Lecturer	Assistant Professor		Regular	Yes		No

26	Prof. Pratima Shaw	XXXXXXX26L	M.Tech	NIT, DGP	Wireless Communication , Digital Systems	24/07/2017	7.10	Assistant Professor	Assistant Professor		Regular	Yes		No
27	Prof. Rajib Ranjan Pal	XXXXXXX28J	M.Tech	CU	Electronic Devices & Circuits, RF & microwave device modelling	12/01/2011	14.4	Lecturer	Assistant Professor		Regular	Yes		No
28	Prof. Subhrajit Chakraborty	XXXXXXX58E	M.Tech	JU	Devices & Circuits	02/09/2008	16.9	Lecturer	Assistant Professor		Regular	Yes		No
29	Prof. Orijit Biswas	XXXXXXX48G	M.Tech	WBUT	VLSI Devices	07/09/2012	12.8	Assistant Professor	Assistant Professor		Regular	Yes		No
30	Prof. Rudranath Mitra	XXXXXXX69N	M.Tech	WBUT	Computer Science	31/01/2007	16.4	Lecturer	Assistant Professor		Regular	No	10/06/2023	No
31	Prof. Debanjali Sadhu	XXXXXXX51K	M.Tech	NIT, DGP	Leaky Wave antenna, Signal processing, Wireless Communication	01/08/2012	12.10	Assistant Professor	Assistant Professor		Regular	Yes		No

Table No.C2: Faculty details of Allied Departments for the past 3 years including CAY.

Sr.No	Name of the Faculty	PAN No.	APAAR faculty ID*(if any)	Highest degree	University	Area of Specialization	Date of Joining in this Institution	Experience in years in current institute	Designation at Time Joining in this Institution	Present Designation	The date on which Designated as Professor/ Associate Professor if any	Nature of Association (Regular/ Contract/ Ad hoc)	Currently Associated (Y/N)	In case of NO, Date of Leaving	IS HOD?
1	Prof. (Dr.) Madhurima Chattopadhyay	XXXXXXX27B	NA	Ph.D	IISc, Bengaluru	Smart sensors, Medical Instrumentation, BLDC Drives	01/06/2011	14	Professor	Professor		Regular	Yes		Yes
2	Prof. (Dr.) Santanu Ghorai	XXXXXXX83H	NA	Ph.D	IIT, KGP	SignalProcessing,Machine learning, Image Processing	19/07/2011	13.10	Associate Professor	Professor	01/07/2017	Regular	Yes		No
3	Prof. (Dr.) Surajit Bagchi	XXXXXXX66F	NA	Ph.D	IIT(ISM), Dhanbad	BiomedicalInstrumentation	10/07/2003	21.10	Assistant Professor	Associate Professor	01/09/2005	Regular	Yes		No
4	Prof. (Dr.) Arabinda Kumar Pal	XXXXXXX43L	NA	Ph.D	Jadavpur University	Process Control,Soft Computing	09/08/2004	20.9	Assistant Professor	Associate Professor	01/03/2006	Regular	Yes		No
5	Dr. Soumik Das	XXXXXXX97D	NA	Ph.D	JU	Analog SignalProcessing	25/08/2005	19.9	Assistant Professor	Assistant Professor		Regular	Yes		No
6	Dr. Pradip Saha	XXXXXXX96H	NA	Ph.D	JU	SignalProcessing & Machine learning	27/08/2005	19.9	Assistant Professor	Assistant Professor		Regular	Yes		No
7	Indrajit Naskar	XXXXXXX08L	NA	M.Tech	MAKAUT	Soft Computing	11/02/2006	19.3	Assistant Professor	Assistant Professor		Regular	Yes		No

8	Reshma Sengupta	XXXXXXX91F	NA	M.Tech	CU	Instrumentation & Control	01/08/2007	17.10	Assistant Professor	Assistant Professor		Regular	Yes		No
9	Arindam Sarkar	XXXXXXX48R	NA	M.Tech	MAKAUT	Applied Electronics & Instrumentation	18/02/2008	17.3	Assistant Professor	Assistant Professor		Regular	Yes		No
10	Dr.Samiul Alam	XXXXXXX60B	NA	Ph.D	CU	Biomedical Signal Processing	21/02/2008	17.3	Assistant Professor	Assistant Professor		Regular	Yes		No
11	Damayanti Ghosh	XXXXXXX90R	NA	M.Tech	CU	Instrumentation & Control	11/01/2010	15.4	Assistant Professor	Assistant Professor		Regular	Yes		No
12	Dr.Samik Chakraborty	XXXXXXX29P	NA	Ph.D	CU	Biomedical Signal Processing	19/02/2010	15.3	Assistant Professor	Assistant Professor		Regular	Yes		No
13	Dr.Anil Kumar Bag	XXXXXXX56L	NA	Ph.D	JU	Process Control & Instrumentation	17/04/2015	10.1	Assistant Professor	Assistant Professor		Regular	Yes		No
14	Dr.Debjyoti Chowdhury	XXXXXXX64N	NA	Ph.D	MAKAUT	Micro sensor& Embedded System	13/01/2016	9.4	Assistant Professor	Assistant Professor		Regular	Yes		No

C2. Student-Faculty Ratio (SFR)

No. of UG(Engineering) programs in Department including allied departments/ clusters (UGn):
UG1=1st UG program
UGn=nth UG program
B= No. of Students in UG 2nd year (ST)
C= No. of Students in UG 3rd year (ST)
D= No. of Students in UG 4th year (ST)
No. of PG (Engineering) programs in Department including allied departments/ clusters (PGm):
PG1=1st PG program.
PGm=mth PG program
A= No. of Students in PG 1st year
B= No. of Students in PG 2nd year
Student Faculty Ratio **(SFR)** = S/F
S= No. of students of all programs in the Department including all students of allied departments/clusters.
No. of students (ST)=Sanctioned Intake (SA)+ Actual admitted students via lateral entry including leftover seats (L) if any (limited to 10 % of SA)
Students who admitted under supernumerary quotas (SNQ, EWS, etc) will not be considered in calculating SFR value. Those students are exempted.
F=Total no. of regular or contractual faculty members (Full Time) in the Department, including allied departments/clusters (excluding first year faculty (The faculty members who have a 100% teaching load in the first-year courses)).

No. of UG Programs in the Department1 No. of PG Programs in the Department3

Table No.C2.1: Student-faculty ratio.

Description	**CAY(2024-25)**	**CAYm1 (2023-24)**	**CAYm2 (2022-23)**
UG1.B	198	198	198
UG1.C	198	198	198
UG1.D	198	198	198
UG1: Electronics & Communication Engineering	**594**	**594**	**594**
UG2.B	66	66	63
UG2.C	66	63	63
UG2.D	63	63	66
UG2: Applied Electronics & Instrumentation Engineering	**195**	**192**	**192**
PG1.A	18	18	18

Description	CAY(2024-25)	CAYm1 (2023-24)	CAYm2 (2022-23)
PG1.B	18	18	18
PG1: Applied Electronics & Instrumentation Engineering	**36**	**36**	**36**
PG2.A	18	18	18
PG2.B	18	18	18
PG2: Electronics & Communication Engineering	**36**	**36**	**36**
PG3.A	18	18	18
PG3.B	18	18	18
PG3: VLSI	**36**	**36**	**36**
DS=Total no. of students in all UG and PG programs in the Department	666	666	666
AS=Total no. of students of all UG and PG programs in allied departments	231	228	228
S=Total no. of students in the Department (DS) and allied departments (AS)	**S1=** 897	**S2=** 894	**S3=** 894
DF=Total no. of faculty members in the Department	29	30	31
AF= Total no. of faculty members in the allied Departments	14	14	14
F=Total no. of faculty members in the Department (DF) and allied Departments (AF)	**F1=** 43	**F2=** 44	**F3=** 45
FF=The faculty members in F who have a 100% teaching load in the first-year courses	0	0	0
Student Faculty Ratio (SFR)=S/(F-FF)	**SFR1= 20.86**	**SFR2= 20.32**	**SFR3= 19.87**
Average SFR for 3 years	**SFR= 20.35**		

C3. Faculty Qualification

- Faculty qualification index (FQI) = 2.5 * [(10X +4Y)/RF] where
- X=No. of faculty members with Ph.D. degree or equivalent as per AICTE/UGC norms.
- Y=No. of faculty members with M. Tech. or ME degree or equivalent as per AICTE/ UGC norms.
- RF=No. of required faculty in the Department including allied Departments to adhere to the 20:1 Student-Faculty ratio, with calculations based on both student numbers and faculty requirements as per section C2 of this documents: (RF=S/20).

Table No.C3.1: Faculty qualification.

Year	X	Y	RF	FQ = 2.5 x [(10X + 4Y) / RF)]
2024-25(CAY)	29	14	41.00	21.10
2023-24(CAYm1)	26	18	41.00	20.24
2022-23(CAYm2)	24	21	41.00	19.76

C4. Faculty Cadre Proportion

- Faculty Cadre Proportion is 1(RF1): 2(RF2): 6(RF3)
- RF1= No. of Professors required = 1/9 * No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per C2 of this documents:.
- RF2= No. of Associate Professors required = 2/9 * No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents:.
- RF3= No. of Assistant Professors required = 6/9 * No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents:.
- Faculty cadre and qualification and experience should be as per AICTE/UGC norms.

Table No.C4.1: Faculty cadre proportion details.

Year	Professors		Associate Professors		Assistant Professors	
	Required RF1	Available AF1	Required RF2	Available AF1	Required RF3	Available AF3
2024-25	4.00	4.00	9.00	5.00	27.00	34.00
2023-24	4.00	4.00	9.00	5.00	27.00	35.00
2022-23	4.00	4.00	9.00	5.00	27.00	36.00
Average	RF1=4.00	AF1=4.00	RF2=9.00	AF2=5.00	RF2=27.00	AF2=35.00

C5. Visiting/Adjunct Faculty/Professor of Practice

Table No. C5.1: List of visiting/adjunct faculty/professor of practice and their teaching and practical loads.

(CAYm1)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Dr. Sayantan Dhar	Architect	Bosch India	Microwave Engineering [ECE 3103]	4.00
2	Mr. Kunal Ghosh	Director and Co-Founder	VLSI System Design (VSD) in Bangalore	Digital VLSI Design [ECEN3201]	10.00
3	Prof. (Dr.) Somak Bhattacharyya	Associate Professor	Department of Electronics Engineering, Indian Institute of Technology (BHU), Varanasi.	EM Theory & Transmission Lines [ECEN2203]	2.00
4	Dr. Satyajit Chakraborty	Scientist-E	SAMEER , Kolkata	Microwave Engineering [ECEN3103]	6.00
5	Manish Sood, Ayan Paul, Habibur Rahman 4. Abhisekh Banerjee	SDE & AGM	Bharat Sanchar Nigam Limited , Kolkata	Cellular Communication [ECEN4125]	4.00
6	Mr. Rajshekhar Chatterjee	Program Manager, managing Cisco's largest 5G Deployment.	Cisco Systems Inc US, in Bellevue, Washington, USA	Cellular Communication [ECEN4125]	2.00
7	Prof. Durga Misra	Professor and Chair at the Department of Electrical and Computer Engineering	New Jersey Institute of Technology, Newark, USA	VLSI design [ECEN4145]	2.00
8	Mr Akash Roy	Researcher, Micro Electromechanical Systems (MEMS) Lab	University of Southern California in Los Angeles	VLSI design [ECEN 4145]	2.00

(CAYm2)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Mr. Anindya Bhunia	Digital Design Engineer	Intel Technology India Pvt. Limited	Digital VLSI Design [ECEN3201]	2.00
2	Mr. Bhaskar Debnath	R&D ENGINEER II	Synopsys India Pvt Limited.	Digital VLSI Design [ECEN3201]	2.00
3	Mr. Koushik Nath	Security Architect	Cisco Systems (India) Private Limited	Computer Networks [ECEN3132]	4.00
4	Ms. Baisakhi Bandyopadhyay	Researcher	IIT Kanpur	Microwave Engineering [ECEN3103]	32.00
5	Dr. Arijit Majumder	Scientist-E	SAMEER, Kolkata	Microwave Engineering [ECEN3103]	3.00
6	Dr. Paramita Biswas	Scientist	SAMEER, Kolkata	Microwave Engineering [ECEN3103]	4.00
7	Dr. Arijit Majumder	Scientist-E	SAMEER, Kolkata	Wireless and Cellular Communication [ECEN3211]	2.00
8	Mr. Joy Prakash Dey	Sr. Android Developer	Intelligent App Solutions	Wireless and Cellular Communication [ECEN3211]	15.00

(CAYm3)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Prof. Durga Mishra	Professor and Chair in the Department of Electrical and Computer Engineering	New Jersey Institute of Technology, Newark, USA	Electronic Devices [ECEN2204]	2.00
2	Prof. Hiroshi Iwai	Prof. Emeritus	Tokyo Institute of Technology, Japan.	Electronic Devices [ECEN2204]	2.00
3	Prof. Souvik Mahapatra	Professor	Department of Electrical Engineering, IIT Bombay, India	Digital VLSI Design [ECEN3201]	2.00
4	Dr. Bibhu Prasad Nayak	Senior Architect	Bosch India	IoT for Communication [ECEN3232]	2.00
5	Mr. Debraj Sengupta	Staff Engineer	Synaptics India Pvt. Ltd	Digital VLSI Design [ECEN3201]	2.00
6	Dr. Sayantan Dhar	Architect	Bosch India	IoT for Communication [ECEN3232]	2.00

C6. Academic Research

Table No. C6.1: Faculty publication details.

S.No.	Item	2023-24 (CAYm1)	2022-23 (CAYm2)	2021-22 (CAYm3)
1	No. of peer reviewed journal papers published	17	22	10
2	No. of peer reviewed conference papers published	20	13	2
3	No. of books/book chapters published	1	0	0

C7. Sponsored Research Project

Table No. C7.1: List of sponsored research projects received from external agencies.

(CAYm1)

(CAYm2)

(CAYm3)

Total Amount (Lacs) Received for the Past 3 Years: NIL

Note*:

- Only sponsored research projects will be considered. Infrastructure-based projects will not be considered here.

C8. Consultancy Work

Table No. C8.1: List of consultancy projects received from external agencies.

(CAYm1)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25
Prof. Krishanu Datta	NIL	ECE	Physical IP Development – Circuit Design and Memory	DXCorr Hardware Technologies Pvt. Ltd.	1 year	36.30
Prof. Soumyo Chatterjee	NIL	ECE	Design and development of test fixture for SMD components and CMC	BOSCH Bangalore	1 year	4.09
						Amount received (Rs.):40.39

(CAYm2)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25
Prof. Krishanu Datta	NIL	ECE	Physical IP Development – Circuit Design and Memory	DXCorr Hardware Technologies Pvt. Ltd	1 year	26.25
						Amount received (Rs.):26.25

(CAYm3)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25
Prof. Krishanu Datta	NIL	ECE	Physical IP Development – Circuit Design and Memory	DXCorr Hardware Technologies Pvt. Ltd	1 year	22.70
						Amount received (Rs.):22.70

Total amount (Lacs) received for the past 3 years: 89.34

Note*:

- Only consultancy projects will be considered. Infrastructure-based projects will not be considered here.

C9. Institution Seed Money or Internal Research Grant to its Faculty for Research Work

Table No. C9.1: List of faculty members received seed money or internal research grant from the Institution.

(CAYm1)

Faculty name	Project title/ Support for Activity	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25	Amount Utilized(Lacs) i.e. 15,25,000=15.25	Outcomes of the project
Prof. Soumyo Chatterjee	Development of test facility for microwave components	6 months	6.37	6.37	VNA has been purchased and successfully utilized for measurement of rf and microwave components working in the ISM band.
			Amount received (Rs.): 6.37		

(CAYm2)

Faculty name	Project title/ Support for Activity	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25	Amount Utilized(Lacs) i.e. 15,25,000=15.25	Outcomes of the project
Prof. Soumyo Chatterjee	Development of transmission line trainer kit	6 months	0.12	0.12	A fully functional trainer kit has been developed. The kit has been in use since Feb. 2024 for UG Lab.
			Amount received (Rs.): 0.12		

(CAYm3)

Faculty name	Project title/ Support for Activity	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25	Amount Utilized(Lacs) i.e. 15,25,000=15.25	Outcomes of the project
NIL	NIL	NIL	0.00	0.00	NA
			Amount received (Rs.): 0.00		

Total amount (Lacs) received for the past 3 years : 6.49

PART D: Laboratory Infrastructure in the Department

(Data to be filled in for the Department)

D1. Adequate and Well-Equipped Laboratories, and Technical Manpower

Table No.D1.1: List of laboratories and technical manpower.

Sr. No	Name of the Laboratory	Number of students per set up(Batch Size)	Name of the Important Equipment	Weekly utilization status(all the courses for which the lab is utilized)	Technical Manpower Support		
					Name of the Technical staff	Designation	Qualification
1	Introduction to Electronic Devices and Circuits Laboratory	3	● DSO ● Power Supply ● Function Generator	14*2=28 odc	Ms. Simantani Mandal	TA	Diploma in ETCE
2	Analog Circuits Laboratory	3	● DSO, ● Function Generator, ● Power Supply ● Arbitrary Function Generator	6*2=12 odd se	Mr. Sushanta Mondal	TA	Diploma in ETCE
3	Signals and Networks Laboratory	1	● Desktop Computer, ● Octave, ● P-Spice ● Python 3.13.3	6*2=12 odd se	Mr. Partha Sarathi Das	TA	Diploma in ETCE

4	Control Systems Laboratory	1	● Desktop Computer, ● Octave, ● P-Spice ● Python 3.13.3	6*2=12 odd se	Mrs. Rubi Pal	TA	Diploma in ETCE
5	Introduction to Machine Learning using Python	1	● Desktop Computer, ● Octave, ● P-Spice ● Python 3.13.3	6*2=12 even s	Mr. Partha Sarathi Das	TA	Diploma in ETCE
6	Design Thinking & Idea Lab	3	● Desktop computer ● DSO ● Function Generator ● Arduino boards with different sensor	6*2=12 odd se	Mrs. Madhabi Samanta	Sr. TA	Diploma in ETCE
7	Mobile Communication and Networks	3	● Desktop computer ● DSO ● Function Generator● Power Supply ● FSO Setup ●	6*2=12 odd se	Mrs. Madhabi Samanta	Sr. TA	Diploma in ETCE
8	Simulation lab of Introduction to Analog & Digital Communication Laboratory	3	● Desktop computer ● DSO ● Function Generator ● Power Supply ● FSO Setup ●	6*2=12 even	Mrs. Madhabi Samanta	Sr. TA	Diploma in ETCE
9	Simulation lab of EM Theory & Transmission Lines Laboratory	3	● Desktop computer ● Arduino boards with different sensor modules ● Python ● HFSS 2024	6*2=12 even	Mrs. Madhabi Samanta	Sr. TA	Diploma in ETCE
10	Digital System Design Laboratory	3	● Digital Trainer Kit ● Digital IC tester ● Digital logic probe	14*2=28 odd s	Mrs. Mousumi Samanta	TA	Diploma in ETCE
11	EM Theory & Transmission Lines Laboratory	3	● Antenna Trainer Kit with & without Stepper motor ● Basic Transmission Line Trainer Kit, ●	6*2=12 even	Mrs. Debjani Paul	TA	Diploma in ETCE
12	Microwave Engineering Laboratory	3	● Antenna Trainer Kit with & without Stepper motor ● Basic Transmission Line Trainer Kit, ●	6*2=12 odd	Mrs. Debjani Paul	TA	Diploma in ETCE
13	Microelectronic Devices and Analog VLSI design Laboratory	1	● Desktop Computer, ● Mentor Graphics HEP-1 ● Desktop Computer, ● Mentor Graphics	6*2=12 odd	Mrs. Sumana Chowdhu	TA	Diploma in ETCE
14	Digital VLSI Design Laboratory	1	● Desktop Computer, ● Mentor Graphics HEP-1 ● Desktop Computer, ● Mentor Graphics	6*2=12 even	Mr. Pritam Sahu	Sr.TA	Diploma in ETCE
15	Digital Signal Processing Laboratory	1	● Desktop Computer, ● Mentor Graphics HEP-1 ● Desktop Computer, ● Mentor Graphics	6*2=12 even	Mrs. Rubi Pal	TA	Diploma in ETCE
16	Fundamental System Design and Development Laboratory	3	● DSO, ● Function Generator, ● Spectrum Analyser, ● Power Supply, ● Arbitrary	10*2=20 even	Mrs. Aditi Roy	Sr.TA	Diploma in ETCE
17	Introduction to Analog & Digital Communication Laboratory	3	● DSO, ● Function Generator, ● Spectrum Analyser, ● Power Supply, ● Arbitrary	6*2=12 even	Mrs. Aditi Roy	Sr.TA	Diploma in ETCE
18	Digital System Design Laboratory	3	● DSO, Power Supply, Digital Trainer Kit	6*2=12 odd	Mrs. Aditi Roy	Sr.TA	Diploma in ETCE

D2. Safety Measures in Laboratories

Table No. D2.1: List of various safety measures in laboratories.

Sr. No	Laboratory Name	Safety Measures

1	Introduction to Electronic Devices and Circuits Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
2	Analog Circuits Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
3	Introduction to Analog & Digital Communication Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
4	Signals and Networks Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
5	Control Systems Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
6	Digital Signal Processing Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
7	Design Thinking & Idea Lab	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
8	Mobile Communication and Networks Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
9	Digital System Design Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
10	EM Theory & Transmission Lines Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
11	Microwave Engineering Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.

12	Analog VLSI Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
13	Digital VLSI Design Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
14	Fundamental System Design and Development Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.
15	Introduction to Machine Learning using Python Laboratory	✓ First Aid: A well-stocked first aid kit is available in every lab and regularly monitored for expiry and replenishment. ✓ Fire Safety: Fire extinguishers are installed outside all labs and are serviced regularly. ✓ Electrical Safety: All workbenches and instruments are grounded properly. MCBs, fuses, and ELCBs are installed to prevent electrical hazards. ✓ General Awareness: Safety instructions (Dos & Don'ts) are displayed prominently. Students are briefed on lab safety at the beginning of every semester.

D3. Project Laboratory/Research Laboratory

S.N.	Name of the Laboratory
1.	Project laboratory
2.	Centre of Excellence

To foster innovation, technical competency, and research aptitude among students, the Department of Electronics and Communication Engineering has dedicated Project Laboratories and a Centre of Excellence (CoE). These facilities go beyond the regular curriculum and provide a robust ecosystem for hands-on experimentation, advanced design, interdisciplinary collaboration, and problem-solving.

The infrastructure supports undergraduate project work, faculty-led research, industry-linked innovation, and student-led initiatives in emerging areas such as IoT, VLSI, Embedded Systems, Wireless Communication and AI in ECE. These facilities are well-equipped with modern tools, simulation software and test equipment that enable students and faculty to engage in high-quality design, prototyping, and validation activities.

1. Project laboratory

The Project Laboratory serves as a dedicated space for fostering creativity, innovation, and practical implementation of theoretical knowledge among undergraduate students of the Electronics and Communication Engineering department. It plays a crucial role in facilitating the execution of final-year and pre-final-year design projects, encouraging students to address real-world engineering problems using core domain knowledge and modern tools.

Equipped with standard and advanced instruments, the Project Lab enables students to carry out circuit design, simulation, testing, and validation activities in areas such as embedded systems, wireless communication, IoT, and VLSI. The lab is accessible beyond class hours, providing an open and collaborative environment for students to pursue hands-on experimentation, interdisciplinary research, and mentor-guided project development. It significantly contributes to the attainment of Program Outcomes (POs) and Program Specific Outcomes (PSOs), particularly in the areas of engineering design, teamwork, tool usage, and life-long learning.

A. Utilization of Project Laboratory

Project lab is equipped with both standard and high-end instruments to support a wide range of experimental and simulation activities.

Major Equipment and Their Utilization Status:

Equipment with detail specification	Utilization
Radio Frequency Transceiver module numbered SCT2400EVM- make : CML	It provides the same kit facility for testing transmitter and receiver parameters. It supports both analog and digital modes. It is a very valuable addition to the project lab/wireless communication lab. The students and researchers are able to study the parameters of a radio. It helps to check the matching of the physical antenna with the help of the Bird power meter. In receive mode, the SNR, fidelity, audio distortion - all can be measured with the existing instruments. The transceiver kit will support development of wireless applications and design of various types of antenna in combination with the RF power meter. A Dual- Tone-Multi- Frequency (DTMF) based wireless system has been designed and tested for remote control of ac-mains operated appliances to stop wastage of electric power.

RFID readers and writers **(Specification).**	The cards are programmed for various applications. The frequency used is 13.56 MHz, The students are given different identification/access control/authentication projects based on this system.
Digital Storage Oscilloscope (70 MHz,1GSa/s) (70 MHz,2GSa/s) (100 MHz,1GSa/s)	Used for time-domain signal analysis and debugging circuit responses. Higher sample rated DSO offers better resolution in time domain. Ideal for observing transient signals and waveform edges more precisely.
Power Supply 0-5 V/5 Amp. 0-30 V/2Amp +/- 15 V/1 Amp	Essential for operating electronic circuits during prototyping and testing.
Radio Frequency Generator	Used to test and design radio systems, especially in the ISM 2.4 GHz band.
Arbitrary Function Generator	For generating standard and custom waveforms for testing circuits, enabling precise signal simulation in communications and embedded systems. It supports modulation (AM/FM/PWM), high-frequency outputs, and user-defined waveforms for advanced applications.
APSIN3000 RF Signal Generator	for advanced measurements and validations related to RF, antenna design, and system diagnostics
BIRD 43 RF Power Meter (30-300MHz)	For advanced measurements and validations related to RF, antenna design, and system diagnostics. For detecting forward/reflected power for SWR analysis. Its rugged design suits broadcast, military, and ham radio applications. Includes an analog meter and calibrated sensor. Already, a Helical ISM band antenna has been successfully designed using this instrument.
Agilent RF Counter (53181A)	For advanced measurements and validations related to RF, antenna design, and system diagnostics. It provides very good support while designing and/or trouble-shooting RF circuits like radio transceivers.
Fluke 6.5-digit Multimeter (8846A)	For accurate voltage, current, resistance, frequency, and temperature measurements. Its high resolution and low noise make it ideal for testing sensitive circuits, calibrating devices, and performing detailed DC/AC signal analysis. Advanced features like 4-wire resistance measurement and data logging enhance its utility in research and quality control applications. This precision instrument is used to calibrate other measuring equipment, if required.

Radio link in ISM band (2.4 GHz) using cordless phones. (Panasonic)	Used as a cost-effective radio link for communication experiments in the ISM band. Suitable for wireless signal transmission demonstrations, studying modulation schemes, and practical understanding of RF propagation in laboratory or project environments. It is useful to design short range wireless applications.
Spectrum Analyzer (HMS-X) 3GHz 100KHz-4GHz(Handheld)	For measuring and analyzing the frequency spectrum of signals, helping in troubleshooting, signal integrity testing, and verifying the performance of RF and communication circuits. It aids in identifying noise, distortion, harmonics, and bandwidth characteristics of electronic devices. Essential for projects involving wireless communication, audio processing, and EMI/EMC testing.
Function Generator (3MHz/5MHz)	A 3MHz/5MHz function generator is used in electronics labs to produce precise waveforms (sine, square, triangle, and pulse) for testing and debugging circuits. It helps in frequency response analysis, signal conditioning, and component characterization. Higher-frequency models (5MHz) support RF and communication projects, while 3MHz units are ideal for analog and digital circuit testing. Adjustable amplitude, offset, and duty cycle enhance its versatility. These are used while testing the transceiver kits to provide the external modulation, sometimes in combination with noise.
Automatic distortion level meter	The Automatic Distortion Level Meter measures and analyzes harmonic distortion, noise, and signal integrity in audio amplifiers, communication systems, and electronic circuits. It automates THD (Total Harmonic Distortion) and SINAD (Signal-to-Noise and Distortion) testing with high accuracy, eliminating manual calculations. It is very flexible in the sense that it can measure the parameters at any frequency in the specified range - not only at some spots.

Utilization Highlights:

- Final-year students access these resources for specific tasks like receiver sensitivity and selectivity testing, antenna performance measurements, and discrete circuit design validation.
- The department actively encourages junior students, even from first year, to be involved in design jobs. They are given all possible support by the department and the college to make models for contests/demonstrations.
- The result is very promising. A number of ideas have reached their fruition- a few models and ideas are already in different stages of patent consideration. The teachers and the technical assistants - both groups are involved.
- Students working on VLSI-based projects use Cadence tools in the VLSI Design Lab, while those working on network simulation utilize tools like SenseNut and QualNet in the M.Tech lab.
- The project lab facilitates continuous access to resources for innovation and experimentation.
- The lab operates with a structured schedule, with six final-year student groups allocated dedicated slots, totaling approximately 18 hours/week (45% utilization), which increases in the final semester as project activity intensifies.

This structured utilization of the Project Lab not only strengthens the application of theoretical knowledge but also fosters innovation, problem-solving, and technical proficiency aligned with the program’s outcomes.

B. Program Outcomes (POs) and Program Specific Outcomes (PSOs) Addressed

Code	Program Outcome / Specific Outcome	How It Is Addressed in Project Lab Activities
PO1	Engineering Knowledge	Students apply core ECE knowledge to solve practical problems in areas like RF, embedded systems, and VLSI design.
PO2	Problem Analysis	Analyze complex real-world problems during design, simulation, and validation phases of their projects. The interfacing of different modules always generates unforeseen problems- the team members are guided to find the faults. It helps to develop the power of analysis of a technical issue.
PO3	Design/Development of Solutions	Design of circuits, antenna systems, RF modules, or embedded prototypes based on defined requirements. Quite a few projects started with ideas which came to mind, after seeing real time situations- like the development of smart homes, intelligent walking sticks for visually handicapped persons, categorisation of garbage using AI-approach and so on.
PO5	Modern Tool Usage	Use of advanced test and simulation tools like Cadence, Agilent RF counter, APSIN3000, and SenseNut.
PO9	Individual and Team Work	Team-based final year projects foster collaborative work, peer learning, and task distribution.
PO10	Communication	Project report writing, presentations, and viva sessions improve communication of technical ideas.
PO12	Life-long Learning	Students explore tools and technologies not covered in theory courses, promoting independent learning.

Code	Program Specific Outcome	How It Is Addressed
PSO1	Apply knowledge of core ECE domains (Analog/Digital, Signal Processing, Communication, VLSI, Embedded Systems) to design and analyze real-world engineering problems.	Students apply theoretical knowledge through project work in various domains like RF, IoT, and circuit design. Quite a few students start simulation based projects of high quality under able guidance of the teachers.The problems are directed towards current and future technology and this helps them to gain advanced knowledge in the subjects belonging to the ECE domain. A reasonable number of projects are published in conferences /journals with Scopus, Google Scholar etc. indexing.

PSO2	Use modern tools and technologies to model, simulate, and validate electronic systems for societal, industrial, or research needs.	Projects make use of tools like QualNet, MATLAB, FPGA kits, Cadence and RF meters to simulate and validate outcomes.
PSO3	Demonstrate professional ethics, teamwork, and project management skills through interdisciplinary or socially relevant project-based learning.	Project lab encourages interdisciplinary topics, teamwork, time management, and mentor-guided ethics.Problems are identified that will be socially relevant.

This mapping ensures that the Project Lab infrastructure and activities holistically support the attainment of all three PSOs, along with key POs, contributing directly to outcome-based education (OBE) objectives.

2. Centre of Excellence

IEEE EDS student branch chapter has developed IEEE EDS Center of Excellence in December, 2017 . The Center has been funded by IEEE, USA and shall be the first of its kind IEEE EDS initiative, globally. Its primary objective is to provide a collaborative environment to create rich teaching-learning and research experiences in the field of electron devices and circuits.

The Center provides research opportunities and support to undergraduate students as well as conduct EDS outreach programs for students and women in engineering.

A.

Resources available

Resources available	Utilization
10 Computers (HP 280G2 MT - Core i3-7100 7th Gen, 16GB RAM/1 TB HDD)	Used by UG students for simulation of electronic circuits, HDL programming, VLSI design verification and signal processing during workshops and projects.
6 power supply units (APLAB, Triple Output DC Power Supply Model LQ6324T.)	Utilized during workshop and hardware-based projects.
6 Digital Storage Oscilloscope (TBS1072B TEKTRONIX 70 MHz, 2 Channel, 1GS/s Sample Rate)	Used for time-domain analysis of signals, measurement of waveform parameters, validation of theoretical models, and testing hardware prototype outputs**.**
Cadence Software Access	Used by students for final year projects and self-driven projects for schematic design, layout, and simulation.

B.

Events organised in last 3 years

Event type	Number of events organised
Technical session	13
Workshop	7
Outreach activity	9

C.

Eminent personalities who came for events in last three years

- Prof.Souvik Mahapatra, IIT Bombay
- Prof.Durga Misra, NJIT, USA
- Prof.Sanatan Chattopadhyay, University of Calcutta
- Prof. P . K. Basu , Calcutta University
- Prof. Mostafa Mortezaie, San Jose State University, USA

D.

VLSI Workshop (Phase 1 & 2) on Microchip Design and Methodology

The first edition is a 30-hour 'Workshop on VLSI Microchip Design and Methodology: Phase 1' that provided students with foundational knowledge and hands-on experience in VLSI (Very Large Scale Integration) microchip design and was held from July 10 to July 19, 2024 at ICT 003 (IEEE EDS Center of Excellence). In-depth sessions on digital and analog circuit design will be followed by a mini project, where participants independently apply their knowledge to design, simulate and verify circuits using Cadence. This workshop is strategically designed to prepare participants for advanced phases including Physical Layout Design, Verification and further exploration in Post Layout VLSI Methodology in the subsequent phases of the workshop series.

Phase 2 will be rolled out in winter 2025. The participants of Phase 1 are involved in project development currently and are in the process of completion. By the end of summer 2025, they will complete a full scale project that they had started off in summer 2024.

E.

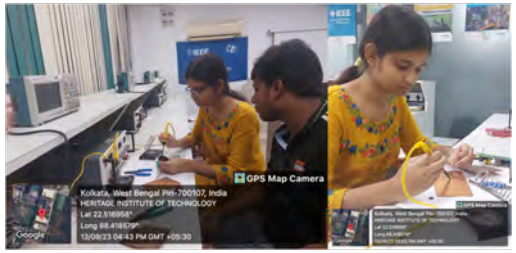
Program Outcomes (POs) and Program Specific Outcomes (PSOs) Addressed

The IEEE EDS Centre of Excellence directly supports core outcomes of the B.Tech (ECE) program by:

Enhancing technical skills (PO1, PO2, PO3, PO5)

Encouraging lifelong learning and team-based learning (PO9, PO10, PO12)

Strengthening program-specific VLSI and hardware design skills (PSO1, PSO2)



Participants of product design workshop held during August-September 2023

PART E: First Year faculty and financial Resources

(Data to be filled in for the first year course faculty and budget allocation and utilization)

E1. First Year Student-Faculty Ratio (FYSFR)

Table No. E1.1: FYSFR details.

Year	Sanctioned intake of all UG programs (S4)	No. of required faculty (RF4= S4/20)	No. of faculty members in Basic Science Courses & Humanities and Social Sciences including Management courses (NS1)	No. of faculty members in Engineering Science Courses (NS2)	Percentage= No. of faculty members ((NS1*0.8) + (NS2*0.2))/(No. of required faculty (RF4)); Percentage=((NS1*0.8) + (NS2*0.2))/RF
2022-23(CAYm2)	1020	51	42	67	92
2023-24(CAYm1)	1020	51	42	68	93
2024-25(CAY)	1020	51	40	68	89

E2. Budget Allocation, Utilization, and Public Accounting at Institute Level

Table No. E2.1: Budget and actual expenditure incurred at Institute level.

Items	Budgeted in 2024-2025	Actual Expenses in 2024-2025 till	Budgeted in 2023-2024	Actual Expenses in 2023-2024 till	Budgeted in 2022-2023	Actual Expenses in 2022-2023 till	Budgeted in 2021-2022	Actual Expenses in 2021-2022 till
Infrastructure Built-Up	0	0	0	0	0	0	0	0
Library	2000000	1527000	2000000	1286000	4500000	1523000	1500000	1715000

Laboratory equipment	13500000	14931000	13500000	10552000	5000000	11811000	2500000	3539000
Teaching and non-teaching staff salary	391800000	378009000	372500000	362743000	370500000	346368000	338000000	337655000
Outreach Programs	500000	594000	500000	642000	500000	812000	500000	495000
R&D	6000000	5404000	6000000	5372000	5000000	5578000	5000000	4252000
Training, Placement and Industry linkage	4700000	4258000	4500000	4013000	1700000	1096000	500000	400000
SDGs	500000	364000	700000	650000	400000	335000	200000	239000
Entrepreneurship	700000	666000	500000	504000	0	0	0	0
Others, specify	114300000	101513000	100000000	106463000	97100000	92409000	79300000	70632000
Total	**534000000**	**507266000**	**500200000**	**492225000**	**484700000**	**459932000**	**427500000**	**418927000**

E3. Budget Allocation, Utilization, and Public Accounting at Program Specific Level

Table No. E3.1: Budget and actual expenditure incurred at program level.

Items	**Budgeted in 2024-2025**	**Actual Expenses in 2024-2025 till**	**Budgeted in 2023-2024**	**Actual Expenses in 2023-2024 till**	**Budgeted in 2022-2023**	**Actual Expenses in 2022-2023 till**	**Budgeted in 2021-2022**	**Actual Expenses in 2021-2022 till**
Laboratory equipment	1000000	1052000	1000000	1144000	1000000	1211000	100000	162000
Software	600000	634000	200000	186000	1000000	1005000	500000	481000
SDGs	50000	61000	50000	116000	50000	62000	50000	45000
Support for faculty development	150000	94000	50000	26000	50000	34000	50000	6000
R & D	800000	796000	1000000	860000	1000000	905000	100000	109000
Industrial Training, Industry expert, Internship	500000	422000	200000	220000	200000	203000	100000	39000
Miscellaneous	1000000	828000	1000000	796000	1000000	792000	500000	542000
Total	**4100000**	**3887000**	**3500000**	**3348000**	**4300000**	**4212000**	**1400000**	**1384000**