NATIONAL BOARD OF ACCREDITATION

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

Program Name : Electrical Engineering	**Discipline**: Engineering & Technology
Level : Under Graduate	**Tier**: 1
Application No: 11776	**Date of Submission**: 06-05-2026

PART A- Profile of the Institute

A1.Name of the Institute: GURU NANAK INSTITUTE OF TECHNOLOGY	
Year of Establishment : 2003	Location of the Institute: located in Panihati West Bengal India
A2. Institute Address:157/F,NILGUNJ ROAD,PANIHATI,SODEPUR,KOLKATA-700114	
City:KOLKATA	State:West Bengal
Pin Code:700114	Website:www.gnit.ac.in
Email:PRINICIPAL_GNIT@JISGROUP.ORG	Phone No(with STD Code):033-25233900
A3. Name and Address of the Affiliating University (if any):	
Name of the University : WEST BENGAL UNIVERSITY OF TECHNOLOGY (W.B.U.T.)	City: North 24 Parganas
State : West Bengal	Pin Code: 700114
A4. Type of the Institution: Self-Supported Institute	
A5. Ownership Status: Self financing	

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

- No. of UG programs: **8**
- No. of PG programs: **4**

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	Engineering & Technology	UG	Computer Science and Engineering	2003	--	Computer Science and Engineering
2	Engineering & Technology	PG	Computer Science and Engineering	2009	--	Computer Science and Engineering
3	Engineering & Technology	UG	Computer Science and Engineering (Artificial Intelligence & Machine Learning)	2024	--	Computer Science and Engineering (Artificial Intelligence and Machine Learning)
4	Engineering & Technology	UG	Computer Science and Engineering (Cyber Security)	2024	--	Computer Science and Engineering (Cyber Security)
5	Engineering & Technology	UG	Electrical Engineering	2003	--	Electrical Engineering
6	Engineering & Technology	Diploma	Electrical Engineering	2015	--	Electrical Engineering
7	Engineering & Technology	PG	Electronics & Communication Engineering	2008	--	Electronics and Communication Engineering

8	Engineering & Technology	UG	Electronics & Communication Engineering	2003	--	Electronics and Communication Engineering
9	Engineering & Technology	UG	Electronics and Computer Science	2021	--	Electronics and Computer Science
10	Engineering & Technology	Diploma	Electronics and Telecommunication Engineering	2015	--	Electronics and Communication Engineering
11	Engineering & Technology	UG	Food Technology	2006	--	Food Technology
12	Engineering & Technology	PG	Food Technology	2024	--	Food Technology
13	Engineering & Technology	UG	Information Technology	2007	--	Information Technology
14	Engineering & Technology	PG	Masters in Computer Applications	2007	--	Computer Applications

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
Computer Science and Engineering	Yes	Computer Science and Engineering	UG
Electrical Engineering	No	Electrical Engineering	UG
Electronics and Communication Engineering	No	Electronics & Communication 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)

No Record

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 ACCREDITED
1	Electrical Engineering	UG	2003 / --	60	Yes	2021	30	2021	F.No.Eastern/1-44642717660/2025/EOA/Corrigendum-1, Date of Approval: 16.06.2025	Granted accreditation for 3 years for the period (specify period)	2023	2026	4

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 ACCREDITED

Sanctioned Intake for Last Five Years for the Electrical Engineering	
Academic Year	**Sanctioned Intake**
2025-26	30
2024-25	30
2023-24	30
2022-23	30
2021-22	30
2020-21	60

List of the Allied Departments/Cluster and Programs:

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

A. Name of the HoD :	Dr. Barnali Kundu
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)	2025-26 (CAY)	2024-25 (CAYm1)	2023-24 (CAYm2)	2022-23 (CAYm3)	2021-22 (CAYm4)	2020-21 (CAYm5)	2019-20 (CAYm6)
N=Sanctioned intake of the program (as per AICTE /Competent authority)	30	30	30	30	30	60	120
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	30	30	30	30	30	43	83
N2=Number of students admitted in 2nd year in the same batch via lateral entry including leftover seats	0	3	3	2	3	6	5
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	0	0	0	0	0	0	0
Total number of students admitted in the program (N1 + N2 + N3 + N4) - excluding those admitted through multiple entry and exit points.	30	33	33	32	33	49	88

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]

2025-26 (CAY)	30	30	0	100.00
2024-25 (CAYm1)	30	30	0	100.00
2023-24 (CAYm2)	30	30	0	100.00

Average [(ER1 + ER2 + ER3) / 3] = 100.00≡ 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	(2021-22) LYG	(2020-21) LYGm1	(2019-20) 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).	33.00	66.00	125.00
B=No. of students who graduated from the program in the stipulated course duration	33.00	49.00	88.00
Success Rate (SR)= (B/A) * 100	100.00	74.24	70.40

Average SR of three batches ((SR_1+ SR_2+ SR_3)/3): 81.55

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(2024-25)	CAYm2(2023-24)	CAYm3 (2022-23)
X=(Mean of 1st 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 1st year/10)	8.65	8.39	8.14
Y=Total no. of successful students	30.00	30.00	30.00
Z=Total no. of students appeared in the examination	30.00	30.00	30.00
API [X*(Y/Z)]	8.65	8.39	8.14

Average API[(AP1+AP2+AP3)/3] : 8.39

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 (2024-25)	CAYm2 (2023-24)	CAYm3 (2022-23)
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)	8.67	8.61	8.59
Y=Total no. of successful students	33.00	32.00	33.00
Z=Total no. of students appeared in the examination	33.00	32.00	33.00
API [X * (Y/Z)]	8.67	8.61	8.59

Average API [(AP1 + AP2 + AP3)/3] : 8.62

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 (2024-25)	CAYm2 (2023-24)	CAYm3 (2022-23)
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)	8.73	8.70	8.65
Y=Total no. of successful students	32.00	33.00	49.00

Z=Total no. of students appeared in the examination	32.00	33.00	49.00
API [X*(Y/Z)]:	8.73	8.70	8.65

Average API [(AP1 + AP2 + AP3)/3] : 8.69

B9. Placement, Higher Studies, and Entrepreneurship

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

Item	LYG (2021-22)	LYGm1(2020-21)	LYGm2(2019-20)
FS*=Total no. of final year students	33.00	66.00	125.00
X=No. of students placed	21.00	42.00	75.00
Y=No. of students admitted to higher studies	4.00	4.00	8.00
Z= No. of students taking up entrepreneurship	1.00	1.00	1.00
Placement Index(P) = (((X + Y + Z)/FS) * 100):	78.79	71.21	67.20

Average Placement Index = (P_1 + P_2 + P_3)/3: 72.40 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	Dr. Aveek Chattopadhyaya	XXXXXXX89M	Ph.D	Calcutta University	Power System	15/01/2018	8.3	Associate Professor	Associate Professor	15/01/2018	Regular	Yes		No
2	Mr. Amit Debnath	XXXXXXX24E	M.Tech	Tripura University	Power System	03/07/2017	8.9	Assistant Professor	Assistant Professor		Regular	Yes		No
3	Dr. Barnali Kundu	XXXXXXX29N	Ph.D	IIEST SHIBPUR	ELECTRICAL MACHINES	14/08/2019	6.8	Associate Professor	Professor	18/08/2020	Regular	Yes		Yes
4	Dr. Debasree Saha	XXXXXXX96H	Ph.D	NIT AGARTALA	ELECTRICAL ENGINEERING	13/05/2013	12.11	Assistant Professor	Associate Professor	07/01/2019	Regular	Yes		No
5	Mr. Susovan Dutta	XXXXXXX03C	M.E.	JADAVPUR UNIVERSITY	POWER ENGINEERING	14/08/2009	16.8	Assistant Professor	Assistant Professor		Regular	Yes		No
6	Mr. Shyamal Kumar Roy	XXXXXXX52D	M.E.	UNIVERSITY OF IDAHO (USA)	ELECTRICAL ENGINEERING (POWER ELECTRONICS)	24/07/2012	11.11	Assistant Professor	Assistant Professor		Regular	No	28/06/2024	No
7	Ms. Rikta Majumder	XXXXXXX62B	M.Tech	TRIPURA UNIVERSITY	ELECTRICAL ENGINEERING	26/06/2012	12	Assistant Professor	Assistant Professor		Regular	No	29/06/2024	No

8	Dr. Suman Ghosh	XXXXXXX43E	Ph.D	IIEST,Shibpur	Power System	13/07/2015	10.9	Assistant Professor	Assistant Professor		Regular	Yes		No

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

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 Department0

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

Description	**CAY(2025-26)**	**CAYm1 (2024-25)**	**CAYm2 (2023-24)**
UG1.B	33	33	32
UG1.C	33	32	33
UG1.D	32	33	66
UG1: Electrical Engineering	**98**	**98**	**131**
DS=Total no. of students in all UG and PG programs in the Department	98	98	131
AS=Total no. of students of all UG and PG programs in allied departments	0	0	0
S=Total no. of students in the Department (DS) and allied departments (AS)	**S1=** 98	**S2=** 98	**S3=** 131
DF=Total no. of faculty members in the Department	6	6	8
AF= Total no. of faculty members in the allied Departments	0	0	0
F=Total no. of faculty members in the Department (DF) and allied Departments (AF)	**F1=** 6	**F2=** 6	**F3=** 8
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= 16.33**	**SFR2= 16.33**	**SFR3= 16.38**
Average SFR for 3 years	**SFR= 16.35**		

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)]
2025-26(CAY)	4	2	4.00	30.00
2024-25(CAYm1)	4	2	4.00	30.00
2023-24(CAYm2)	3	5	6.00	20.83

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
2025-26	1.00	1.00	1.00	2.00	3.00	3.00
2024-25	1.00	1.00	1.00	2.00	3.00	3.00
2023-24	1.00	1.00	1.00	2.00	4.00	5.00
Average	RF1=1.00	AF1=1.00	RF2=1.00	AF2=2.00	RF2=3.33	AF2=3.67

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	Prof.(Dr.) Sunit Kumar Sen	Ex-Professor	Calcutta University	Microprocessor & Micro controller	26.00
2	Prof.(Dr.) Chandan Kumar Chanda	Ex-Professor	IIEST,Shibpur	Power System	24.00

(CAYm2)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Prof.(Dr.) Sunit Kumar Sen	Ex-Professor	Calcutta University	Microprocessor & Micro controller	26.00
2	Prof. (Dr.) S.K. Ghosh	Ex-Professor	Jadavpur University	Electrical Measurement	24.00

(CAYm3)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Prof.(Dr.) Sunit Kumar Sen	Ex-Professor	Calcutta University	Microprocessor & Micro controller	26.00
2	Prof. (Dr.) S.K. Ghosh	Ex-Professor	Jadavpur University	Electrical Measurement	28.00

C6. Academic Research

Table No. C6.1: Faculty publication details.

S.No.	Item	2024-25 (CAYm1)	2023-24 (CAYm2)	2022-23 (CAYm3)
1	No. of peer reviewed journal papers published	11	11	2
2	No. of peer reviewed conference papers published	25	8	7
3	No. of books/book chapters published	4	0	0

C7. Sponsored Research Project

Table No. C7.1: List of sponsored research 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
Dr. Barnali Kundu		Electrical Engineering	AICTE IDEA Lab	AICTE	2 Years	10.00
Dr. BarnaliKundu		Electrical Engineering	ATAL Vaani: 2 days Seminar “Opportunities and Innovations in Hydrogen Energy”	AICTE	2 Days	2.00
Dr. Suman Ghosh		Electrical Engineering	FIRE EXTINGUISHER	MADE in JIS	2 Years	1.80
						Amount received (Rs.):13.80

(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
Mr. Susovan Dutta		Electrical Engineering	Solar EV Charging station	R&D Solar	2 years	2.65
						Amount received (Rs.):2.65

(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
Dr. Aveek Chattopadhyaya		Electrical Engineering	Assessment of CT Saturation	Trident Tech Labs	2 years	3.12
						Amount received (Rs.):3.12

Total Amount (Lacs) Received for the Past 3 Years: 19.57

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
Dr. Aveek Chattopadhyay		Electrical Engineering	Design and Optimization of Solar-Based Hybrid Microgrid System for Reliable Power Supply	Geetanjali Solar	1 year	3.60
						Amount received (Rs.):3.60

(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
Susovan Dutta		Electrical Engineering	Solar Air Cooler	R & D Solar Enterprise, Barasat, Kolkata, West Bengal 700124	1 year	3.20
						Amount received (Rs.):3.20

(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
Dr. BARNALI KUNDU		Electrical Engineering	Development of solar powered automatic lighting system	Vikram Solar	1 year	3.50
						Amount received (Rs.):3.50

Total amount (Lacs) received for the past 3 years: 10.30

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
Dr. DebasreeSaha & Dr. BarnaliKundu	Development of smart water garbage cleaning robot	1 year	2.00	2.00	Patent published
Dr. Suman Ghosh	IoT Based Smart Energy Meter with Demand Forecasting	1 year	1.25	1.25	Patent published
			Amount received (Rs.): 3.25		

(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
Mr. Amit Debnath	Drone for survillence	1 year	1.50	1.50	Participate National Hackathon
Dr. BARNALI KUNDU	Bio Mass Gasifier	1 year	1.25	1.25	Patent published
Dr. Aveek Chattopadhyay	Fault analysis in Induction Motor	1 year	1.45	1.45	Patent published
			Amount received (Rs.): 4.20		

(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
Mr. Shyamal Kumar Roy	Development of Solar powered E-Vehicle	1 year	1.50	1.50	Product development
Mrs. Rikta Majumder	Relay protection unit	1 year	1.50	1.50	Product development
			Amount received (Rs.): 3.00		

Total amount (Lacs) received for the past 3 years : 10.45

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	Basic Electrical Engineering Laboratory EE191, EE 291, EE(CS)291, EE(IT)191	5	• Single phase transformer. • Network Theorem Hardware Kit • Fluorescent, Tungsten and Carbon	49 hours	Mr. Arnab Kumar Roy	Junior Technical Assistant	Diploma in Electrical Engi
2	Engineerig Chemistry Laboratory CH(EE)291	5	• Digital Balance • Double distilled water plant • PH meter • Conductivity meter • Ostwald visco	2 hours	Mr.Chandan Kumar Bhatt	Junior Technical Assistant	B.Sc (Chemistry Honours)
3	Engineering Graphics & Design ME191	5	• Computer • CAD software	3 hours	Mr. Ashok Kr. Ghosh	Junior Technical Assistant	Diploma in Mechanical En

4	Engineering Physics Laboratory PH(EE)191	5	• Slide calipers/ Screw- gauge/travelling microscope • Carrey Foster Bridge. • CRO • LCR circuit • Photoelectric cell Polarimeter	3 hours	Mr. Sushanta Auddy	Junior Technical Assistant	B.Sc.in physics
5	Workshop and Manufacturin g Practices ME(EE)291	5	• Fitting operations & power tools • Welding (arc welding & gas welding), brazing • Electrical & Electronics Metal casting CNC machining	3 hours	Mr. Ashok Kr. Ghosh	Junior Technical Assistant	Diploma in Mechanical En
6	Programming for Problem Solving Laboratory CS(EE)391	2	• Computer • Software	2 hours	Ms. Sutapa Sarkar	Junior Technical Assistant	Diploma Computer Scienc
7	Electrical Circuit Analysis Laboratory EE291, EC291	5	• R-L and R-C network • R-L C series and parallel circuit • Network Theorem Hardware Kit • MATLAB/ Simulink	15 hours	Mr. Vivekananda Kumar	Junior Technical Assistant	Diploma in Electrical Engi
8	Electrical and Electronic Measurements Laboratory EE391	5	• Instrument transformer. • Energy Meter • Three phase power measurement • Different types of bridge Hardware kit	2 hours	Mrs. Subhra Sen	Junior Technical Assistant	Diploma in Electrical Engi
9	Electrical Machines – I Laboratory EE491	5	• Single-phase transformer. • Three-phase transformer. • Three-phase Induction Motor. • V/f Control Three phase Induction motor DC Motor	3 hours	Mr. Bapi Tarafder	Junior Technical Assistant	Diploma in Electrical Engi
10	Power Electronics Laboratory EE 593	5	• Trainer kit for characteristics of an SCR. • Trainer kit to Study characteristics of a TRIAC • Different triggering Circuits of an SCR Trainer kit to	3 hours	Mrs. Subhra Sen	Junior Technical Assistant	Diploma in Electrical Engi
11	Electrical Machines – II Laboratory EE591	5	• Three-phase alternator • Synchronization of alternators. • Single-phase Induction motor. • Three Phase Induction generator Single & Three	3 hours	Mr. Bapi Tarafder	Junior Technical Assistant	Diploma in Electrical Engi
12	Power System – I Laboratory EE592	5	• Simulation of DC distribution by Network analyzer. • Measurement of earth resistance by Earth tester. • Dielectric strength test of insulating oil, solid Insulating	3 hours	Mr. Arnab Kumar Roy	Junior Technical Assistant	Diploma in Electrical Engi
13	Control System – I Laboratory EE492	5	• MATLAB/ Simulink • PSpice • Multisim • CRO • PI, PD and PID controller	3 hours	Mr. Vivekananda Kumar	Junior Technical Assistant	Diploma in Electrical Engi
14	Power System – II Laboratory EE 692	5	• Relay • ETAP • MI-Power	3 hours	Mr. Arnab Kumar Roy	Junior Technical Assistant	Diploma, in Electrical Eng
15	Control System – II Laboratory EE791	2	• MATLAB/ Simulink • CRO • PI, PD and PID controller	2 hours	Mr. Vivekananda Kumar	Junior Technical Assistant	Diploma in Electrical Engi
16	Electrical Drives Laboratory EE 691	5	• Chopper fed DC Drive. • Single-phase fully controlled DC Drive. • TRIAC. • Three-phase Induction Motor Induction motor Drive V/f control	3 hours	Mrs. Subhra Sen	Junior Technical Assistant	Diploma in Electrical Engi
17	Analog and Digital Electronic Circuits Laboratory EC(EE)191	5	• Resistors, Inductors, Capacitors, Diodes, Transistors (BJT) and electronic equipment like DC power supplies, Millimeters CRAMP, Logic Gates	3 hours	Ms. Dyuti Nandi	Junior Technical Assistant	Diploma in Electronics & (
18	Signals and Systems Laboratory EE392	2	• MATLAB program to obtain linear convolution of the given sequences. • MATLAB program to perform amplitude scaling, time scaling and time shifting on a	3 hours	Mr. Vivekananda Kumar	Junior Technical Assistant	Diploma in Electrical Engi
19	Microprocessor and Microcontroller Laboratory EC(EE)391	5	• Demonstration Programs for 8085 Trainer Kit • Demonstration Programs for 8086 Trainer Kit • Interfacing with 8086 Interfacing with 8051	2 hours	Mr. Mrinmoy Dutta	Junior Technical Assistant	Diploma in Applied Electrc
20	Digital Signal Processing Laboratory EC(EE)491	2	• MATLAB • Computer	3 hours	Mr. Arnab Kumar Roy	Junior Technical Assistant	Diploma in Electrical Engi

21	Data Structure and Algorithms Laboratory CS(EE)491	2	• Computer • Software	2 hours	Ms. Sutapa Sarkar	Junior Technical Assistant	Diploma Computer Scienc
22	Computer Aided Design ME(EE)491	2	• Computer • Auto CAD Software	3 hours	Mr. Bapi Tarafder	Junior Technical Assistant	Diploma in Electrical Engi
23	Electrical Workshop EE594	5	• Solar based cooker, lamp, water heater etc.	2 hours	Mr. Arnab Kumar Roy	Junior Technical Assistant	Diploma, in Electrical Eng
24	PLC and Automation Laboratory EE693	2	• Computer • Software	2 hours	Mrs. Subhra Sen	Junior Technical Assistant	Diploma in Electrical Engi
25	Electric Vehicles Laboratory EE792	5	• BLDC motor-based EV • Induction motor based electric vehicle. • Battery management System	2 hours	Mr. Bapi Tarafder	Junior Technical Assistant	Diploma in Electrical Engi
26	Object Oriented Programming Laboratory CS(EE)791	2	• Computer • Software	2 hours	Ms. Sutapa Sarkar	Junior Technical Assistant	Diploma Computer Scienc

D2. Safety Measures in Laboratories

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

Sr. No	Laboratory Name	Safety Measures
1	Basic Electrical Engineering Laboratory & Electrical & Electronic Measurement Laboratory	Do's □ Before starting laboratory work follow all written instruction in laboratory manual carefully, if you not understand ask your concern teacher. □ Before using equipments you must read carefully the labels and Instructions. □ Electrical equipments and connections should not be handled with wet hands nor should they be used after liquid has been spilled on it. □ Inspect electrical equipment (with power off and unplugged) for frayed cords and damaged connections -- if any are found, do not use the equipment -- report it to the appropriate person for repairs. □ Always keep table clean and organized. □ Dress properly during a laboratory activity. Long hair, dangling jewelry and loose or baggy clothing are a hazard in the laboratory Dont's : □ Students are not allowed to touch any equipment in the laboratory until they are instructed by the concern teacher. □ Don't work with electricity if your hands, feet, or other body parts are wet or when standing on a wet floor. □ Mouth pupating of cultures prohibited in the laboratory. □ Students are not allowing working alone or absence of any teacher in laboratory. □ Do not use mobile in laboratory. □ Don't mishandle any equipment. □ Eat or drink any kind of food material is strictly prohibited inside the laboratory.
2	Electrical Circuit Analysis Laboratory, Control System-I & II Laboratory	□ Before starting Laboratory work follow all written and verbal instructions in laboratory manual carefully, if you not understand ask your concern Teacher. □ Before using equipments you must read carefully the labels and Instructions. □ Electrical equipments and connections should not be handled with wet hands nor should they be used after liquid has been spilled on it. □ Do keep your lab clean and free of clutter. □ Do avoid trip hazards. □ Conduct yourself in a responsible manner at all times in the laboratory. Dont's □ Don't talk aloud or crack jokes in lab. □ Dress properly during a laboratory activity. □ Long hair, dangling jewelry and loose or baggy clothing are a hazard in the laboratory. Don'ts: □ Mouth pupating of cultures is completely prohibited in the laboratory. □ Students are not allowed to touch any Equipment, □ Use of mobile phone is strictly prohibited during Laboratory work. □ Don't mishandle the equipments. □ Do not wander around the room, distract other students, startle other students or interfere with the laboratory experiments of others. □ Do not eat food, drink beverages or chew gum in the laboratory. □ Do not open any irrelevant internet sites on lab computer. □ Do not use a flash drive on lab computers. □ Do not upload, delete or alter any software on thelab PC.

3	Electrical Machines-I & II Laboratory	Do's: □ Always maintain cleanliness & hygienic conditions in Lab. □ Extensive Care & precautions should be exercised while working in Lab. □ Always wear shoes before entering to the laboratory □ Display Instructions in different areas & they shall be followed strictly. □ All the electrical connection should be tight before providing the supply in the each and every experiment. □ Treat every electrical device like it is energized, even if it does not look like it is plugged in or operational. □ Unplug appliances before performing any service or repairs on them. □ When working on electrical devices, only use tools that have official “non-conducting” handles. □ When handling electrical equipment, make sure your hands are dry. □ If you spill any kind of liquid on electrical equipment, first immediately shut off power to the equipment via the main switch or circuit breaker and then unplug the equipment itself. □ Keep all electrical circuit contact points enclosed. □ Finally, if you are able to, work on electrical equipment with one hand while the other hand is out of the way at your side or in your pocket. This minimizes the chance of a current passing through your chest should a spark/accidental charge occur. Dont's: □ First and foremost – don’t touch active electrical circuits. □ Never touch electrical equipment when any part of your body is wet, (that includes fair amounts of perspiration). □ Do not store liquids of any sort near electrical equipment. □ If a person comes into contact with an energized electrical conductor, do not touch the equipment, its cords, or the person affected because the charge may pass to you. Instead, shut down the main power source via the circuit breaker and then unplug the equipment using a leather belt. □ Do not wear metal of any sort if you are working on electrical equipment. Also, do not try to poke, probe, or fix electrical equipment with objects like pencils or rulers because the metal in them can serve as a form of conductor.
4	Power System-I & II Laboratory	Do's: □ Shoes must be worn at all times. □ Remove all loose conductive jewelry and trinkets, including rings, which may come in contact with exposed circuits. (Do not wear long loose ties, scarves, or other loose clothing around machines.) □ When making measurements, form the habit of using only one hand at a time. No part of a live circuit should be touched by the bare hand. □ Keep the body, or any part of it, out of the circuit. Where interconnecting wires and cables are involved, they should be arranged so people will not trip over them. □ Be as neat a possible. Keep the work area and workbench clear of items not used in the experiment. □ Always check to see that the power switch is OFF before plugging into the outlet. Also, turn instrument or equipment OFF before unplugging from the outlet. □ When disassembling a circuit, first remove the source of power. □ Keep fluids, chemicals, and beat away from instruments and circuits. □ Report any damages to equipment, hazards, and potential hazards to the laboratory instructor. □ Regarding specific equipment, consult the instruction manual provided by the manufacturer of the equipment. □ Information regarding safe use and possible- hazards should be studied carefully. Dont's: □ Conduct yourself in a responsible manner at all times in the laboratory. □ Don’t talk aloud or crack jokes in lab. □ Dress properly during a laboratory activity. Long hair, dangling jewelry and loose or baggy clothing are a hazard in the laboratory. □ Observe good housekeeping practices. Replace the materials in proper place after work to keep the lab area tidy. □ Do not wander around the room, distract other students, startle other students or interfere with the laboratory experiments of others. □ Do not eat food, drink beverages or chew gum in the laboratory and do not use laboratory glassware as containers for food or beverages. Smoking is strictly prohibited in lab area. □ Do not open any irrelevant internet sites on lab computer □ Do not use a flash drive on lab computers. □ Do not upload, delete or alter any software on the lab PC.
5	Power Electronics Laboratory & Electrical Drives Laboratory	Do's: □ Before starting laboratory work follow all written instruction carefully, if you not understand ask your concern teacher. □ Before using equipments you must read carefully the labels and Instructions. □ Electrical equipments and connections should not be handled with wet hands nor should they be used after liquid has been spilled on it. □ Inspect electrical equipment (with power off and unplugged) for frayed cords and damaged connections -- if any are found, do not use the equipment -- report it to the appropriate person for repairs. □ Always keep table clean and organized. □ Dress properly during a laboratory activity. Long hair, dangling jewelry and loose or baggy clothing are a hazard in the laboratory Dont's: □ Students are not allowed to touch any equipment in the laboratory until they are instructed by the concern teacher. □ Don't work with electricity if your hands, feet, or other body parts are wet or when standing on a wet floor. □ Mouth pupating of cultures prohibited in the laboratory. □ Students are not allowing working alone or absence of any teacher in laboratory. □ Do not use mobile in laboratory. □ Don’t mishandle any equipment. □ Eat or drink any kind of food material is strictly prohibited inside the laboratory. □ Use of mobile phone is strictly prohibited during Laboratory work.

D3. Project Laboratory/Research Laboratory

Facilities available in the department:

Table 7.5.1: Major equipment details available

Sl. No.	Name of Equipment	Cost	Specification
1	Altair PSIM Software, version 2022.3, (Perpetual)	7,24,000/-	5 User
2	ETAP SOFTWARE 5 USER	4,24,800/-	5 User 7 modules 1 quantity 50 bus capable
3	M.P BASED STATIC VAR compensator	1,89,703/-	(digital ammter-2,digital voltmeter-2,microcontroller kit,3-phase variac-1set,inductor set, capacitor set, transformer)
4	FPGA Development Kit- FPGA System & Biomedical Sensor data acquisition Bundle	3,49,280/-	Xilinx Z-7010, Processor 667 MHZ, 10 analog input, 6 analog output, 40 digital I/O lines, wireless, LED's, Push buttons, Accelerometer on board, Xilinx FPGA & duel core ARM corlex-A9 processor.
5	SCADA & AUTOMATIONS	13,91,798/-	Dell CPU 8GB RAM, Intel(R), core (TM), I5-4590cpu
6	Mi- Power	2,31,525/-	5 User CD No. MIPOWER 6279-05 Hard Lock Sl. No. 3974 1061 (VSB Network)
7	MAT LAB (R2013A)	3,05,305/-	5 Users Software
8	LAB VIEW	6,64,340/-	5 Users Software
9	Set up for Dynamic Breaking of Induction Motor	50,032/-	415V, 3-phase AC source, 3-phase induction motor, 1HP 415v, 1500 rpm with breaking operation
10	VSI Bridge Hardware Kit (MOSFET Based) with PWM Control.	65,000/-	V/F speed control of AC 3 phase induction motor input 230v AC output 230v AC, 3-Phase output with 5HP AC 3-Phase motor.
11	Single Phase Dual converter Hardware Kit(SCR based)	62,000/-	AC input 230V, 5A, DC output, 0-230V, 5A with circulating 4 quadrant operation of integrated 1KW 1500 rpm DC motor thyristor based.
12	DC Network Analyzer	58,780/-	Different types of resistances- 5,2,1ohm,1kohm,50,ohm,2kohm,100 ohm,10 kohm,200 ohm,5kohm

13	Power transfer to short transmission line	69,050/-	LC Network 50 ohm, Including summing amplifier & attenuator.
14	Ge-mako SVC experimental set up	1,59,600/-	230V supply, Including load switch, Digital voltmeter & ammeter, GE motor Pvt. Ltd.
15	Tan delta set up	4,38,900/-	ELTEL Make model DTR-3K dielectric constant, Ten delta Resistivity test set with oil heater.
16	Panel mounted R-L-C circuit short ,medium, transmission line	85,000/-	230 V Supply, 1 multifunction DPM, 43 ohm resistance, 215 mH, 2.25 mfd, digital ammeter, digital voltmeter, 4 bulb load.
17	Load test over current relay distance relay	1,90,000/-	230 V supply, digital ammeter, digital voltmeter, IDMT over current relay.
18	Solar Power Plant system	2,36,320/-	solar power plant 2 KW with accessories material and tools for training purpose
19	Single cylinder diesel engine test rig with electrical brake	1,47,500/-	Single cylinder 4 strke 5 hp diesel engine test RIG with electrical dynamometer for performance test with accessories materials and tools for training purpose.
20	Engine with Hydrolic Dynamometer	1,25,000/-	Engine with Hydraulic Dynamometer
21	Pelton Turbine test RIG	1,59,300/-	Micro Hydro power plant (Pelton Turbine) 100w heavy duty closed circuit
22	Parabolic dish concentrated solar cooker	67,200/-	Parabolic dish concentrated solar power (CSP) plant 4.5sq meter radius with pressure cookers 3 ltr. cooker
23	Wind Energy	1,62,400/-	Wind energy 400W. HAWT wind turbines. With accessories materials and tools for training purposes.
24	Biogas Plant	84,000/-	Bio gas plant for cooking 20kgs, waste cooking time 2-3 hrs.
25	Solar energy collector flat plate	95,200/-	Flat Plate solar collector 250LPD
26	Pyranometer (To measure solar radiation)	50,400/-	Digital handheld terminal with pyranometer sensor for shortwave radiation with PC interface kit

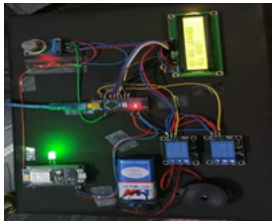
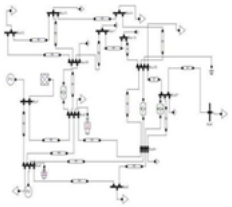
- Project viva & presentation are conducted during review process and in university examination.
- Necessary instruments and consumables are available in the laboratory for project work.

Utilization:

- Students can do their project (curriculum/beyond curriculum) work during semester.
- Students use all the laboratory facilities (Wi-Fi/computer) available in the department with the due permission from HOD.

- Internet access is available in laboratory for literature survey necessary for project work.
- Provisions and guidance are provided by esteemed faculties for research publication by students.
- Mini and Major project models- guided by our faculty members in various fields of engineering.

Table 7.5.2 :Projects successfully done by students

SL NO	Title of Project	Picture
1	IOT Based Gas Leakage Detector	
2	Design and Development of Biometrically secured, Real-Time and Low-Cost Electronic Voting Machine (EVM)	
3	Integration of FACTS Controllers to the Distribution Network for Loss Reduction and Power Quality Improvement	
4	Android Based Electrical Appliance Control	

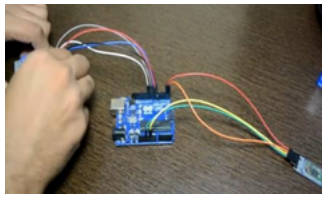
5	Health Monitoring System	
6	Smart Home IoT Voice Activated Home Automation using Arduino	

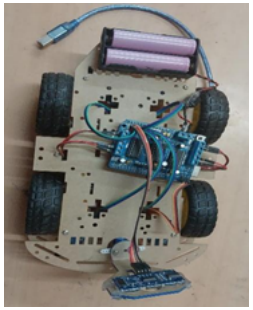
Table 7.5.3: Laboratory Outcomes

	CAY:2026-25	CAYm1:2024-25	CAYm2:2024-23	CAYm3:2023-22
No. of Students projects	**-**	**6**	**8**	**12**
Faculty Journal	**4**	**10**	**10**	**-**
Faculty Conference	**2**	**20**	**8**	**8**
Student Journal		**2**	**4**	**4**
Student Conference	**2**	**6**	**6**	**5**
Working Models	**2**	**2**	**4**	**1**
IPR	**2**	**10**	**5**	**8**

CAY (2025-26)

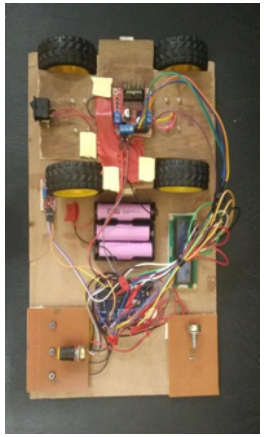
Sl No.	Title Of Working Model	Description	Model Prototypes	Outcome

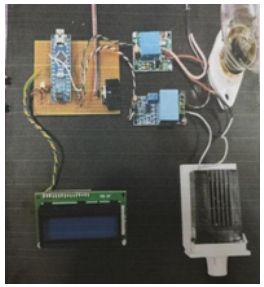
1	**Predictive Analysis of Biogas Production Using Advanced Regression and Ensemble Models**	**Predictive Analysis of Biogas Production Using Advanced Regression and Ensemble Models** involves applying machine learning techniques to forecast biogas yield based on input parameters such as temperature, pH, substrate composition, retention time, and organic loading rate. In this approach, advanced regression models like Linear Regression, Support Vector Regression (SVR), and Random Forest Regression are used to analyze historical biogas production data. Ensemble methods—such as Gradient Boosting and Random Forest—combine multiple learning algorithms to improve prediction accuracy and reduce overfitting. Tools like Python with libraries such as Scikit-learn and TensorFlow are commonly used for model development and evaluation. This predictive analysis helps optimize biogas plant performance, enhance energy output, reduce operational costs, and support sustainable waste-to-energy management systems.		**SMART INDIA HACKATHON 2024 HARDWARE EDITION**

2	**Self-navigation and obstacle avoiding car**	**A Self-Navigation and Obstacle Avoiding Car** is an autonomous robotic vehicle designed to move independently while detecting and avoiding obstacles in its path. It uses sensors such as ultrasonic sensors, infrared (IR) sensors, or LiDAR to measure the distance between the vehicle and surrounding objects. A microcontroller like the Arduino Uno or a compact computer such as the Raspberry Pi 4 processes sensor data and controls the motors through a motor driver module. Based on real-time input, the system adjusts speed and direction to avoid collisions and navigate safely. Advanced versions may include GPS modules, camera-based vision systems, and path-planning algorithms for fully autonomous operation. This project demonstrates key concepts of robotics, automation, and intelligent transportation systems.		

CAYm1 (2024-25)

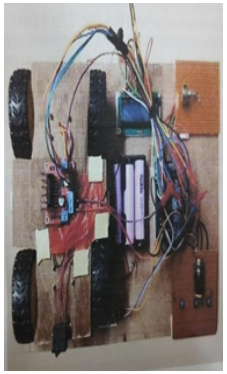
Sl No.	Title Of Working Model	Description	Model Prototypes	Outcome

1	**ELECTRIC VEHICLE MOTOR CONTROLLER SYSTEM**	**Electric Vehicle (EV) motor control** plays a pivotal role in ensuring efficient, reliable, and responsive performance of modern electric transportation systems. This paper explores the principles, methodologies, and technologies involved in the control of electric motors used in EVs, focusing on commonly used motors such as Permanent Magnet Synchronous Motors (PMSM) and Induction Motors (IM). Key control strategies, including Field-Oriented Control (FOC) and Direct Torque Control (DTC), are analyzed for their effectiveness in delivering high torque, speed precision, and energy efficiency. The study also examines the integration of power electronics, such as inverters and controllers, and the role of embedded systems in real-time motor control. Simulations and experimental results demonstrate the impact of advanced motor control techniques on vehicle performance, including acceleration, regenerative braking, and energy management. This research highlights ongoing challenges and future directions, particularly in the areas of thermal management, fault tolerance, and intelligent control algorithms, contributing to the continued advancement of electric vehicle technology.		

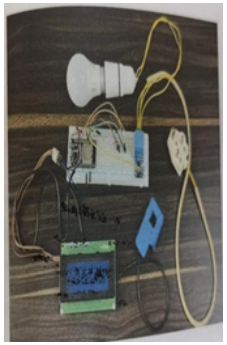
2	**Smart Traffic System Using Arduino**	A **Smart Traffic System using Arduino** is an intelligent traffic control system that automatically manages traffic lights based on real-time road conditions. It uses an Arduino Uno (or similar Arduino board) as the main controller to process input from sensors and control traffic signals efficiently. Sensors such as IR sensors, ultrasonic sensors, or vehicle detection modules are placed at road intersections to detect vehicle density. The Arduino reads this data and adjusts the timing of red, yellow, and green lights accordingly, giving more time to lanes with heavier traffic. This helps reduce congestion, waiting time, and fuel consumption. Advanced versions may include emergency vehicle detection, pedestrian crossing buttons, and IoT-based monitoring systems. Overall, a Smart Traffic System using Arduino improves traffic flow, enhances road safety, and reduces environmental pollution.		"Smart Traffic System Using Arduino", 13th Inter-University Engineering Science & Technology, Forum of Scientists, Engineers & Technologists (FOSET), Innovative Model Competition for a Sustainable Society, Sister Nivedita University, Kolkata,

CAYm2 (2023-24)

Sl No.	Title Of Working Model	Description	Model Prototypes	Outcome

1	**Simulation Model and Performance Analysis of Hybrid Electric Vehicle**	A **Simulation Model and Performance Analysis of a Hybrid Electric Vehicle (HEV)** involves developing a virtual model of a vehicle that combines an internal combustion engine and an electric motor to study its behavior under different driving conditions. The simulation helps evaluate energy efficiency, fuel consumption, emissions, battery performance, and overall vehicle dynamics. The model typically includes key components such as the internal combustion engine, electric motor, battery pack, power electronics, transmission system, and control strategy. Software tools like MATLAB and Simulink are commonly used to design and simulate the HEV system. Through performance analysis, parameters such as acceleration, torque distribution, state of charge (SOC), and regenerative braking efficiency are examined. The results help optimize energy management strategies, improve fuel economy, reduce emissions, and enhance overall vehicle performance before real-world implementation.		“Integrated MPTA Control Framework for Hybrid Electric Vehicle Performance using Space Vector Pulse Width Modulation” , 2nd IEEE International Conference on Advancements and Key Challenges in Green Energy and Computing (AKGEC2024), organized by Department of Electrical and Electronics Engineering at AKGEC,

2	**Solar Powered Portable Mobile Charger**	A **Solar Powered Portable Mobile Charger** is a compact device that uses solar energy to charge mobile phones and small electronic gadgets. It consists of a small photovoltaic (PV) panel, a rechargeable battery, a charge controller circuit, and a USB output port. The solar panel converts sunlight into electrical energy, which is stored in the battery. A voltage regulation circuit ensures a stable 5V output suitable for charging smartphones and other USB-powered devices. The stored energy can be used even when sunlight is not available, making it convenient for outdoor activities, travel, and emergency situations. This system is eco-friendly, cost-effective, and reduces dependence on grid electricity by utilizing renewable solar energy.		"Cost Effective Solar Powered Wireless Mobile Charger", Journal of Basic Science, Vol.24 , issue.5, June, 2024 (ISSN NO: 1006-8341).
3	**Third Eye for Blind Person**	A **Third Eye for Blind Person** is an assistive electronic device designed to help visually impaired individuals detect obstacles and navigate safely. It typically uses sensors such as ultrasonic sensors to measure the distance between the user and nearby objects. When an obstacle is detected, the system—often built using a microcontroller like the Arduino Uno—alerts the user through vibration motors, buzzers, or audio feedback via earphones. The feedback intensity or sound frequency may vary depending on the distance of the object. This device enhances mobility, increases independence, and improves safety for blind individuals by providing real-time environmental awareness.		**"Third Eye for Blind Person", IEI Conclave Of Students Chapter 2024, JIS College of Engineering, 2024, 05.04.2024**

4	**Smart Energy Meter Utilising Internet of Things Technology**	A **Smart Energy Meter Utilizing Internet of Things (IoT) Technology** is an advanced electricity monitoring system that measures and transmits real-time power consumption data over the internet. It replaces traditional analog meters by enabling automatic data collection, remote monitoring, and efficient energy management. The system typically uses a microcontroller such as the ESP8266 or Arduino Uno along with current and voltage sensors to measure energy usage. The collected data is sent to a cloud platform via Wi-Fi, allowing consumers and utility providers to monitor electricity consumption through a web or mobile application. This technology helps reduce manual meter reading, detect power theft, improve billing accuracy, and promote energy conservation by providing detailed usage insights in real time.		"Adaptable Power Supplying Device For Electronic Gadgets", Application No. 202431051757, Publication Date: 12/07/2024, The Patent Office Journal No. 28/2024

CAYm3 (2022-23)

Sl No.	Title Of Working Model	Description	Model Prototypes	Outcome

1	**Auto Selection of any available Phase in Three Phase Supply System with Cloud Real time Data Sensing**	**Auto Selection of Any Available Phase in a Three-Phase Supply System with Cloud Real-Time Data Sensing** is an intelligent power management system designed to ensure continuous power supply by automatically selecting the healthiest available phase in a three-phase distribution system. In many residential and commercial areas, one or more phases may fail due to faults or overload. This system continuously monitors the voltage levels of all three phases using voltage sensors and a microcontroller such as the ESP32. If the currently active phase fails or drops below a safe threshold, the system automatically switches to another available phase using relays, ensuring uninterrupted power to the load. Additionally, real-time voltage and phase status data are transmitted to a cloud platform via IoT technology, allowing remote monitoring and analysis through a web or mobile application. This improves reliability, reduces downtime, enhances fault detection, and provides better power management in three-phase supply systems.		“Design and Development of an IoT-based Automatic Phase Selection System”, International Conference on Smart Systems for applications in Electrical Sciences ICSSES-2025, Accepted, Will be Published in IEEE Explore Digital Library, Date: 21/03/2025.

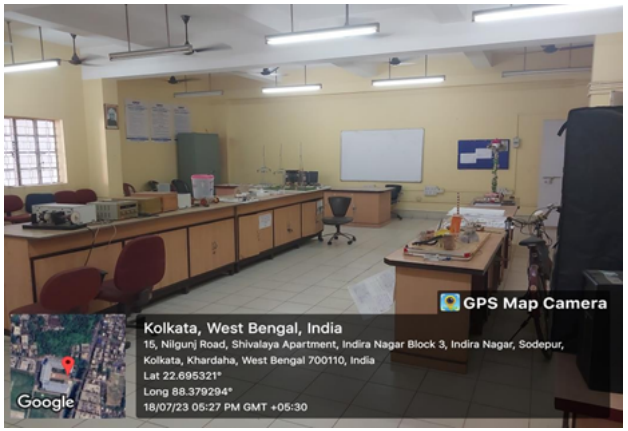


Fig. 7.5.aProject Lab / R&D Lab

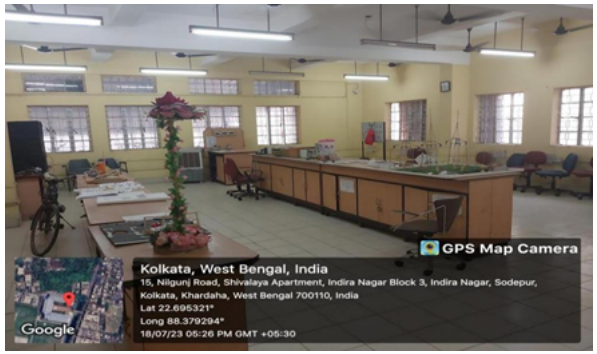


Fig. 7.5.b Project Lab

Industry Funded Lab: The department has signed a MOU with Logic Zap Next Generation Technology and establish an industry supported lab “Electric Vehicle Laboratory” to bridge the gap between Industry and academia and to provide the concept about the new technology so that students will get the knowledge about the industry application and enhance their innovation in this sector .

Table 7.5.4: Industry Funded Lab details

Sl. No	Name of the lab	Name of the company	Name of equipment
1.	Electric Vehicle Laboratory	Logic Zap Next Generation Technology	1. DC Adaptor 2. Li-ion Battery Cell 3. Nickel Strip Roll 4. Li-ion Battery Cell 5. Spot Welding Machine for Li-ion Battery pack 6. E-Bike (24V, 250w, a) 300rpm, Chain Drive Moor, Bench with accessories) 7. E-Bike (24V, 250w, a)300rpm, BLDC Hub motor, Bench with accessories

Fig. 7.5.c Industry supported Lab

Centre of Excellence: The Dept has a Centre of Excellence named **IoT and Robotics** laboratory.

Table 7.5.5: List of facilities & Research Impact

Sl. No.	System	Description	Research Impact
1	5-DoF Educational Robot Arm	High-torque servo robotic arm with AI and embedded integration capability	Robotics programming, automation experiments, kinematics & industrial exposure

2	AI Vision & Perception Development Kit	Edge AI computing with computer vision modules	Object detection, inspection systems, AI perception learning
3	IoT & CPS Training System	Sensor-actuator cloud integrated smart system	Industry 4.0, smart monitoring, CPS modeling
4	Autonomous Mobile Rover Platform	AI-ready robotic rover with obstacle detection	Navigation, SLAM, embedded AI, robotics research
5	Animatronic Human-Robot Interaction Platform	Multi-servo humanoid interface system	HRI research, speech integration, emotion modeling

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
2023-24(CAYm2)	510	26	25	3	79
2024-25(CAYm1)	750	38	38	4	82
2025-26(CAY)	810	40	41	5	84

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 2025-26	Actual Expenses in 2025-26 till	Budgeted in 2024-25	Actual Expenses in 2024-25 till	Budgeted in 2023-24	Actual Expenses in 2023-24 till	Budgeted in 2022-23	Actual Expenses in 2022-23 till
Infrastructure Built-Up	28422000	27853760	7553000	7402318	4942000	4843611	9566000	9362797
Library	4643000	4550172	4429000	4339993	3981000	3902242	3432000	3329399
Laboratory equipment	14005000	13574761	12858000	12469632	10697000	9880307	9116000	8839643
Teaching and non-teaching staff salary	265800000	260484754	214920000	210621810	171249000	167823825	151193000	146658023
Outreach Programs	1465000	1436283	1251000	1226249	1083000	1061235	968000	939653
R&D	20418000	20008275	16654000	16322799	13808000	13532229	12766000	12510506
Training, Placement and Industry linkage	9551000	9263928	7884000	7647133	7570000	7340107	7248000	7103161
SDGs	47875000	46914018	38628000	37854936	24011000	23531932	18169000	17804120
Entrepreneurship	1168000	1133212	1132000	1098457	1045000	1012994	991000	951987
Others, specify	43348300	42153193	36763800	35755187	32003100	31120060	28324000	27531383
Total	**436695300**	**427372356**	**342072800**	**334738514**	**270389100**	**264048542**	**241773000**	**235030672**

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 2025-26	Actual Expenses in 2025-26 till	Budgeted in 2024-25	Actual Expenses in 2024-25 till	Budgeted in 2023-24	Actual Expenses in 2023-24 till	Budgeted in 2022-23	Actual Expenses in 2022-23 till
Laboratory equipment	1418000	1382357	1126000	1098037	214000	208717	639000	623510
Software	0	0	0	0	782000	762280	0	0
SDGs	6406000	6278295	5045000	4943529	3382000	3314390	2460000	2410552
Support for faculty development	350000	342679	320000	313904	275000	269248	245000	240400
R & D	1809000	1772577	1498000	1468111	1112000	1089292	991000	971133
Industrial Training, Industry expert, Internship	513000	497735	449000	435727	428000	414347	402000	394213

Miscellaneous Expenses*	1050000	1028331	838000	822023	703000	689225	646000	635136
Total	**11546000**	**11301974**	**9276000**	**9081331**	**6896000**	**6747499**	**5383000**	**5274944**