

NATIONAL BOARD OF ACCREDITATION

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

Program Name : Electrical & Electronics Engineering	Discipline : Engineering & Technology
Level : Under Graduate	Tier : 1
Application No : 12137	Date of Submission : 09-09-2026

PART A- Profile of the Institute

A1.Name of the Institute: ARKA JAIN UNIVERSITY	
Year of Establishment : 2017	Location of the Institute: https://www.google.com/maps/place/1ieUTF8fb1g1lnsaXgeocodeKX93lrTx5fU5MV2D7bMzYFAddaddr312AoppositetoKERALAPUBLICSCHOOLDISTGamhariaJamshedpurMohanpurJharkhand832108
A2. Institute Address: 312A, opposite. to KERALA PUBLIC SCHOOL, DIST, Gamharia, Jamshedpur, Mohanpur, Jharkhand 832108	
City:Saraikela	State:Jharkhand
Pin Code:832108	Website:www.arkajainuniversity.ac.in
Email:registrar@arkajainuniversity.ac.in	Phone No(with STD Code):-
A3. Name and Address of the Affiliating University (if any):	
Name of the University :	City: Saraikela
State : Jharkhand	Pin Code: 832108
A4. Type of the Institution: University	
A5. Ownership Status: Self financing	

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

- No. of UG programs: **5**
- 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	Artificial Intelligence and Data Science	2024	--	Computer Science and Engineering
2	Engineering & Technology	UG	Artificial Intelligence and Machine Learning	2024	--	Computer Science and Engineering
3	Engineering & Technology	UG	Computer Science & Engineering	2018	--	Computer Science and Engineering
4	Engineering & Technology	PG	Computer Science and Engineering	2024	--	Computer Science and Engineering
5	Engineering & Technology	PG	Electric Vehicle Technology	2024	--	Electrical and Electronics Engineering
6	Engineering & Technology	UG	Electrical and Electronics Engineering	2019	--	Electrical and Electronics Engineering
7	Engineering & Technology	PG	Manufacturing Engineering	2024	--	Mechanical Engineering
8	Engineering & Technology	UG	Mechanical Engineering	2018	--	Mechanical Engineering

9	Management	PG	Master of Business Administration	2017	--	Management
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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
Electrical and Electronics Engineering	No	Electrical and Electronics 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	PROGRAM DURATION
1	Electrical and Electronics Engineering	UG	2019 / --	60	No	NA	60	2019	F.No. Eastern/1-44638502481/2025/EOA	Applying first time	--	--	0	4

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 :	Keerti Rai
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)	60	60	60	60	60	60	60
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	31	32	20	13	8	5	4

N2=Number of students admitted in 2nd year in the same batch via lateral entry including leftover seats	0	34	14	22	58	33	32
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.	31	66	34	35	66	38	36

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)	60	31	0	51.67
2024-25 (CAYm1)	60	32	0	53.33
2023-24 (CAYm2)	60	20	0	33.33

Average [(ER1 + ER2 + ER3) / 3] = 46.11≅ 5.00

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).	66.00	66.00	66.00
B=No. of students who graduated from the program in the stipulated course duration	66.00	25.00	27.00
Success Rate (SR)= (B/A) * 100	100.00	37.88	40.91

Average SR of three batches ((SR_1+ SR_2+ SR_3)/3): 59.60

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)
Mean of CGPA or mean percentage of all successful students(X)	6.41	6.98	6.33
Y=Total no. of successful students	27.00	19.00	10.00
Z=Total no. of students appeared in the examination	27.00	19.00	10.00
API [X*(Y/Z)]	6.41	6.98	6.33

Average API[(AP1+AP2+AP3)/3] : 6.57

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 2nd year/10)	6.50	7.28	8.10

Y=Total no. of successful students	28.00	24.00	66.00
Z=Total no. of students appeared in the examination	33.00	29.00	67.00
API [$X * (Y/Z)$]	5.52	6.02	7.98

Average API [(AP1 + AP2 + AP3)/3] : 6.51

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)	7.74	8.10	7.84
Y=Total no. of successful students	24.00	66.00	25.00
Z=Total no. of students appeared in the examination	24.00	66.00	27.00
API [$X*(Y/Z)$]:	7.74	8.10	7.26

Average API [(AP1 + AP2 + AP3)/3] : 7.70

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	66.00	66.00	66.00
X=No. of students placed	49.00	18.00	14.00
Y=No. of students admitted to higher studies	5.00	0.00	2.00
Z= No. of students taking up entrepreneurship	1.00	3.00	1.00
Placement Index(P) = $((X + Y + Z)/FS) * 100$:	83.33	31.82	25.76

Average Placement Index = (P_1 + P_2 + P_3)/3: 46.97 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?
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1	Shailesh Kumar	XXXXXXX49D	Ph.D	Thapar Institute of Engineering & Technology (Deemed to be University) Patiyala, Punjab, India	Power Systems	01/07/2023	3.2	Associate Professor	Professor	01/07/2024	Regular	Yes		No
2	Keerti Rai	XXXXXXX23K	Ph.D	NIT, Jamshedpur	Motor Drives	02/03/2020	6.5	Assistant Professor	Associate Professor	02/01/2023	Regular	Yes		Yes
3	Kasinath Jena	XXXXXXX53A	Ph.D	KIIT University	Power Electronics	01/02/2023	3.6	Assistant Professor	Associate Professor	01/10/2024	Regular	Yes		No
4	Aditya Prasad Padhy	XXXXXXX92E	Ph.D	NIT, Raipur	Power System	03/10/2022	3.10	Assistant Professor	Associate Professor	01/10/2024	Regular	Yes		No
5	Amit Prakash Sen	XXXXXXX56Q	Ph.D	KIIT University	Image Processing	01/12/2021	4.8	Assistant Professor	Associate Professor	01/10/2024	Regular	Yes		No
6	Sweta Kumari Barnwal	XXXXXXX26B	Ph.D	NIT, Jamshedpur	Wireless Sensor Network	02/07/2018	8.2	Assistant Professor	Assistant Professor		Regular	Yes		No
7	Md. Irfan Ahmed	XXXXXXX25M	Ph.D	NIT, Patna	Power System	01/07/2023	3.2	Assistant Professor	Assistant Professor		Regular	Yes		No
8	Nidhi Dua	XXXXXXX41B	Ph.D	NIT, Jamshedpur	Pattern Recognition Using Deep Learning	01/04/2023	3.4	Assistant Professor	Assistant Professor		Regular	Yes		No
9	Prem Nath Suman	XXXXXXX05L	Ph.D	BIT, Meshra	Microwave & Components	02/01/2025	1.7	Assistant Professor	Assistant Professor		Regular	Yes		No
10	Manju Ansari	XXXXXXX27L	M.Tech	Swami Vivekanand University, Sagar, MP	Power System	15/03/2024	2.5	Assistant Professor	Assistant Professor		Regular	Yes		No
11	Akash Bhagat	XXXXXXX56C	M.Tech	VTU	Digital Electronics	02/02/2019	7.6	Assistant Professor	Assistant Professor		Regular	Yes		No
12	Taniya Ghosh	XXXXXXX80G	M.Tech	BPUT	Power Electronics & Power System	15/04/2024	2.4	Assistant Professor	Assistant Professor		Regular	Yes		No
13	Sarita Kumari Srivastav	XXXXXXX16M	M.Tech	Kurukshetra University	Electronics & Communication Engineering	03/03/2025	1.5	Assistant Professor	Assistant Professor		Regular	Yes		No
14	Debanjan Ghosh	XXXXXXX48B	M.Tech	WBUT, Kolkata, West Bengal	Electronics & Instrumentation	03/02/2022	4.6	Assistant Professor	Assistant Professor		Regular	Yes		No
15	Manaswita Sharma	XXXXXXX47E	M.E.	Dibrugarh University	Instrumentation and control engineering	01/07/2023	1.5	Assistant Professor	Assistant Professor		Regular	No	14/12/2024	No
16	Adarsha Rana	XXXXXXX55L	M.Tech	Jadavpur University	Electrical Engineering	15/03/2024	1.4	Assistant Professor	Assistant Professor		Regular	No	17/07/2025	No

17	Soumyashree	XXXXXXXX35F	M.Tech	Chandigarh University	Robotics and Automation	01/07/2025	1.2	Assistant Professor	Assistant Professor		Regular	Yes		No
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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 Department1

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

Description	CAY(2025-26)	CAYm1 (2024-25)	CAYm2 (2023-24)
UG1.B	65	60	60
UG1.C	60	60	60
UG1.D	60	60	60
UG1: Electrical and Electronics Engineering	185	180	180
PG1.A	12	12	0
PG1.B	12	0	0
PG1: Electric Vehicle Technology	24	12	0
DS=Total no. of students in all UG and PG programs in the Department	209	192	180
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= 209	S2= 192	S3= 180
DF=Total no. of faculty members in the Department	14	12	11
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= 14	F2= 12	F3= 11
FF=The faculty members in F who have a 100% teaching load in the first-year courses	2	2	2
Student Faculty Ratio (SFR)=S/(F-FF)	SFR1= 16.08	SFR2= 17.45	SFR3= 18.00
Average SFR for 3 years	SFR= 17.18		

C3. Faculty Qualification

- Faculty qualification index (FQI) = $2.5 \times [(10X + 4Y)/RF]$ 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 = $2.5 \times [(10X + 4Y) / RF]$
2025-26(CAY)	8	6	10.00	26.00
2024-25(CAYm1)	6	6	9.00	23.33
2023-24(CAYm2)	5	6	9.00	20.56

C4. Faculty Cadre Proportion

- Faculty Cadre Proportion is 1(RF1): 2(RF2): 6(RF3)
- RF1= No. of Professors required = $1/9 \times$ 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 = $2/9 \times$ 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 = $6/9 \times$ 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	2.00	4.00	7.00	9.00
2024-25	1.00	1.00	2.00	1.00	6.00	10.00
2023-24	1.00	0.00	2.00	2.00	6.00	9.00
Average	RF1=1.00	AF1=0.67	RF2=2.00	AF2=2.33	RF2=6.33	AF2=9.33

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	Anil Kumar Mehta	Asst. Professor of Practice	ARKA JAIN University	Electrical Machine I Lab, Electrical Machine II Lab, Basic Electrical Engineering Lab	60.00

(CAYm2)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Anil Kumar Mehta	Asst. Professor of Practice	ARKA JAIN University	Power System Lab, Electrical Machine Lab, Basic Electrical Engineering Lab	65.00

(CAYm3)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Anil Kumar Mehta	Asst. Professor of Practice	ARKA JAIN University	Electrical Machine Lab, Basic Electrical Engineering Lab	50.00

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	8	13	10
2	No. of peer reviewed conference papers published	10	21	5
3	No. of books/book chapters published	6	7	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. Shailesh Kumar	Dr. Anup Kumar	Department of Electrical and Electronics Engineering, Arka Jain University Jharkhand	Development of multi-environmental parameter dependent temperature model to improve the short-term forecasting output of PV module for north and east –west location of Jharkhand.	Jharkhand council on Science, Technology and Innovation, Government of Jharkhand	2 Years	3.80
						Amount received (Rs.):3.80

(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
Dr. Aditya Padhy	Dr. Ashok Kumar Pradhan	Department of Electrical and Electronics Engineering, Arka Jain University Jharkhand	Development of real time energy management system for electrical vehicle aggregator by considering renewable energy uncertainties and false data injection cyber attack in microgrids	ANRF/SERB, Govt. of India	3 Years	18.30
						Amount received (Rs.):18.30

(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
0	0	0	0	0	0	0.00
						Amount received (Rs.):0.00

Total Amount (Lacs) Received for the Past 3 Years: 22.10**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. Kasinath Jena	Dr. Aditya Prasad Padhy	Electrical & Electronics Engg.	Electrical Energy-Use and Process Efficiency Assessment for Mining-Support Operations	G.M Enterprises	12 Months	2.00
Dr. Keerti Rai	Sweta Kumari Barnwal	Electrical & Electronics Engg.	Digital Infrastructure and Network Performance Assessment for Commercial Operations	Media Solution	11 Months	2.00
Dr. Shailesh Kumar	Nidhi Dua	Electrical & Electronics Engg.	Electrical Safety and Energy-Use Assessment for Commercial Operations	Jharkhand Trading Co.	10 Months	2.00
Dr. Aditya Prasad Padhy	Abhishek Upadhya	Electrical & Electronics Engg.	Construction-Site Electrical Planning and Safety Assessment	Niraj Kumar	11 Months	2.00
Dr. Amit Prakash Sen	Dr. Pompe Das Sen Gupta	Electrical & Electronics Engg.	Electrical Load and Power Management Assessment	Akash Enterprises	8 Months	1.00
Dr. Praveen Kumar Thakur	Dr. Shailesh Kumar	MBA	Operational Process Review and Efficiency Improvement Framework	Legal Help Zyn	12 Months	2.00
Dr. Charu Wadhwa	Keerti Rai	MBA	Business Process and Service Delivery Assessment	Yash Associate	8 Months	1.00
						Amount received (Rs.):12.00

(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
Dr. Aditya Prasad Padhy	-	Electrical & Electronics Engg.	IT Hardware and Network Infrastructure Baseline Assessment	Akash Enterprises	3 Months	0.15
Dr. Kasinath Jena	-	Electrical & Electronics Engg.	Electrical Safety and Equipment Utilisation Review	G M Enterprises	4 Months	0.30
Md. Irfan Ahmed	-	Electrical & Electronics Engg.	Energy Consumption and Basic Electrical Efficiency Assessment	Niraj Kumar	3 Months	0.14
Keerti Rai	Dr. Sonia Riyat	Electrical & Electronics Engg.	Digital Workflow and Network Support Assessment for Client Operations	Radio Geeth Digital	8 Months	0.84
Amit Prakash Sen	Rama Singh	Electrical & Electronics Engg.	Electrical Safety and Workplace Power-Use Assessment	Bansal Traders	5 Months	0.50
Rama Singh	Amit Prakash Sen	MBA	Business Process Documentation and Service Improvement Review	Legal Help Zyn	2 Months	0.12
						Amount received (Rs.):2.05

(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. Kasinath Jena	-	Electrical & Electronics Engg.	Electrical Safety and Energy-Use Assessment for Commercial Operations	G.M Enterprises	4 Months	0.42
Keerti Rai	-	Electrical & Electronics Engg.	IT Infrastructure and Network Readiness Assessment	Niraj Kumar	5 Months	0.52
Akash Bhagat	Dr. Urvashi Thakur	Electrical & Electronics Engg.	Electrical Load and Equipment Utilisation Review	R. K Choudhari & Co.	4 Months	0.52
Aditya Prasad Padhy	-	Electrical & Electronics Engg.	Electrical Safety and Workplace Power-Use Assessment	Jharkhand Trading Co.	3 Months	0.29
Amit Prakash Sen	-	Electrical & Electronics Engg.	Basic Electrical Audit and Energy Conservation Review	Yash Associate	3 Months	0.25
						Amount received (Rs.):2.00

Total amount (Lacs) received for the past 3 years: 16.05

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. Keerti Rai	Design and development of finger stretching device.	1 Year	0.99	0.99	Patent
Dr. Shailesh Kumar	Condition Monitoring of transformer breather using smart Sensor.	1 Year	0.79	0.79	Publications Patent
Dr. Amit Prakash Sen	Detection of diabetic retinopathy from funds image using deep learning.	1 Year	0.97	0.97	Publications
Dr. Aditya Prasad Padhy	Detection of false data injection attack (FDIA) using dynamic state estimation in the smart grid.	1 Year	0.61	0.61	Publications
			Amount received (Rs.): 3.36		

(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
Dr. Keerti Rai	Design and development of finger stretching device.	1 Year	0.61	0.61	Patent
Dr. Shailesh Kumar	Condition Monitoring of transformer breather using smart Sensor.	1 Year	0.30	0.30	Publications Patent
Dr. Amit Prakash Sen	Detection of diabetic retinopathy from funds image using deep learning.	1 Year	0.59	0.59	Publications
			Amount received (Rs.): 1.50		

(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
Dr. Amit Prakash Sen	Publication	1 Year	0.50	0.50	Publication
Dr. Aditya Prasad Padhy	Publication	1 Year	0.50	0.50	Publication
Dr. Kashinath Jena	Publication	1 Year	0.50	0.50	Publication
			Amount received (Rs.): 1.50		

Total amount (Lacs) received for the past 3 years : 6.36

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	Power Electronics Lab	15	SCR Characteristics Trainer Kit,MOSFET Trainer Kit,IGBT Trainer Kit,UJT Characteristics Trainer Kit,DIAC Characteristics Trainer,TRIAC Characteristics Trainer	33%	Bilquees Bano	Lab Assistant	Pursuing B.Tech
2	Digital Electronics Lab	15	Digital Electronics Trainer Kit,4 Bit Binar Adder/Subtractor Trainer Kit,DC Power Supply,LED Characteristics Kit,4 Bit Binary Counter	50%	Bilquees Bano	Lab Assistant	Pursuing B.Tech
3	Microprocessor Lab	15	8085 Microprocessor Trainer,8086 Microprocessor Trainer,8051 Microcontroller Trainer KitInterface Card,8085 Microcontroller Trainer Kit,Programmable	50%	Bilquees Bano	Lab Assistant	Pursuing B.Tech
4	Basic Electrical Engineering Lab	15	Ohm's Law Apparatus, Series & Parallel Apparatus, Kirchhoff's Current Law Kit, Kirchhoff's Voltage Law Kit, Superposition Theorem Trainer	33%	Ichha Rani Hansda	Lab Assistant	Pursuing B.Tech
5	Analog Electronics Circuit lab	15	Operational Amplifier Trainer Kit, Analog Oscilloscope, Function Generator, Power Supply, PN Junction Trainer Kit, Zener Diode Trainer	33%	Ichha Rani Hansda	Lab Assistant	Pursuing B.Tech
6	Engineering Physics lab	15	Fiber optics kit, PN junction diode apparatus, Energy band gap apparatus, Planks constant apparatus, Pnp & Npn Transistor apparatus, LED Apparatus	25%	Mr. Mihir Kumar Mahakud	Lab. Technician	Pursuing Ph.D
7	Power System-I Lab	15	Electromagnetic-type overvoltage relay, Electromagnetic-type undervoltage relay, Electromagnetic type current relay	50%	Md Nasim Ansari	Lab Assistant	B.Tech in Electrical Engg
8	Electrical Machines-I Lab	15	Single Phase Transformer, DC shunt Motor, Dc Series Motor, Dc Compound Motor, DC Motor Generator Set, Single Phase Induction Motor	100%	Md Nasim Ansari	Lab Assistant	B.Tech in Electrical Engg
9	Electrical Machines-II Lab	15	Three-Phase Induction Motor, Three-Phase Synchronous Motor, Three-Phase Alternator-DC Motor Set, Three Phase Transformer, Single Phase Induction	100%	Md Nasim Ansari	Lab Assistant	B.Tech in Electrical Engg

10	Measurement & Instrumentation Lab	15	Single Phase Energy Meter, Three Phase Energy Meter, Single phase RLC Circuit, Single Phase power	100%	Md Nasim Ansari	Lab Assistant	B.Tech in Electrical Engg
11	Control System Laboratory	15	PID Controller, Cntrl System Simulator, DC Position Controller, Synchro transmitter receiver as error	50%	Ajit Rajak	Lab Assistant	Diploma
12	Network Theory Lab	15	Superposition theorem kit, Thevenin's Theorem Kit, Norton's Theorem Kit, Maximum Power Theorem	33%	Md Nasim Ansari	Lab Assistant	B.Tech in Electrical Engg
13	Electrical Simulation tool Laboratory	15	MATLAB	25%	Megha Sriwastav	Lab Assistant	MCA

D2. Safety Measures in Laboratories

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

Sr. No	Laboratory Name	Safety Measures
1	Power Electronics Lab	1. Specific safety rules for students displayed. 2. First aid box and fire extinguisher are kept in the laboratory. 3. Avoid the use of cell phones. 4. Appropriate storage areas.
2	Digital Electronics Lab	1. Specific safety rules for students displayed. 2. First aid box and fire extinguisher are kept in the laboratory. 3. Avoid the use of damaged equipment and provides needful equipment and components. 4. Avoid the use of cell phones. 5. Appropriate storage areas.
3	Microprocessor Lab	1. Specific safety rules for students displayed. 2. First aid box and fire extinguisher are kept in the laboratory. 3. Use of proper guidelines for soldering. 4. Proper disposal of soldering waste material. 5. Avoid the use of damaged equipment and provides needful equipment and components. 6. Periodical servicing of the lab equipment. 7. Avoid the use of cell phones. 8. Appropriate storage areas.
4	Basic Electrical Engineering Lab	1. Specific safety rules for students displayed. 2. First aid box and fire extinguisher are kept in the laboratory. 3. Avoid the use of condemned equipment and provides needful equipment and components. 4. Periodical servicing of the lab equipment. 5. Maintain a clean and organized laboratory. 6. Avoid the use of cell phones. 7. Appropriate storage areas.
5	Analog Electronics Circuit lab	1. Specific safety rules for students displayed. 2. First aid box and fire extinguisher are kept in the laboratory. 3. Remove the watch or any other jewelry and avoid loose clothing before handling equipment. 4. All equipment's/apparatus must be placed at their proper places after performing the experiments. 5. Proper handling of all the hardware/software with care. 6. Maintain a clean and organized laboratory. 7. Avoid the use of cell phones. 8. Appropriate storage areas.
6	Engineering Physics lab	1. Specific safety rules for students displayed. 2. First aid box and fire extinguisher are kept in the laboratory. 3. Avoid the use of damaged equipment and provides needful equipment and components. 4. Periodical servicing of the lab equipment. 5. Maintain a clean and organized laboratory. 6. Avoid the use of cell phones. 7. Appropriate storage areas.
7	Power System-I Lab	1. Specific safety rules for students displayed. 2. First aid box and fire extinguisher are kept in the laboratory. 3. Remove the watch or any other jewelry and avoid loose clothing before handling equipment. 4. All equipment's/apparatus must be placed at their proper places after performing the experiments. 5. Proper handling of all the hardware/software with care. 6. Maintain a clean and organized laboratory. 7. Avoid the use of cell phones. 8. Appropriate storage areas.

8	Electrical Machines-I Lab	1. Specific safety rules for students displayed. 2. First aid box and fire extinguisher are kept in the laboratory. 3. Use of proper guidelines for soldering. 4. Proper disposal of soldering waste material. 5. Avoid the use of damaged equipment and provides needful equipment and components. 6. Periodical servicing of the lab equipment. 7. Maintain a clean and organized laboratory. 8. Avoid the use of cell phones. 9. Appropriate storage areas.
9	Electrical Machines-II Lab	1. Specific safety rules for students displayed. 2. First aid box and fire extinguisher are kept in the laboratory. 3. Rubber sole shoes must be worn at all times. 4. Remove all loose conductive jewellery 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). 5. "Cheater" cords and 3-to-2 prong adapters are prohibited unless an adequate separate ground lead is provided. 6. Keep fluids, chemicals, and heat away from instruments and circuits. 7. Avoid contacting circuits with wet hands or wet materials. 8. Avoid the use of damaged equipment and provides needful equipment and components. 9. Periodical servicing of the lab equipment. 10. Maintain a clean and organized laboratory. 11. Avoid the use of cell phones. 12. Appropriate storage areas.
10	Measurement & Instrumentation Lab	1. Specific safety rules for students displayed. 2. First aid box and fire extinguisher are kept in the laboratory. 3. Periodical servicing of the computer systems. 5. Use of latest updated software to avoid malfunctioning during the programming. 6. Maintain a clean and organized laboratory. 7. Avoid the use of cell phones. 8. Appropriate storage areas.

D3. Project Laboratory/Research Laboratory

The Department of Electrical and Electronics Engineering has established project and research-oriented laboratory facilities to support **experiential learning, innovation, application-oriented project work and advanced research**. The facilities provide students with opportunities to apply engineering concepts through the design, development, testing and implementation of practical systems, while also supporting faculty-led research and advanced work by research scholars. The laboratory ecosystem covers areas including **electric vehicles, IoT, embedded systems, sensors, industrial automation, robotics, PLC/SCADA, power systems, power electronics, control systems and data-driven applications**.

The Project Laboratory serves as an important platform for student project development, particularly for final-year projects involving practical engineering problems. The Department also facilitates industry-linked experiential learning through internship projects undertaken at Tata Motors, Jamshedpur, providing exposure to manufacturing, vehicle systems, automation, quality improvement, process optimisation and industrial problem-solving. The associated Project Library further strengthens hands-on learning through specialised hardware and software resources.

The Research Laboratory provides infrastructure for externally funded research as well as advanced research activities in areas such as power systems, power electronics and control systems. Computational, simulation, measurement and prototyping resources support research activities undertaken by faculty members and research scholars. In addition, the **Centre of Excellence in Automation & Robotics**, established in 2025, provides focused exposure to PLC, SCADA, industrial automation and robotics. Thus, the facilities collectively provide a continuum from **student project work and experiential learning to industry exposure, advanced research and specialised skill development**.

7.5.1 List of Projects carried out in project laboratory

The Project Laboratory provides a dedicated environment for students to undertake **application-oriented engineering projects** as part of their academic and experiential learning. The projects documented by the Department cover a broad range of contemporary Electrical and Electronics Engineering applications, including **electric mobility, IoT, embedded systems, sensors, electrical safety, robotics, automation and smart systems**. These projects require students to integrate concepts from different courses and apply them towards the development of functional solutions.

The documented projects include the **design and development of a solar-power-based electric vehicle, IoT-based vehicle ignition systems, IoT-enabled signal conditioning and moisture sensing systems, smart helmets for accident alerts, self-charging modules for electric vehicles, sensor-based human safety systems, smart irrigation systems and IoT-based electric charging stations**. Other projects involve PLC-based systems, password-based electrical safety systems, robotic arms, agricultural robots, battery monitoring, anti-hazard protection systems, obstacle avoidance and smart healthcare applications.

The project portfolio also includes **industry-linked internship projects at Tata Motors, Jamshedpur**, covering areas such as material-handling systems, laser cutting applications, vehicle performance testing, cost reduction, line-efficiency improvement, quality-cost reduction, vehicle component failure prevention, safety-belt bracket issues and vibration/temperature monitoring. These projects provide exposure to practical industrial problems and allow students to work with engineering processes beyond the conventional classroom environment.

The project portfolio therefore demonstrates the use of the laboratory for **hands-on application, problem identification, system design, experimentation and innovation**, with both academic project work and industry-linked experiential learning represented in the documented activities. List of project carried out through final year students are shown in Figure 7.5.1.

Table 7.5.1: List of final year projects carried out in project lab in assessment years.

S.N.	Title of the projects	Lab associated	Experiential learning /Innovation activities
1.	Design and development of solar-power based electric vehicle.	Project Lab	Final Year Project
2.	A relaxation oscillator based transformer ratio arm bridge circuit for capacitive humidity sensor.	Project Lab	Final Year Project
3.	Design and development of IoT based RFID, fingerprint and password -based vehicle ignition system.	Project Lab	Final Year Project
4.	Design and development of IoT enabled signal conditioning circuit and display for moisture sensing in transformer oil.	Project Lab and Chemistry lab	Final Year Project

5.	Crash notify: Smart helmet for accident alerts	Project Lab	Final Year Project
6.	Design and Implementation of a Self-Charging Module for Electric Vehicles Using Hub Motor Technology.	Electrical Machine Lab	Final Year Project
7.	Sensor-based human safety system for machines with moving parts.	Project Lab	Final Year Project
8.	Smart Irrigation system.	Electrical Machine Lab	Final Year Project
9.	IoT-based smart electric charging station with automated access and billing system.	Project Lab	Final Year Project
10.	PLC based in-house signal cable checking system.	Electrical Machine Lab	Final Year Project
11.	Smart password based Electrical safety system.	Project Lab	Final Year Project
12.	Design and Development of a wireless Control Robotic Arm For Industrial Applications	Project Lab	Final Year Project
13.	Agricultural robot for smart irrigation	Project Lab	Final Year Project
14.	IoT based battery monitoring system using Arduino UNO with solar panel	Project Lab	Final Year Project
15.	Design and development of IoT based anti-hazards protection system for industrial applications	Project Lab	Final Year Project
16.	Obstacle avoidance robotic vehicle	Project Lab	Final Year Project
17.	Smart healthcare and speed controller system for electric bike	Project Lab	Final Year Project
18.	Safety interlocking of door material handling system with robotic fixture bed	Tata Motors, Jamshedpur	Internship

19.	Application of laser cutting(2d-3d) process in auto parts(proto & project based m&hcv vehicle) manufacturing over conventional method	Tata Motors, Jamshedpur	Internship
20.	In-house verification process of data logger analog channels for vehicle performance testing	Tata Motors, Jamshedpur	Internship
21.	Variable indirect cost reduction	Tata Motors, Jamshedpur	Internship
22.	Optimizing Line Efficiency by Identifying Abnormalities and Implementing Station Wise Kaizen for Gear Box Assembly Line -2	Tata Motors, Jamshedpur	Internship
23.	Reduction in cost on poor quality (copq) in differential machine shop	Tata Motors, Jamshedpur	Internship
24.	Prevention of damage/failure of bs-vi vehicle cp4 bosch pump	Tata Motors, Jamshedpur	Internship
25.	Elimination of safety belt bracket offset issue	Tata Motors, Jamshedpur	Internship
26.	Online vibration and temperature monitoring of pump by RF technology	Tata Motors, Jamshedpur	Internship

7.5.2 Project Library

The Project Library supports the implementation of student projects by providing access to **specialised hardware, industrial training systems and prototyping resources**. The available resources have been selected to facilitate practical learning in areas that are directly relevant to Electrical and Electronics Engineering and its emerging applications. The equipment enables students to move from conceptual understanding to experimentation, system development and prototype-level implementation.

The Project Library includes a **6-axis industrial robot** with industrial communication and programming capabilities, providing exposure to robotics, automation, material handling, assembly and manufacturing applications. A **3D printer** supports rapid prototyping, additive manufacturing and component fabrication. The **Siemens S7-1200 Industrial PLC Trainer Kit** provides facilities for PLC programming, sequence control, industrial automation and process control. The **WinCC SCADA development suite** supports industrial process monitoring, supervisory control, data acquisition, alarm management and trend analysis.

The laboratory resources also include an **industrial pneumatic trainer**, conveyor-belt training system, Raspberry Pi PCB kit and Arduino UNO PCB kit. These facilities support practical exposure to pneumatic circuit design, actuator and sequence control, material handling, sensor-based detection, embedded systems, IoT, microcontroller programming and sensor-actuator interfacing.

The Project Library thus provides a combination of **industrial automation equipment, robotics platforms, prototyping facilities, embedded-system kits and control-system trainers**. These resources support the development and testing of student projects and strengthen experiential learning by enabling students to work with technologies and systems used in contemporary industrial and engineering applications.

Table: 7.5.2: list of facilities to carry out the projects for UG and PG students.

Serial No	Name of Software / Hardware	Version / Specification	Purpose / Application	Quantity
1	6 Axis Industrial Robot	- Payload: 7 kg - Reach: 911 mm - Controller: R-30iB Mate Plus - Input Power: 200 to 230 V - Power Supply: Three-phase - Robot Connection Cable (RCC): 7 m - Teach Pendant (TP) Cable: 10 m - Communication: Ethernet IP	Robot programming, industrial automation, material handling, assembly and manufacturing applications.	1
2	3D Parameter (Additive)	- Industrial Grade 3D Printer - Single Extruder Nozzle - Power failure Protection - Filament Sensor - Automatic Bed Level - LCD Touch Screen - Multi Material Support - 3D Printer Accessories - 3D printer Onsite Installation and Training	Rapid prototyping, additive manufacturing and component fabrication training.	1
3.	Industrial PLC Trainer Kit	Siemens- Siemens S7-1200. INDUSTRIAL PLC TRAINER KIT Model XPO PLC (Siemens Make S71200) Digital I/O (30 I + 26 O)+ Analog I/O(2AI+1AO)) Experimentation Set-up CDPs, SEPs, Baseboard and 19 Analog & Digital SAPS	PLC programming, industrial automation, sequence control and process control training.	1

4.	SCADA SOFTWARE development SUIT	Wincc (Siemens) SCADA software development suite supplied on installable DVD Supports 2048 tags,	Industrial process monitoring, supervisory control, data acquisition, alarm management and trend analysis.	1
5.	Industrial Pneumatic Trainer Kit	ANSHUMAN Model-XPO-Pneumatic QRC PU tubings, plate mounted Components with easily removable adaptor etc as per leaflet without Compressor, (to be purchased separately) + Slient Air compressor Displament 3cfm, working pressure 7 kg / cm2 (7 Bar) with 0.5 HP 1440 rpm electric motor 230 V, 50 Hz, phase with 10 bar gage & shut off valve with 6.3 mm brass male connector hose.	Industrial pneumatic circuit design, actuator control, sequence control and automation training	1
6.	Conveyor Belt training system	over height work pieces are separated from correct size metal pieces & rejected. Sensors : • PNP, 24vdc operated photo reflective Proximity 1No. For over height detection. • PNP, 24vdc operated Inductive proximity 1no. for metal detection. • PNP, 24vdc operated Capacitive proximity 1 No for plastic detection. Control devices : 5/2 way single Solenoid valve 24Vdc operated, 2 nos. Actuators: • 1 ph. AC Sync motor 60rpm, flange mounted • Double acting Cylinders- 2 nos, stroke length - 50mm, Dia-12mm. Material Handling system : • slider plate (chute) to guide work piece from one station to another, • Reject part Storage bin 2nos. Panels used : • PLC IO distribution Air distribution & manual control : • 4 way manifold with self sealing QRC.	Material handling, sensor-based detection, PLC-controlled conveyor automation and sequence control training.	1

7.	Raspberry pi PCB kit	Micro-SD card, Temperature Sensor, Humidity Sensor, Light Sensor, Proximity Sensor, Distance Sensor, Motion Sensor, Gas Sensor, Pressure Sensor, Sound Sensor, Touch Sensor, IR Sensor, Actuator Interface	Embedded systems, IoT, sensor interfacing, automation and prototype development training.	1
8.	Arduino UNO PCB kit	Micro-SD card, Temperature Sensor, Humidity Sensor, Light Sensor, Proximity Sensor, Distance Sensor, Motion Sensor, Gas Sensor, Pressure Sensor, Sound Sensor, Touch Sensor, IR Sensor, Actuator Interface	Microcontroller programming, sensor-actuator interfacing, embedded systems and automation prototype development.	1

7.5.3 List of Research laboratory

The Department has established a Research Laboratory to provide infrastructure for **faculty-led research, externally funded projects and advanced research activities** in Electrical and Electronics Engineering. The research facilities complement the teaching and project laboratories by providing resources required for higher-level simulation, modelling, experimentation, data analysis and technology-oriented research.

7.5.3.1 Research project received from External funded agencies

1. The Department has undertaken externally funded research in areas aligned with emerging requirements in power systems, electric mobility and renewable energy. The documented externally funded project is titled **“Development of Real Time Energy Management System for Electrical Vehicle Aggregator by Considering Renewable Energy Uncertainties”**, with **Dr. Aditya Prasad Padhy as Principal Investigator**. The project has been funded by the **Anusandhan National Research Foundation (ANRF)** with a sanctioned amount of **₹18,30,000**.

The project addresses the development of an energy management framework for electrical vehicle aggregation while considering uncertainties associated with renewable energy generation. The research infrastructure associated with the project includes a dedicated computing system with an Intel Core i7 processor, 16 GB RAM and a 64-bit operating environment. The availability of externally funded research provides a structured mechanism for undertaking research against defined objectives and supports the Departments engagement with contemporary challenges in electric mobility, energy management and renewable-energy integration.

The externally funded research project also strengthens the linkage between the Departments academic expertise and emerging technological areas. It provides a research platform for advanced modelling, analysis and development activities and contributes to the development of institutional research capability in the area of intelligent energy systems.

The details of the equipment used to carried out the project is shown in Table 7.5.3.

Table 7.5.3: Details of equipment

Serial No	Name of the Project	Name of PI	Funded Agency	Amount Sanctioned	Equipment's Specifications
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1	Development of Real Time Energy Management System for Electrical Vehicle Aggregator by Considering Renewable Energy Uncertainties	Dr. Aditya Prasad Padhy	Anusandhan National Research Foundation (ANRF)	18,30,000	Processor Intel(R) Core(TM) i7-14650HX (2.20 GHz) Installed RAM 16.0 GB (13.7 GB usable) System type 64-bit operating system, x64-based processor Edition Windows 11 Home Single Language Version 25H2 Installed on 22-04-2025 OS build 26200.8246 Experience Windows Feature Experience Pack 1000.26100.297.0
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2. The department has received externally funded research project in the area aligned with condition monitoring of weather condition and development of weather variable model for the short term forecasting of power generation from PV module. The documented externally funded project is titled **“Development of multi-environmental parameter dependent temperature model to improve the short term forecasting output of PV module for north and east-west location of Jharkhand”** with Dr. Shailesh Kumar as Principle Investigator and Dr. Anup Kumar as Co- Principle Investigator. The project has been funded by Jharkhand council on Science, Technology and Innovation, Government of Jharkhand with sanction amount of Rs-3, 80000.00

In this research work, a novel empirical model for monitoring the temperature of the photovoltaic system based on the weather condition of the north and east - west region of Jharkhand state will be developed. This model will be suitable for predicting the PV temperature during the transient weather condition of the Jharkhand state. The developed model will consist of four different input variables to predict the photovoltaic module temperature namely relative humidity, ambient temperature, wind speed and irradiance. Model will be implemented and evaluated on various PV modules installed in north and east - west regions of Jharkhand state on a 1-minute basis. Based on the develop model, temperature and output power monitoring hardware model for photovoltaic systems installed in north and east-west locations of Jharkhand will be developed. The developed model will help the operator to adjust the system operation in real time in different weather conditions to optimize the efficiency of the PV module.

List of Equipment used in this project is given below:

- 1. Weather monitoring station
- 2. Instrumentation system used for monitoring the temperature of PV module.
- 3. Humidity sensor
- 4. Temperature sensor
- 5. Solar radiation sensor
- 6. Wind speed and direction measurement sensor

7.5.3.2 Research Scholar Lab

The Research Scholar Lab provides a dedicated environment for **advanced research by graduate, postgraduate and doctoral scholars** in the areas of **Power System, Power Electronics and Control System**. The facility is supported by simulation software, programming environments, embedded platforms, measurement equipment, computational resources and research-oriented digital resources. This infrastructure enables scholars and researchers to undertake modelling, simulation, algorithm development, experimentation, data analysis and validation of research outcomes.

The software resources include **MATLAB/Simulink R2024a**, Python for applications such as power-system simulation, control-system design, artificial intelligence and data analytics, power-electronics and HVDC simulation, power-flow analysis and state estimation. Hardware resources include **Arduino and Raspberry Pi platforms, NVIDIA Jetson Orin Nano, digital storage oscilloscope, digital multimeters, GPU workstations and i5/i7 laptops**.

The laboratory is further supported by access to **IEEE Xplore, and various e-books and journals**, providing researchers with relevant technical literature and reference material. The combination of simulation, computational, embedded and measurement resources provides an integrated environment for advanced research and supports experimental as well as computational approaches. The facility therefore contributes to strengthening research capability and provides scholars with the infrastructure required to undertake specialised research in power systems, power electronics and control applications.

Table: 7.5.4: Facilities available in project lab.

Serial No	Name of Software / Hardware	Version Specification	Purpose Application	Quantity
1	MATLAB / Simulink	R2024a	Power system simulation, control design, AI modeling	Subscription
2	Python	Python 3.14.4	Machine learning, deep learning, data analytics	Open Source
3.	Arduino / Raspberry Pi Kits	Nano, mega, R-pi-5 and NVIDIA Jetson Orin™ Nano	IoT Automation	8
4.	Oscilloscope	Digital Storage	Signal Analysis	1
5.	Digital Multimeters	Portable	Electrical Measurement	4
6.	GPU Workstation	NVIDIA RTX Series	Deep Learning Research	4
7.	Laptops	i5/i7	Simulation & Research	5

8.	Library / E-resources / Journals	IEEE Xplore, e-books, and various journals.	Research Reference	Subscripti
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7.5.4 List of Center of Excellence

The Department has established a **Centre of Excellence in Automation & Robotics in 2025** with a focus on **PLC, SCADA, industrial automation and robotics**. The Centre provides a specialised platform for strengthening practical and industry-oriented skills in automation technologies and complements the facilities available through the Project and Research Laboratories.

The focus areas of the Centre are closely connected with contemporary industrial applications, where programmable logic controllers, supervisory control and data acquisition systems, automated processes and robotic systems are widely used. The Centre provides an avenue for students to gain structured exposure to these technologies through practical learning and application-oriented activities. It also complements the industrial automation resources already available through the Project Library, including the industrial robot, PLC trainer, SCADA software and associated training systems.

The Centre is intended to contribute to **skill development and placement-oriented exposure**, enabling students to strengthen their familiarity with automation and robotics technologies and their practical applications. Its establishment also provides a focused platform through which laboratory-based learning can be connected with emerging industrial requirements. The Centre therefore adds a specialised dimension to the Departments laboratory ecosystem and supports the development of practical competencies in automation and robotics.

Table-7.5.5 : List of centre of excellence

Serial No	Name of the Center	Year of Establishment	Objective	Outcomes / Achievements
1.	Center of Excellence in Automation & Robotics	2025	PLC, SCADA, industrial automation, robotics	Skill development, placements

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)	300	15	11	5	65
2024-25(CAYm1)	300	15	18	10	109
2025-26(CAY)	360	18	21	11	106

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	35500000	35454908	30000000	30494806	25000000	27641889	30000000	28278069
Library	140000	139243	322000	321885	500000	454512	400000	418710
Laboratory equipment	2550000	2536022	2400000	2375836	1300000	1327408	2650000	2648855
Teaching and non-teaching staff salary	60000000	59392001	50000000	48442405	40000000	37680697	28000000	28018519
Outreach Programs	25500000	25542662	17500000	17422109	15000000	15021871	10600000	10610383
R&D	2500000	2217415	1050000	1044369	1150000	1148284	850000	827544
Training, Placement and Industry linkage	23000000	22720619	16000000	16025228	4300000	4282013	4900000	4879623
SDGs	900000	895915	2500000	2471098	2000000	1973997	4300000	4303235
Entrepreneurship	4550000	4562717	4300000	4273991	3500000	3529753	2200000	2158900
Others, specify	30000000	31435550	15000000	14868072	16000000	15796736	10000000	9936441
Total	184640000	184897052	139072000	137739799	108750000	108857160	93900000	92080279

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	2250000	2248086.00	2200000	2220170.00	1000000	1065547.00	1200000	1239327
Software	100000	0	100000	0	500000	542800	100000	0
SDGs	250000	268774	700000	741329	600000	592199	1200000	1290971
Support for faculty development	250000	250928	200000	197268	45000	43890	45000	40169
R & D	1500000	1510712	1000000	926369.00	600000	605484	800000	759694.00
Industrial Training, Industry expert, Internship	100000	125464	70000	65756	45000	43890	45000	40169

Miscellaneous Expenses*	3000000	2888262.00	4700000	4741810.00	4800000	4740513.00	2800000	2717265.00
Total	7450000	7292226.00	8970000	8892702.00	7590000	7634323.00	6190000	6087595.00