

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 : 11730	Date of Submission : 16-04-2026

PART A- Profile of the Institute

A1.Name of the Institute : BIRLA INSTITUTE OF TECHNOLOGY	
Year of Establishment : 1955	Location of the Institute: RANCHI JHARKHAND
A2. Institute Address :BIRLA INSTITUTE OF TECHNOLOGY, MESRA	
City:Ranchi	State:Jharkhand
Pin Code:835215	Website:www.bitmesra.ac.in
Email:vc@bitmesra.ac.in	Phone No(with STD Code):0651-2276016
A3. Name and Address of the Affiliating University (if any):	
Name of the University : NIL	City: Ranchi
State : Jharkhand	Pin Code: 835215
A4. Type of the Institution : Deemed University	
A5. Ownership Status : Self financing	

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

- No. of UG programs: **14**
- No. of PG programs: **20**

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	Architecture	UG	Architecture	1993	--	Architecture
2	Computer Application	UG	Artificial Intelligence and Machine Learning	2022	--	Computer Science and Engineering
3	Computer Application	Diploma	Computer Engineering	2002	--	Computer Science and Engineering
4	Computer Application	UG	Computer Science and Engineering	1983	--	Computer Science and Engineering
5	Computer Application	PG	Computer Science and Engineering	1999	--	Computer Science and Engineering
6	Computer Application	PG	Computer Science and Engineering (Artificial Intelligence and Machine Learning)	2021	--	Computer Science and Engineering
7	Computer Application	PG	Master in Computer Applications	1984	--	Computer Science and Engineering

8	Engineering & Technology	PG	Aerospace Engineering	1968	--	Space Engineering
9	Engineering & Technology	Diploma	Automobile Engineering	2001	--	Automobile Engineering
10	Engineering & Technology	PG	Biotechnology	2010	--	Biotechnology
11	Engineering & Technology	UG	Biotechnology	2002	--	Biotechnology
12	Engineering & Technology	UG	Chemical Engineering	2011	--	Chemical Engineering
13	Engineering & Technology	UG	Civil Engineering	1957	--	Civil Engineering
14	Engineering & Technology	Diploma	Civil Engineering	2025	--	Civil and Environmental Engineering
15	Engineering & Technology	PG	Civil Engineering	2024	--	Civil Engineering
16	Engineering & Technology	PG	Electric Vehicle Technology	2022	--	Electrical and Electronics Engineering
17	Engineering & Technology	UG	Electrical & Electronics Engineering	1955	--	Electrical and Electronics Engineering
18	Engineering & Technology	Diploma	Electrical and Electronics Engineering	2010	--	Electrical and Electronics Engineering
19	Engineering & Technology	PG	Electrical Engineering	2022	--	Electrical and Electronics Engineering
20	Engineering & Technology	Diploma	Electronics & Communication Engineering	2001	--	Electronics and Communication Engineering
21	Engineering & Technology	UG	Electronics & Communication Engineering	1960	--	Electronics and Communication Engineering
22	Engineering & Technology	PG	Electronics & Communication Engineering	2022	--	Electronics and Communication Engineering
23	Engineering & Technology	UG	Food Engineering and Technology	2023	--	Chemical Engineering
24	Engineering & Technology	UG	Information Technology	1999	2022	Computer Science and Engineering
25	Engineering & Technology	UG	Mechanical Engineering	1955	--	Mechanical Engineering
26	Engineering & Technology	Diploma	Mechanical Engineering	2010	--	Mechanical Engineering
27	Engineering & Technology	PG	Mechanical Engineering	1964	--	Mechanical Engineering
28	Engineering & Technology	UG	Production & Industrial Engineering	1964	--	Production and Industrial Engineering
29	Engineering & Technology	PG	Production and Industrial Engineering	1992	--	Production and Industrial Engineering
30	Engineering & Technology	PG	Remote Sensing	1997	--	Remote Sensing
31	Engineering & Technology	PG	Urban Planning	2007	--	Urban Planning
32	Hotel Management	UG	Hotel Management & Catering Technology	2003	--	Hotel Management
33	Management	PG	Integrated BBA + MBA	2024	--	Management
34	Management	PG	Master of Business Administration	1980	--	Management

35	Pharmacy	PG	Pharmaceutical Chemistry	1983	--	Pharmacy
36	Pharmacy	PG	Pharmaceutical Quality Assurance	2011	--	Pharmacy
37	Pharmacy	PG	Pharmaceutics	1983	--	Pharmacy
38	Pharmacy	PG	Pharmacognosy	1998	--	Pharmacy
39	Pharmacy	PG	Pharmacology	1998	--	Pharmacy
40	Pharmacy	UG	Pharmacy	1972	--	Pharmacy

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 & Electronics Engineering	UG
Electronics and Communication Engineering	No	Electronics & Communication Engineering	UG
Mechanical Engineering	No	Mechanical Engineering	UG
Production and Industrial Engineering	No	Production & Industrial 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 & Electronics Engineering	UG	1955 / --	90	Yes	2025	90	2025	F.No. Eastern/1-44640378024/2025/EO Date of Approval: 06-Apr-2025	Granted accreditation for 3 years for the period (specify period)	2023	2026	4	4

Sanctioned Intake for Last Five Years for the Electrical Engineering	
Academic Year	Sanctioned Intake
2025-26	90
2024-25	60
2023-24	60
2022-23	60
2021-22	60
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. Sudhansu Kumar Mishra
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)	90	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	100	75	75	62	64	63	54
N2=Number of students admitted in 2nd year in the same batch via lateral entry including leftover seats	0	0	0	0	0	0	0
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	3	0	2	2	3	0	4
Total number of students admitted in the program (N1 + N2 + N3 + N4) - excluding those admitted through multiple entry and exit points.	103	75	77	64	67	63	58

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)	90	100	3	114.44
2024-25 (CAYm1)	60	75	0	125.00
2023-24 (CAYm2)	60	75	2	128.33

Average [(ER1 + ER2 + ER3) / 3] = 122.59 $\approx$ 100**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).	67.00	63.00	60.00
B=No. of students who graduated from the program in the stipulated course duration	65.00	61.00	57.00

Success Rate (SR)= (B/A) * 100	97.01	96.83	95.00
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Average SR of three batches ((SR_1+ SR_2+ SR_3)/3): 96.28

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)	7.71	7.74	7.09
Y=Total no. of successful students	75.00	77.00	64.00
Z=Total no. of students appeared in the examination	75.00	77.00	64.00
API [X*(Y/Z)]	7.71	7.74	7.09

Average API[(AP1+AP2+AP3)/3] : 7.51

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)	7.74	7.32	7.35
Y=Total no. of successful students	72.00	60.00	67.00
Z=Total no. of students appeared in the examination	77.00	64.00	67.00
API [X * (Y/Z)]	7.24	6.86	7.35

Average API [(AP1 + AP2 + AP3)/3] : 7.15

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)	7.48	7.63	7.84
Y=Total no. of successful students	59.00	65.00	61.00
Z=Total no. of students appeared in the examination	60.00	67.00	61.00
API [X*(Y/Z)]:	7.36	7.40	7.84

Average API [(AP1 + AP2 + AP3)/3] : 7.53

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	65.00	61.00	60.00
X=No. of students placed	55.00	52.00	52.00
Y=No. of students admitted to higher studies	1.00	2.00	0.00
Z= No. of students taking up entrepreneurship	1.00	0.00	0.00
Placement Index(P) = (((X + Y + Z)/FS) * 100):	87.69	88.52	86.67

Average Placement Index = (P_1 + P_2 + P_3)/3: 87.63 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. T. Ghose	XXXXXXX41N	Ph.D	Jadavpur University	POWER SYSTEM	02/04/2001	25	Lecturer	Professor	01/09/2009	Regular	Yes		No
2	Dr. Rakesh Chandra Jha	XXXXXXX78P	Ph.D	BIT Mesra	POWER SYSTEM	21/08/1987	37.9	Lecturer	Professor	01/09/2009	Regular	No	31/05/2025	No
3	Dr. Vijaya Laxmi	XXXXXXX50L	Ph.D	BIT Mesra	CONTROL SYSTEM	01/07/2002	23.9	Lecturer	Professor	01/06/2017	Regular	Yes		No
4	Dr. Sudhansu Kumar Mishra	XXXXXXX02C	Ph.D	NIT Rourkela	CONTROL SYSTEM	01/12/2011	14.4	Assistant Professor	Associate Professor	02/09/2024	Regular	Yes		Yes
5	Dr. (Mrs.) Debonita Ghosh	XXXXXXX58N	Ph.D	BIT Mesra	POWER SYSTEM	08/07/2008	17.9	Lecturer	Associate Professor	02/09/2024	Regular	Yes		No
6	Dr. Prem Prakash	XXXXXXX83K	Ph.D	BIT Mesra	POWER SYSTEM	11/03/2003	23.1	Lecturer	Assistant Professor		Regular	Yes		No
7	Dr. Surendra Kumar	XXXXXXX92G	Ph.D	BIT Mesra	CONTROL SYSTEM	19/07/1999	26.9	Assistant Professor	Assistant Professor		Regular	Yes		No
8	Dr. P. K. Upadhyay	XXXXXXX64D	Ph.D	BIT Mesra	CONTROL SYSTEM	02/07/2001	24.9	Lecturer	Assistant Professor		Regular	Yes		No
9	Dr. Deepak Kumar	XXXXXXX63F	Ph.D	IIT, Bhuwaneswar	POWER SYSTEM	01/06/2015	10.10	Assistant Professor	Assistant Professor		Regular	No	10/04/2026	No
10	Dr. Gauri Shanker Gupta	XXXXXXX02B	Ph.D	BIT Mesra	CONTROL SYSTEM	08/07/2008	17.9	Lecturer	Assistant Professor		Regular	Yes		No
11	Dr. Pankaj Mishra	XXXXXXX57K	Ph.D	BIT Mesra	POWER SYSTEM	13/07/2009	16.9	Lecturer	Assistant Professor		Regular	Yes		No
12	Dr. (Mrs.) Sushma Suryaprakash Kamlu	XXXXXXX90M	Ph.D	BIT Mesra	CONTROL SYSTEM	05/07/2007	18.9	Lecturer	Assistant Professor		Regular	Yes		No
13	Mr. Brij Mohan Prasad	XXXXXXX05J	M.E.	BIT Mesra	CONTROL SYSTEM	01/02/2008	18.2	Lecturer	Assistant Professor		Regular	Yes		No

14	Dr. Aftab Alam	XXXXXXX31K	Ph.D	BIT Mesra	POWER ELECTRONICS	29/06/2016	9.9	Assistant Professor	Assistant Professor		Regular	Yes		No
15	Dr. S. Shiva Kumar	XXXXXXX03H	Ph.D	NIT Rourkela	POWER ELECTRONICS	04/10/2016	9.6	Assistant Professor	Assistant Professor		Regular	Yes		No
16	Dr. Subrat Kumar Swain	XXXXXXX30R	Ph.D	Kyungpook National University, South Korea	CONTROL SYSTEM	16/04/2015	10.6	Assistant Professor	Assistant Professor		Regular	No	24/10/2025	No
17	Dr. Md. Junaid Akhtar	XXXXXXX64C	Ph.D	IIT, Patna	POWER ELECTRONICS	17/08/2021	4.7	Assistant Professor	Assistant Professor		Regular	Yes		No
18	Dr. Sourabh Paitandi	XXXXXXX23D	Ph.D	IIST Shibpur	POWER ELECTRONICS	24/05/2024	1.10	Assistant Professor	Assistant Professor		Regular	Yes		No
19	Dr. Chaman Lal Dewangan	XXXXXXX23L	Ph.D	IIT, Kanpur	POWER SYSTEM	03/06/2024	1.10	Assistant Professor	Assistant Professor		Regular	Yes		No
20	Dr. Sanjeev Kumar	XXXXXXX35P	Ph.D	NIT Patna	CONTROL SYSTEM	12/11/2024	1.5	Assistant Professor	Assistant Professor		Regular	Yes		No
21	Dr. Prateem Pan	XXXXXXX10Q	Ph.D	NIT Patna	POWER SYSTEM	18/12/2024	1.3	Assistant Professor	Assistant Professor		Regular	Yes		No
22	Dr. Brajesh Kumar	XXXXXXX31Q	Ph.D	IIT, Patna	CONTROL SYSTEM	09/12/2025	0.4	Assistant Professor	Assistant Professor		Contractual Fulltime	Yes		No
23	Dr. Deep Shekhar Acharya	XXXXXXX94K	Ph.D	BIT Mesra	CONTROL SYSTEM	03/02/2010	14.10	Assistant Professor	Assistant Professor		Regular	No	20/12/2024	No
24	Dr. Debasmitta Mondal	XXXXXXX67N	Ph.D	IIT, Bombay	POWER ELECTRONICS	06/09/2021	2.1	Assistant Professor	Assistant Professor		Regular	No	09/10/2023	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 Department2

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

Description	CAY(2025-26)	CAYm1 (2024-25)	CAYm2 (2023-24)
UG1.B	60	60	60
UG1.C	60	60	60
UG1.D	60	60	60
UG1: Electrical & Electronics Engineering	180	180	180
PG1.A	30	30	30
PG1.B	30	30	30
PG1: Electric Vehicle Technology	60	60	60
PG2.A	30	30	30
PG2.B	30	30	30
PG2: Electrical Engineering	60	60	60
DS=Total no. of students in all UG and PG programs in the Department	300	300	300
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= 300	S2= 300	S3= 300
DF=Total no. of faculty members in the Department	18	19	18
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= 18	F2= 19	F3= 18
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= 18.75	SFR2= 17.65	SFR3= 18.75
Average SFR for 3 years	SFR= 18.38		

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	$FQ = 2.5 \times [(10X + 4Y) / RF]$
2025-26(CAY)	17	1	14.00	31.07
2024-25(CAYm1)	18	1	14.00	32.86
2023-24(CAYm2)	16	2	14.00	30.00

C4. Faculty Cadre Proportion

- Faculty Cadre Proportion is 1(RF1): 2(RF2): 6(RF3)
- RF1= No. of Professors required = $1/9 * \text{No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per C2 of this documents:}$.

- RF2= No. of Associate Professors required = $2/9 \times \text{No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents.}$
- RF3= No. of Assistant Professors required = $6/9 \times \text{No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents.}$
- 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	2.00	3.00	2.00	10.00	14.00
2024-25	1.00	3.00	3.00	0.00	10.00	16.00
2023-24	1.00	3.00	3.00	0.00	10.00	15.00
Average	RF1=1.00	AF1=2.67	RF2=3.00	AF2=0.67	RF2=10.00	AF2=15.00

C5. Visiting/Adjunct Faculty/Professor of Practice

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

(CAYm1)

(CAYm2)

(CAYm3)

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	45	30	37
2	No. of peer reviewed conference papers published	36	29	24
3	No. of books/book chapters published	5	9	8

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. S Shiva Kumar, Prof. T Ghose	-	EEE	Solar Powered Hydrogen Electrolyzer for Hydrogen Generation to be used for Fuel Cell	Ruhrpumpen India Pvt Ltd	1 Year	7.00
Dr. S Shiva Kumar, Dr. Aftab Alam	-	EEE	Development of high-power Grid-friendly Conductive and Static Wireless Charger for Electric Vehicles	ANRF EV Mission	3 Years	149.61
Dr. Aftab Alam	Dr. S Shiva Kumar	EEE	Development of Smart Electric Mobility Research Lab	LTTS	2 Years	97.00
Dr. Mohammad Junaid Akhtar	Dr. Aftab Alam, Dr. Asif Hasan	EEE	Development of Fault-Tolerant Open-End Winding Induction Motor Drive for Electric Vehicle Application	Asha & Sajjan Agarwal Foundation	2 Years	7.69
						Amount received (Rs.):261.30

(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. Debomita Ghosh	-	EEE	Adaptive Irrigation Management System using Sustainable Energy	Coal India Limited, Govt. of India	2 Years	20.06
Dr. T. Ghose, Dr. Debomita Ghosh, Dr. Md. Junaid Akhtar	-	EEE	Test Bench Development for Investigating the Performance of Battery Energy Storage as Ancillary Services	ERLDC, Grid Controller of India Limited, Gol	1.5 Years	40.00
Dr. Debomita Ghosh	-	EEE	Performance validation of sensor measurements considering various communication protocols in an active distribution system	Typhoon HIL	1 Year	0.50
						Amount received (Rs.):60.56

(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. P. K. Upadhyay	-	EEE	Brain Signal Controlled Wheel Chair	ICMR	3 Years	31.01
Dr Aftab Alam	-	EEE	Design of IoT enabled system for Precision Agriculture using AI based Supervisory Algorithm on Cloud Computing Platform	IDEAS-TIH- ISI Kolkata, NM-CPS	1 Year	5.14
Dr. Deepak Kumar	Dr. T. Ghose, Dr. S Anwar	EEE	Secured Data Analytics for Microgrid Energy Management System Through Blockchain Technology	DST, ANRF/ SERB/CRG (Core Research Grant)	3 Years	25.21
Dr Sudhanshu Kumar Mishra	-	EEE	Data Driven Smart Energy Management of Microgrid based cyber physical system for precision agriculture	IDEAS-TIH- ISI Kolkata, NM-CPS	1 Year	4.64
						Amount received (Rs.):66.00

Total Amount (Lacs) Received for the Past 3 Years: 387.86

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
						Amount received (Rs.):0

(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. Pankaj Mishra	-	EEE	Fundamental of Auto Electricals and Electronics	TATA Motors	2 months	15.75
Dr. T Ghose, Dr. Aftab Alam, Dr. S Shiva Kumar, Dr. Junaid Akhtar		EEE	Design improvement for reliable performance BLDC motor based ceiling fans	Orient Electric	6 months	2.38
						Amount received (Rs.):18.13

(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. Pankaj Mishra	-	EEE	Classroom Training Program for economically lesser privileged youth of Jharkhand	M/s Infimind Edu care Foundation Bangalore, Karnataka	01 Day	0.18
						Amount received (Rs.):0.18

Total amount (Lacs) received for the past 3 years: 18.31**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. Chaman Lal Dewangan	False Data Injection Attacks and Detections for Demand Response Applications in Smart Grid	2 Years	4.98	4.70	Hardware setup for bad data injection attack and detection for research
Dr. Sourabh Paitandi	Design and development of multiphase PMSM motor and its power electronic drive for EV application	2 years	5.00	4.50	Special Electric Motor is being Fabricated for EV application
			Amount received (Rs.): 9.98		

(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. Mohammad Junaid Akhtar	Real Time Loss Minimization for Open-End Winding IM Sensor less Speed Drive	2 Years	5.00	3.47	Hardware development of three SPHBI fed OEWIM with sensor less speed indirect FOC with online loss minimization for the different driving cycles
			Amount received (Rs.): 5.00		

(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. Ajay Kumar	Flexible Current Reference Generation Scheme with Ride Through Functionality for GFL PV Inverter	2 Years	5.00	5.00	Development of a generation scheme for GFL PV Inv. with enhanced RT capability to improve stability and continuous operation during grid disturbances
Dr. Debasmita Mondal	Development of Low Cost and Portable Impedimetric Sensors for on -site heavy metal detection	2 Years	5.00	5.00	Development of a low-cost and portable impedimetric sensor prototype for rapid on-site heavy metal detection
			Amount received (Rs.): 10.00		

Total amount (Lacs) received for the past 3 years : 24.98

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	6	DC Power Supply 60A, 230V, Multimeter, Voltmeter, ammeter, function generator, , Three Phase Induction Motor 4.7A, 440V, DC Shunt Motor 220V, 400A, 510W	40 Hrs / week	Mr. Sachindra Kumar	Junior Technical Superinte	Diploma
2	Electrical Machine Lab.	3	DC Power Supply 60A, 230V, DC Motor and DC Series Generator Set (Motor-230V, 23A, 6HP, RPM 1450, Generator-220V, 400A, 510W, DPM- 1450) DC	40 Hrs / Week	Mr. Ram Kunwar Mahto	Junior Technical Superinte	AMIE (Electrical Engg.)
3	Electrical Measurement and Instrumentation Lab.	3	LVDT, LCR-Q meter, Transformer Oil Testing Set up, Different Bridge and Sensor kit, Strain Gauge Kit, Contact Temperature Kit, Mobile Device Bridge	12 Hrs / Week	Mr. Kamal Oraon	Junior Technical Superinte	B.Sc., Diploma in Comput
4	Power Electronics Lab.	3	Three Phase Inverter and Single Phase Inverter, Boost converter , Mosfet Based DC Step-Up Chopper, Power	24 Hrs / Week	Mr. Kamal Oraon	Junior Technical Superinte	B.Sc., Diploma in Comput
5	Electrical Workshop Lab.	3	PLC Siemens S7,1200,Ver 13, Control Circuit and Power Circuit, Star Delta Starter, Control Circuit and Power Circuit of DOL Starter, Reversing and	12 Hrs / Week	Mr. Siddarth Kumar	Technician	Diploma (Electrical)
6	Power System Lab.	3	SCADA, Generator Protection, Typhoon HIL, PMU, Relay Testing kit, SCADA based transmission line with	24 Hrs / Week	Mr. Ram Kunwar Mahto	unior Technical Superinter	AMIE (Electrical Engg.)
7	Control System Lab.	3	Water Level Controller,Thermal Control Process, Potentiometric Error Detector, Analog PID Controller, A/C Servo Motor, Transfer Function, MIMO system, MIMO	24 Hrs / Week	Mr. Prashant Pandey	Technical Superintendent	M.Tech. (Electrical Engg.)
8	Soft Computing and Lab.	1	MATLAB 2025b with all Toolboxes, LABVIEW, ETAP, PSIM, DSP processor, Code Composer Studio 5	24 Hrs / Week	Mr. Prashant Pandey	echanical Superintendent	M.Tech. (Electrical Engg.)

D2. Safety Measures in Laboratories

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

Sr. No	Laboratory Name	Safety Measures
1	Electrical Machine	Insulated rubber mats (ISI mark) in front of panels; shaft/coupling guards for rotating machines; thermal overload protection.
2	Power Systems Lab	Discharge rods for grounding capacitors; high-voltage danger signage; mandatory "two-person" rule for experiments.
3	Power Electronics Lab	Use of isolation transformers for oscilloscope measurements; safety goggles for protection against component bursts.
4	Smart Grid Lab	High-voltage insulating gloves (Class 0); specialized extinguishers for lithium-ion/battery fires; SCADA-based remote monitoring.

5	Electrical Workshop	Mandatory use of hand aprons and safety shoes; insulated hand tools and testers (ISI grade).
6	Soft Computing / Virtual Instr. Lab	Fire suppression for electronic equipment; CCTV surveillance; organized cable management to prevent tripping
7	Drive Lab.	Insulated rubber mats (ISI mark) in front of panels; shaft/coupling guards for rotating machines; thermal overload protection.

D3. Project Laboratory/Research Laboratory

The various facilities available in the departmental Project Laboratory are as listed below:

Facilities:

1. Sitting space
2. Experiment tables with necessary tools.
3. Desktop PC
4. Internet connectivity
5. Air-conditioning
6. UPS connection.
7. Suitable power connectivity for giving power supply to the experimental setups/developed hardware.

The utilization of the laboratory space is as given below:

Utilization:

1. For hardware development of project/research related works by UG/PG students and PhD scholars.
2. Preparation of project report by students.
3. Experimental setup for research works by faculty members.

Some of the UG projects completed in the assessment years utilizing the facilities:

- a) IoT Enabled Energy Meter For Load Measurement and Prediction- Mr. Tanmay Raj
- b) Modified-Swish-Activated Deep Q-Learning for LiDAR-Only Path Following and Obstacle Avoidance- Mr. Praveen Rawat
- c) Design and Simulate an SPWM-based Three Phase Inverters with Proper Power Sharing, implementing Droop Control Strategy Using Typhoon HIL 602+ - Ms. Bina Sunila Khalkho
- d) Solar Power Generation Trend Forecasting Framework Using Machine Learning and Weather Data Analysis- Mr. Harshit
- e) Design and Performance Analysis of Switched Reluctance Motors For Electric Vehicles- Mr. Daksh Abrol

Table No. 7.5.1: List of project laboratory/research laboratory /Centre of Excellence.

S.N.	Name of the Laboratory
1.	LTTS Smart Electric Mobility Research Lab
2	Smart Grid Lab
3	Project Lab
4	Human Machine Interface Lab

The Smart Electric Mobility Research Lab of the Department of Electrical and Electronics Engineering at Birla Institute of Technology Mesra is dedicated to advancing sustainable transportation technologies and intelligent electric mobility solutions. The laboratory focuses on interdisciplinary research and development in electric vehicles, smart energy systems, power electronics, advanced motor drives, and intelligent transportation technologies. The Department of EEE at BIT Mesra actively promotes industry-oriented research and innovation in emerging electrical engineering domains.

The laboratory is actively involved in the development of advanced EV charging infrastructure, including fast charging systems, smart charging strategies, and grid-integrated charging solutions for future electric mobility ecosystems. Research activities also include the design and prototyping of electric vehicles with emphasis on energy efficiency, intelligent control, and sustainable transportation technologies.

A major research thrust of the lab is the development of advanced Battery Management Systems (BMS) for electric vehicles and energy storage applications. The work includes battery monitoring, state-of-charge estimation, thermal management, fault diagnosis, and AI-assisted battery health prediction for safe and reliable EV operation.

The lab is also engaged in the development of Wireless Power Transfer (WPT) systems for electric vehicle charging applications. Research areas include inductive charging techniques, high-frequency power converters, resonant compensation networks, and efficient contactless charging systems aimed at improving user convenience and charging flexibility.

Another important focus area is Vehicle-to-Grid (V2G) and Grid-to-Vehicle (G2V) technologies, which enable bidirectional energy exchange between electric vehicles and the power grid. The research supports smart grid integration, renewable energy utilization, peak load management, and intelligent energy management systems for future sustainable power networks.

In the field of electric propulsion, the laboratory is exploring the development of high-efficiency magnetless motors for EV traction applications. These research efforts aim to reduce dependence on rare-earth permanent magnets while improving motor reliability, efficiency, and cost-effectiveness for next-generation electric vehicles.

Through these research activities, the Smart Electric Mobility Research Lab seeks to contribute toward clean transportation, smart energy systems, and the development of indigenous electric mobility technologies aligned with national and global sustainability goals

Smart Grid Laboratory, Dept. of EEE, BIT Mesra, Ranchi

The Smart Grid Laboratory of the Department of Electrical and Electronics Engineering at Birla Institute of Technology Mesra was established in the year 2013 with financial support received from the Department of Science and Technology (DST), Government of India under the FIST Scheme. The laboratory was conceptualized with the objective of creating an advanced research and teaching facility in the emerging domain of Smart Grid Technologies, Renewable Energy Integration, and Modern Power System Automation.

Over the years, the laboratory has been significantly strengthened through various sponsored research projects and grants obtained from reputed funding agencies such as the Science and Engineering Research Board (SERB/ANRF), AICTE, and ERLDC (Grid Controller of India), Ministry of Power. These grants have facilitated the development of state-of-the-art experimental platforms and research infrastructure in the areas of smart grids, microgrids, renewable energy systems, communication networks, and intelligent energy management systems. The funding received under different schemes has enabled the department to strengthen its research capabilities in the areas of battery energy storage systems, hybrid AC-DC microgrids, blockchain-based energy management, smart home grids, power electronics applications, intelligent controllers, and distribution system automation. These projects have also contributed towards enhancing undergraduate and postgraduate laboratory facilities, supporting doctoral research.

Major Facilities Available in the Laboratory

The Smart Grid Laboratory is equipped with modern experimental and simulation facilities to support undergraduate laboratories, postgraduate research, doctoral work, and sponsored research activities. Major facilities available include:

- Two-area power system setup integrated with SCADA and IoT-based monitoring and control systems
- AC-DC Microgrid experimental platform
- 5 kW Solar Photovoltaic (PV) System
- Grid-Tied Solar Photovoltaic System
- Battery performance testing bench
- dSPACE (Microlab Box) -based real-time control platforms
- Smart controller implementation platforms for inverter and converter operation
- Power system simulation and real-time monitoring facilities

BCI Lab of EEE Department

The Brain-Computer Interface (BCI) Laboratory of the Department of Electrical and Electronics Engineering at Birla Institute of Technology Mesra, developed in the year 2023, has emerged as a pioneering centre for interdisciplinary research in biomedical engineering, artificial intelligence, and neuroscience. The laboratory is dedicated to developing innovative assistive technologies that improve the quality of life of individuals suffering from neurological and physical disabilities. One of the most significant achievements of the laboratory is the development of the "Brain Signal Controlled Wheelchair," a transformative project funded by the Indian Council of Medical Research. The project is being led by Dr. Prabhat Kumar Upadhyay.

The Brain Signal Controlled Wheelchair project focuses on enabling individuals with severe mobility impairments to control a wheelchair using their brain signals. The system uses Electroencephalography (EEG) technology to record electrical activity generated by the brain and convert these signals into movement commands for wheelchair navigation. By integrating advanced signal processing techniques, machine learning algorithms, and intelligent control systems, the project aims to create a highly efficient, safe, and user-friendly mobility solution. This research represents a major step toward the practical implementation of brain-computer interface technology in healthcare and rehabilitation.

The research team has developed a robust classification model capable of accurately decoding brain signals. The model is currently undergoing fine-tuning to enhance its precision, reliability, and real-time responsiveness. Furthermore, the integration of the classification model with the wheelchair's motor control system has been successfully tested in real-time environments to evaluate operational safety, navigation efficiency, and user comfort. Through such pioneering initiatives, the BCI Laboratory of the EEE Department at BIT Mesra continues to contribute meaningfully toward socially relevant technological innovation and inclusive healthcare solutions.



BCI/HMI Lab



LTTS Smart Electric Mobility Research Lab



Smart Grid Lab



Power Electronics Lab



Measurement Lab



Control System Lab



Power System Lab



Research Scholar Lab

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)	930	46	52	73	122
2024-25(CAYm1)	930	46	51	75	121
2025-26(CAY)	960	48	59	85	134

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	2011500000	370599000	1194079000	260663000	1119478000	339555000	636654000	278254000
Library	22959000	18534000	21276000	15687000	27967000	11832000	22582000	20444000
Laboratory equipment	245729000	95090000	265857000	80293000	250363000	114579000	211627000	57947000
Teaching and non-teaching staff salary	1521173000	1508170000	1483810000	1429231000	1314119000	1332191000	1175614000	1116461000
Outreach Programs	11000000	11596000	11350000	8496000	10500000	5323000	12000000	4620000
R&D	50480000	119734000	70910000	114951000	65500000	104092000	69542000	85378000
Training, Placement and Industry linkage	5100000	2798000	6600000	3230000	10025000	4907000	7500000	3576000
SDGs	39400000	25835000	40094000	35824000	30141000	18763000	28965000	20288000
Entrepreneurship	6200000	3616000	5000000	1986000	5150000	1718000	9630000	1152000
Others, specify	630202000	776873000	554288000	480066000	563743000	424019000	376877000	325526000
Total	4543743000	2932845000	3653264000	2430427000	3396986000	2356979000	2550991000	1913646000

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	6297000	9113000	10115000	4851000	11092000	6230000	4478000	2463000

Software 	298000	209000	3290999	2442000	690000	4635000	4500000	1250000
SDGs 	1500000	1015000	1500000	1346000	1000000	681000	1000000	969000
Support for faculty development  	150000	34000	100000	141000	100000	80000	100000	82000
R & D 	2300000	1071000	3550000	2272000	3500000	2489000	3600000	3622999
Industrial Training, Industry expert, Internship  	200000	18000	200000	81000	200000	109000	200000	5000
Miscellaneous Expenses* 	1495000	1230000	1310000	817000	1406000	742000	1117000	707000
Total	12240000	12690000	20065999	11950000	17988000	14966000	14995000	9098999