

NATIONAL BOARD OF ACCREDITATION

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

Program Name : Mechanical Engineering	Discipline: Engineering & Technology
Level : Under Graduate	Tier: 1
Application No: 11846	Date of Submission: 12-05-2026

PART A- Profile of the Institute

A1.Name of the Institute: NARULA INSTITUTE OF TECHNOLOGY	
Year of Establishment : 2001	Location of the Institute: KAMARHATI
A2. Institute Address: 81, NIL GUNJ ROAD, AGAR PARA	
City:Kolkata	State:West Bengal
Pin Code:700109	Website:www.nit.ac.in
Email:INFO@NIT.AC.IN	Phone No(with STD Code):033-25638888
A3. Name and Address of the Affiliating University (if any):	
Name of the University : WEST BENGAL UNIVERSITY OF TECHNOLOGY	City: Nadia
State : West Bengal	Pin Code: 741249
A4. Type of the Institution: Autonomous CAY(2015-16)	
A5. Ownership Status: Self financing	

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

- No. of UG programs: **12**
- No. of PG programs: **6**

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

Sr.No.	Discipline	Level of program	Name of the program	Year of Start	Year of Closed	Name of The Department
1	Computer Application	PG	Master of Computer Application	2003	--	Computer Application
2	Engineering & Technology	Diploma	Civil Engineering	2014	--	Civil Engineering
3	Engineering & Technology	UG	Civil Engineering	2007	--	Civil Engineering
4	Engineering & Technology	UG	Computer Science & Technology	2021	--	Computer Science and Technology
5	Engineering & Technology	UG	Computer Science and Business Systems	2021	--	Computer Science and Business System
6	Engineering & Technology	UG	Computer Science and Engineering	2001	--	Computer Science and Engineering
7	Engineering & Technology	PG	Computer Science and Engineering	2008	--	Computer Science and Engineering

8	Engineering & Technology	UG	Computer Science and Engineering (Artificial Intelligence & Machine Learning)	2021	--	Computer Science and Engineering (Artificial Intelligence and Machine Learning)
9	Engineering & Technology	UG	Computer Science and Engineering (Data Science)	2023	--	Computer Science and Engineering (Data Science)
10	Engineering & Technology	Diploma	Electrical Engineering	2014	--	Electrical Engineering
11	Engineering & Technology	UG	Electrical Engineering	2002	--	Electrical Engineering
12	Engineering & Technology	Diploma	Electronics & Communication Engineering	2015	--	Electronics and Communication Engineering
13	Engineering & Technology	PG	Electronics & Communication Engineering	2007	--	Electronics and Communication Engineering
14	Engineering & Technology	UG	Electronics & Instrumentation Engineering	2010	2023	Electronics and Instrumentation Engineering
15	Engineering & Technology	UG	ELECTRONICS AND COMMUNICATION ENGINEERING	2001	--	Electronics and Communication Engineering
16	Engineering & Technology	UG	Electronics and Computer Science	2023	--	Electronics and Computer Science
17	Engineering & Technology	PG	Geotechnical Engineering	2021	--	Civil Engineering
18	Engineering & Technology	UG	Information Technology	2001	--	Information Technology
19	Engineering & Technology	UG	Mechanical Engineering	2014	--	Mechanical Engineering
20	Engineering & Technology	Diploma	Mechanical Engineering	2020	--	Mechanical Engineering
21	Engineering & Technology	PG	Power Systems	2009	--	Electrical Engineering
22	Engineering & Technology	PG	Structural Engineering	2012	--	Civil Engineering

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

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

Name of the Department	Having Allied Departments	Name of the Program	Program Level
Computer Science and Engineering	Yes	Computer Science and Engineering	UG
Mechanical Engineering	No	Mechanical 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	Mechanical Engineering	UG	2014 / --	60	No	NA	60	2014	Eastern/1-44641713339/2025/EOA	Granted accreditation for 3 years for the period (specify period)	2023	2026	1	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 :	Sumit Chabri
B. Nature of appointment:	Regular
C. Qualification:	M.Tech and 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	60	55	50	48	47	44	44
N2=Number of students admitted in 2nd year in the same batch via lateral entry including leftover seats	0	5	3	3	2	3	3
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.	60	60	53	51	49	47	47

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	60	0	100.00
2024-25 (CAYm1)	60	55	0	91.67
2023-24 (CAYm2)	60	50	0	83.33

Average [(ER1 + ER2 + ER3) / 3] = 91.67≐ 20.00

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

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

Item	(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).	62.00	63.00	63.00
B=No. of students who graduated from the program in the stipulated course duration	49.00	47.00	47.00
Success Rate (SR)= (B/A) * 100	79.03	74.60	74.60

Average SR of three batches ((SR_1+ SR_2+ SR_3)/3): 76.08

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

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

Academic Performance	CAYm1(2024-25)	CAYm2(2023-24)	CAYm3 (2022-23)
X=(Mean of 1st year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 1st year/10)	8.30	8.20	8.00
Y=Total no. of successful students	55.00	50.00	48.00
Z=Total no. of students appeared in the examination	55.00	50.00	48.00
API [X*(Y/Z)]	8.30	8.20	8.00

Average API[(AP1+AP2+AP3)/3] : 8.17

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

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

Academic Performance	CAYm1 (2024-25)	CAYm2 (2023-24)	CAYm3 (2022-23)
X=(Mean of 2nd year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 2rd year/10)	8.50	8.20	8.00
Y=Total no. of successful students	53.00	51.00	49.00
Z=Total no. of students appeared in the examination	53.00	51.00	49.00
API [X * (Y/Z)]	8.50	8.20	8.00

Average API [(AP1 + AP2 + AP3)/3] : 8.23

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

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

Academic Performance	CAYm1 (2024-25)	CAYm2 (2023-24)	CAYm3 (2022-23)
X=(Mean of 3rd year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 3rd year/10)	8.70	8.40	8.20
Y=Total no. of successful students	51.00	49.00	47.00
Z=Total no. of students appeared in the examination	51.00	49.00	47.00
API [X*(Y/Z)]:	8.70	8.40	8.20

Average API [(AP1 + AP2 + AP3)/3] : 8.43

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	62.00	63.00	63.00
X=No. of students placed	29.00	29.00	28.00
Y=No. of students admitted to higher studies	13.00	11.00	12.00
Z= No. of students taking up entrepreneurship	0.00	0.00	0.00
Placement Index(P) = (((X + Y + Z)/FS) * 100):	67.74	63.49	63.49

Average Placement Index = (P_1 + P_2 + P_3)/3: 64.91 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	Sumit Chabri	XXXXXXXX23M	M.Tech and Ph.D.	IEST, Shibpur	Materials Engineering	27/07/2017	8.9	Associate Professor	Professor	01/04/2022	Regular	Yes		Yes
2	Md Abu Bakkar	XXXXXXXX55L	M.Tech and Ph.D.	IEST, Shibpur	Materials Engineering	06/06/2024	1.10	Associate Professor	Associate Professor		Regular	Yes		No

3	Surajit Nath	XXXXXXX50D	M.E. and Ph.D.	Jadavpur University	Production Engineering	03/07/2023	2.10	Associate Professor	Associate Professor		Regular	Yes		No
4	Arghya Gupta	XXXXXXX25H	M.Tech	West Bengal University of Technology	Manufacturing Engineering	11/01/2016	10.3	Assistant Professor	Assistant Professor		Regular	Yes		No
5	Akhtarujjaman Sarkar	XXXXXXX84J	M.Tech	Maulana Abul Kalam Azad University of Technology, West Bengal	Production Technology	22/07/2015	10.9	Assistant Professor	Assistant Professor		Regular	Yes		No
6	Ankesh Samanta	XXXXXXX29F	M.Tech	Maulana Abul Kalam Azad University of Technology, West Bengal	Production Engineering	13/07/2015	10.9	Assistant Professor	Assistant Professor		Regular	Yes		No
7	Goutam Roy	XXXXXXX54H	M.Tech and Ph.D.	Jadavpur University	Applied Mechanics	04/07/2016	8.4	Assistant Professor	Assistant Professor		Regular	No	02/11/2024	No
8	Abubakkar Molla	XXXXXXX69G	M.Tech	Aliah University	Thermal Engineering	04/07/2022	3.10	Assistant Professor	Assistant Professor		Regular	Yes		No
9	Sk Mimazuddin Ahamed	XXXXXXX49B	M.Tech	Aliah University	Thermal Engineering	14/07/2021	4.9	Assistant Professor	Assistant Professor		Regular	Yes		No
10	Kingshuk Mondal	XXXXXXX13E	M.Tech and Ph.D.	Jadavpur University	Manufacturing Technology	14/01/2025	1.3	Assistant Professor	Assistant Professor		Regular	Yes		No
11	Saddam Hossain Mullick	XXXXXXX06J	M.Tech and Ph.D.	NIT, Sikkim	Thermal Engineering	02/01/2024	2.4	Assistant Professor	Assistant Professor		Regular	Yes		No
12	Sujit Saha	XXXXXXX14J	M.E. and Ph.D.	Jadavpur University	Thermal Engineering	02/01/2024	2.4	Assistant Professor	Assistant Professor		Regular	Yes		No
13	Subhasis Mondal	XXXXXXX70Q	M.Tech and Ph.D.	IIST, Shibpur	Machine Design	21/07/2014	11.9	Assistant Professor	Assistant Professor		Regular	Yes		No
14	Amit Datta	XXXXXXX73J	M.E. and Ph.D.	Jadavpur University	Production Engineering	03/09/2001	24.8	Lecturer	Professor	01/07/2020	Regular	No	30/03/2025	No

15	Pradip Mondal	XXXXXXXX76L	M.E. and Ph.D.	IEST, Shibpur	Thermal Engineering	08/06/2021	3.1	Associate Professor	Associate Professor		Regular	No	01/08/2024	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 Department0

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

Description	CAY(2025-26)	CAYm1 (2024-25)	CAYm2 (2023-24)
UG1.B	65	63	63
UG1.C	63	63	62
UG1.D	63	62	63
UG1: Mechanical Engineering	191	188	188
DS=Total no. of students in all UG and PG programs in the Department	191	188	188
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= 191	S2= 188	S3= 188
DF=Total no. of faculty members in the Department	12	11	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= 12	F2= 11	F3= 11
FF=The faculty members in F who have a 100% teaching load in the first-year courses	0	0	0
Student Faculty Ratio (SFR)=S/(F-FF)	SFR1= 15.92	SFR2= 17.09	SFR3= 17.09
Average SFR for 3 years	SFR= 16.70		

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)	7	5	9.00	25.00
2024-25(CAYm1)	5	6	9.00	20.56
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 = $1/9 * \text{No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per C2 of this documents:}$.
- RF2= No. of Associate Professors required = $2/9 * \text{No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents:}$.
- RF3= No. of Assistant Professors required = $6/9 * \text{No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents:}$.
- 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	1.00	2.00	2.00	6.00	9.00
2024-25	1.00	1.00	2.00	2.00	6.00	8.00
2023-24	1.00	2.00	2.00	2.00	6.00	7.00
Average	RF1=1.00	AF1=1.33	RF2=2.00	AF2=2.00	RF2=6.00	AF2=8.00

C5. Visiting/Adjunct Faculty/Professor of Practice

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

(CAYm1)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	K.G Pilsima	General Manager	Electro steel Pvt. Ltd.	Centrifugal casting (ME303) Machining (ME403), Metallurgy (ME404).	32.00
2	Dr. Asis Samanta	Senior president, product and quality,	Superforgins & Steel Limited, Kolkata, Capability Enhancement	Automobile part manufacturing(ME403), Industrial mgt(HU(ME)801, Safety & occupational health(ME802B)	30.00

(CAYm2)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Dr. Pratik Kumar Mallick	General Manager- Quality Assurance,	M/S Usha Martin Limited, Ranchi.	Manufacturing Technology(ME403), CAD/CAM(ME702B)	30.00
2	Dr. Nandagopal Bhowmik	DGM (R&D)	Kharagpur Metal Reforming Industries Pvt. Ltd. Kharagpur, W.B	Materials Engineering(ME404).Materials Handling(ME703A)	28.00

(CAYm3)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Mr. Supratim Chowdhury	Head,HRD	Kharagpur Metal Reforming Industries Pvt. Ltd. Kharagpur, W.B	Refrigeration & Air Conditioning(ME503),Applied Thermodynamics(ME401)	28.00
2	K.G Pilsima	General Manager,	Electro steel Pvt. Ltd.	Metal 3D printing(EC(ME)701A),IC Engine & Hybrid Vehicles(ME601)	26.00

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	4	5	3
2	No. of peer reviewed conference papers published	2	3	1
3	No. of books/book chapters published	7	4	3

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
Mr. Aktarujjaman Sarkar		Mechanical Engineering	Development of High- Performa nce Insulating Materials	Ind Tech Materials Pvt. Ltd.	1 year	2.29
Mr. Ankesh Samanta		Mechanical Engineering	Low- Power Data Acquisitio n System for Sensors	Micro Sense Instruments Pvt. Ltd.	1 year	2.37
Dr. Sumit Chabri		Mechanical Engineering	Smart Manufacturing Systems ith Predictive maintenance	OmniCore Industries	1 year	4.06
						Amount received (Rs.):8.72

(CAYm2)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25
Mr. Ankesh Samanta		Mechanical Engineering	3D printing of Lightweight Materials for Aerospace applications	Prism Engineering Ventures	1 year	1.27
Dr. Goutam Roy		Mechanical Engineering	Development of Biometric Robots for Industrial Automation	Ironclad Engineering Solutions	1 year	4.35
Mr. Akhtarujjaman Sarkar		Mechanical Engineering	Design of Autonomous Delivery Drones for Last Mile Logistics	Trinity TechnoCraft	1 year	1.06
						Amount received (Rs.):6.68

(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. Sumit Chabri		Mechanical Engineering	Smart Material Movement: Developing Sensor Based Vertical Transport Systems for Building Construction	Krishna Park Infracon Pvt.Ltd.	1 year	2.75
Dr. Amit Dutta		Mechanical Engineering	Smart Material Movement: Developing Sensor Based Vertical Transport Systems for Building Construction	Krishna Park Infracon Pvt.Ltd.	1 year	2.25
						Amount received (Rs.):5.00

Total Amount (Lacs) Received for the Past 3 Years: 20.40**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
Mr. Arghya Gupta		Mechanical Engineering	Advancements in Air Cooler Systems for Humid Environments	Refrigeration Centre Pvt. Ltd.	1 Year	1.12
Dr. Sumit Chabri		Mechanical Engineering	Comparative Analysis of HVAC Systems Comparativ e Analysis of HVAC Systems	Refrigeration Centre Pvt. Ltd.	1Year	1.20
Dr. Md Abu Bakkar		Mechanical Engineering	Metallurgical Engineering & Materials Testing: Advanced Diagnostics, Defect Analysis, and Quality Validation	Asansol Steel Castings Pvt. Ltd.	1Year	1.10
Dr. Surajit Nath		Mechanical Engineering	Enclosure System Design & Optimization: Advanced Thermal, Vibration, and Safety Engineering Services	Bose Engineering (India) Pvt. Ltd.	1Year	0.80
Dr. Subhasis Mondal		Mechanical Engineering	Rubber and Polymer Product Durability Testing: From Custom Mold Design to Quality Control Protocols	Century Industrial Product Pvt. Ltd.	1Year	1.10
Mr. Ankesh Samanta		Mechanical Engineering	Metallurgical Engineering & Materials Testing: Advanced Diagnostics, Defect Analysis, and Quality Validation	Chirag Castings Pvt. Ltd.	1Year	1.20
Mr. Akhtarujjaman Sarkar		Mechanical Engineering	Tooling Material Testing, Failure Analysis, and CNC Optimization	Continental Engineering Co.	1Year	1.00
Dr. Saddam Hossain Mullick		Mechanical Engineering	HVAC/R System Optimization Services: From Energy Audits and Vibration Troubleshooting to Preventive Maintenance	Crystal Refrigeration Pvt. Ltd.	1Year	0.80
Dr. Sumit Chabri		Mechanical Engineering	Esko Casting and Electronics Pvt. Ltd.	Metallurgical Engineering & Materials Testing: Advanced Diagnostics, Defect Analysis, and Quality Validation	1Year	1.20
						Amount received (Rs.):9.52

(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
Akhtarujjaman Sarkar		Mechanical Engineering	Review and Performanc e Evaluation of Medium-Power Industrial Converters	NovaVolt Engineering Pvt. Ltd.	1 Year	0.58
Dr. Sumit Chabri		Mechanical Engineering	Comparative Analysis of HVAC Systems	Refrigeration Centre Pvt. Ltd.	1 Year	1.20
Dr. Amit Datta		Mechanical Engineering	Advanced Material Characterization, Performance Testing, and Mechanical Failure Analysis Services	Anant Fasteners Pvt. Ltd.	1 year	1.10
Dr. Goutam Roy		Mechanical Engineering	Aryan Engineering	Mechanical System Design, Reverse Engineering, and Advanced Machine Performance Optimization	1 year	1.10
Dr. Sumit Chabri		Mechanical Engineering	D.M.S. Udyog	Advanced Railway Mechanical Engineering: Dimensional Inspection, Fatigue Analysis, and Reverse Engineering	1 year	1.20
Mr. Arghya Gupta		Mechanical Engineering	Goel Alloy & Steel (P) Ltd.	Foundry & Manufacturing Quality Services: From Gating Design and NDT to Root-Cause Defect Analysis	1 year	1.20
Dr. Surajit Nath		Mechanical Engineering	H. Sarker & Company Valves Pvt. Ltd.	Fluid Control Component Diagnostics: From Hydrostatic Leak Testing to Seal Wear and Failure Analysis	1 year	1.10
						Amount received (Rs.):7.48

(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
Mr. Ankesh Samanta		Mechanical Engineering	Industrial hydraulic s and pneumatics system	Sun Roscoe Pvt. Ltd.	1 Year	1.20
Mr. Akhtarujjaman Sarkar		Mechanical Engineering	Industrial Ventilation Engineering: CFD Analysis, Performance Testing, and Preventive Maintenance Services	Air Control Engineering Pvt. Ltd.	1 Year	0.90
Dr. Sumit Chabri		Mechanical Engineering	Infrafusion Engineering Ltd.	Comprehensive Materials Engineering: Coating Diagnostics, Mechanical Testing, and Quality Assurance Protocols	1 Year	1.20
						Amount received (Rs.):3.30

Total amount (Lacs) received for the past 3 years: 20.30**Note*:**

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

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

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

(CAYm1)

Faculty name	Project title/ Support for Activity	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25	Amount Utilized(Lacs) i.e. 15,25,000=15.25	Outcomes of the project
Dr. Sumit Chabri	Mechanical Alloying of Cu/Ag- Co/Ni/Mn/Ti- MWCNT Nanocomposites for Multifunctional Applications	1 year	2.00	2.00	Successful Synthesis of Hybrid Nanocomposites, Enhanced Mechanical Properties, Improved Electrical & Thermal Conductivity
Akhtarujjaman Sarkar	Energy Harvesting from Vibrations	1 year	0.55	0.53	Battery free operation
			Amount received (Rs.): 2.55		

(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
Arghya Gupta	Highway Windmill Systems	1 year	0.80	0.76	Continuous power generation
Dr. Gautam Roy	Footstep power generation	1 year	1.00	0.96	Low-power device support
Dr. Sumit Chabri	Power generation using speed breakers	1 year	0.70	0.67	Maintained road safety standards
			Amount received (Rs.): 2.50		

(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
Ankesh Samanta	Autonomous Agricultural Robot	1 year	0.70	0.65	Continuous Operation, Labour reduction, High Precision
Akhtarujjaman Sarkar	Energy Harvesting from Vibrations	1 year	0.80	0.76	Battery free operation
Arghya Gupta	Design and Optimization of a Wind Turbine	1 year	0.40	0.38	Maximized power output
			Amount received (Rs.): 1.90		

Total amount (Lacs) received for the past 3 years : 6.95

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	Machine shop	30	Centre Lathe Universal Milling Machine Shaping Machine Grinding Machine Power saw machine	lab is utilized 3	Mr. Bhola Guha	Technical Assistant	Diploma in Mechanical Engineering
2	Fitting shop	30	Table vice, Different Files, Hacksaws, Try square 10" ,Grinding Machine, Drill Machine	lab is utilized 3	Mr. Bhola Guha	Technical Assistant	Diploma in Mechanical Engineering
3	Carpentry	30	Bevel Protector Vernier Height Gauge, Surface Plate, Rip saw,Tennon Saw, Metal jack planer, Rasp	lab is utilized 3	Mr. Bhola Guha	Technical Assistant	Diploma in Mechanical Engineering
4	Welding shop (Arc welding + gas welding)	30	Transformer, Welding cable, Electrode Holder, Work Table, C- clamp, Tong, Eye- Shield, Chipping Hammer	lab is utilized 3	Mr. Bhola Guha	Technical Assistant	Diploma in Mechanical Engineering
5	Casting	30	Mouldbox, Riddle, Shovel, Bellow and Gate Cutter, Lifter, Vent Rod, Trowel and Slick, Strike of bar and	lab is utilized 3	Mr. Bhola Guha	Technical Assistant	Diploma in Mechanical Engineering
6	Engg. Drawing &Graphics (1st &2nd Sem.)	30	Two labs Rooms 30 Tables along with drawing board in each labs with one Computer	lab is utilized 3	Mr. Partha Bhattacharyy	Technical Assistant	Diploma in Mechanical Engineering
7	Strength of Materials Lab. (3rd Sem.)	30	Hardness Testing Machine, Impact Testing Machine, Universal Testing Machine, Torsion Testing Machine, Compression Testing Machine, Fatigue Test Machine	lab is utilized 1	Mr. Soumen Roy	Technical Assistant	Diploma in Mechanical Engineering
8	Manufacturing technology lab	30	Spot Welding Machine Mig Welding Acetylene Regulator Arc Welding Transformer	lab is utilized 1	Mr. Barendra Kanta Ch	Technical Assistant	Diploma in Mechanical Engineering
9	Material testing lab(4thSem)	30	Universal Testing Machine, Torsion Testing Machine, Compression Testing Machine, Fatigue Test Machine, Deflection test machine, Strain measurement machine	lab is utilized 2	Mr. Soumen Roy	Technical Assistant	Diploma in Mechanical Engineering
10	Heat Transfer Lab(5THSem)	30	Double stage Air Compressor test RIG with panel Combined Throttling & separating Calorimeter, Thermal conductivity of Metal test test rig	lab is utilized 5	Mr. Partha Bhattacharyy	Technical Assistant	Diploma in Mechanical Engineering
11	Dynamics of machines lab(5THsem)	30	Vernier Height & Depth Gauge and Slip Gauge. Vernier bevel Protector, Angle Gauge, Sine Bar and Slip Gauge	lab is utilized 5	Mr. Amitava Sanfui	Technical Assistant	Diploma in Mechanical Engineering
12	Metrology &measureme nt lab(5THsem)	30	Vernier Height & Depth Gauge and Slip Gauge. Vernier bevel Protector, Angle Gauge, Sine Bar and Slip Gauge	lab is utilized 5	Mr.Bhola Guha	Technical Assistant	Diploma in Mechanical Engineering
13	Refrigeratio n& air conditionin g lab(5THsem)	30	Thermo- Electric Regrigerati on system, General Cycle Refrigeratio n Trainer, Recirculatin g Type Air Conditioning Test rig Air Conditioning (windowless RA)	lab is utilized 5	Mr. Partha Bhattacharyy	Technical Assistant	Diploma in Mechanical Engineering
14	Machining & machine tools lab(6THsem)	30	Tallysurf instrument, Central Lathe, Universal Milling Machine, Shaping Machine, Grinding Machine, Power saw machine	lab is utilized 5	Mr. Bhola Guha	Technical Assistant	Diploma in Mechanical Engineering

15	Design Practice Lab(6THSem)	30	30 Computers DELL 3420 with 1TB Hard disc & RAM-10 GProcess or I- 5,6thGE N.Auto- Cad 2021/CATIA V5 CADRII CON Vedio-15-15-15	lab is utilized 5	Mr. Amitava Sanfui	Technical Assistant	Diploma in Mechanical Engineering
16	I C Engine Lab (6THSem)	30	Bomb Calorimeter Flash & Fire Point Analyzer (Open System), Flash Point Analyzer (In Closed System), Model of Boiler (Cochran Boiler), Horizontal Fire Tube	lab is utilized 5	Mr. Amitava Sanfui	Technical Assistant	Diploma in Mechanical Engineering
17	Fluid Power Control Lab(6THSem)	30	Pneumatic Trainee Kit, Pneumatic, Compressor, accessories Setup of Pneumatic System Cabinet Box, Modification of Hydraulic system, Equipment Set	lab is utilized 5	Mr. Partha Bhattacharyy	Technical Assistant	Diploma in Mechanical Engineering
18	Machine Drawing- I	30	One lab Room 30 Tables along with drawing board in each labs with one Computer	lab is utilized 5	Mr. Partha Bhattacharyy	Technical Assistant	Diploma in Mechanical Engineering
19	Fluid mechanics & hydraulic machines lab(4thSem)	30	Determination of Hydraulic Co-efficient Calibration RIG for Orifice & Venture Meter, V-Notch Tank Apparatus (Constant Head), Constant Pressure Tank	lab is utilized 1	Mr. Partha Bhattacharyy	Technical Assistant	Diploma in Mechanical Engineering
20	Advanced Manufacturing Lab(7THSem)	30	Educational Robot(R24), CNC Lathe Machine, 3D Printer	lab is utilized 1	Mr. Bholu Guha	Technical Assistant	Diploma in Mechanical Engineering
21	Advanced Welding Lab(7THSem)	30	Mig. Welding, Acetylene Regulator, Arc Welding setup with Transformer With setup of Spot Welding Machine	lab is utilized 5	Mr. Amitava Sanfui	Technical Assistant	Diploma in Mechanical Engineering

D2. Safety Measures in Laboratories

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

Sr. No	Laboratory Name	Safety Measures
1	Mechanical Workshop a) Machine Shop b) Welding Shop c) Carpentry Shop	- General Rules of Conduct in Laboratories are displayed. - Specific Safety Rules for students displayed. - First aid box, fire extinguishers & hand gloves are kept in the laboratory. - Well trained technical supporting staffs are involved for overall maintaining the lab. - Avoiding the use of damaged equipments and provides needful equipment and components. - Periodical servicing of the lab equipments. - Damaged equipments are identified and serviced at earliest. - Maintain a clean and organized laboratory. - Avoiding the use of cell phones. - Appropriate storage areas. - Hand gloves, Safety shoes, Welding goggles, should be used in the lab - Loose clothing is prohibited and wearing cover shoes are must. - Always instruct the students to maintain safe distance from revolving parts. - CCTV cameras are installed in the laboratory.
2	Strength of Materials Lab	- General Rules of Conduct in Laboratories are displayed. - Specific Safety Rules for students displayed. - First aid box & fire extinguishers are kept in the laboratory. - Well trained technical supporting staff are involved for overall maintaining the lab. - After completion of the experiment, certification of the staffin- charge concerned in the observation book is necessary. - Not more than five students in a group are permitted to perform the experiment on a set up. - The group-wise division of students is made in the beginning and no mix up of students among different groups is permitted later. - When the experiment is completed, students must have to disconnect the setup made by them, and should return all the components/instruments taken for the purpose. - Avoiding the use of damaged equipments and provides needful equipments and components. - Maintain a clean and organized laboratory. - Periodical servicing of the lab equipments. - CCTV cameras are installed in laboratory.
3	Fluid Mechanics & Fluid Machines Lab	- Make sure that equipment working on electrical powerare groundedproperly - Avoidstandingonmetal surfacesorwetconcrete.Keepyour shoesdry. - Never handle electrical equipment with wetskin. - Avoid use of loose clothing and hair near machines andavoid running around inside thelab. - Students should not move equipment around the roomexcept under the supervision of aninstructor. - Avoiding the use of damaged equipments andprovides needful equipment andcomponents. - Maintain a clean and organizedlaboratory. - Periodical servicing of the labequipment. - CCTV cameras are installed inlaboratory

4	Manufacturin g Technology Lab	• General Rules of Conduct in Laboratories are displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Work in laboratory wearing loose hair, loose clothing and dangling jewellery is restricted. • Wearing of covered shoes to protect feet is mandatory. • An individual is advised to work only under conditions in which appropriate emergency aid is available when needed. • Work when others are around to provide help if it is needed. • Hand gloves, safety shoes, Welding goggles, should be used in the lab. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones. • CCTV cameras are installed in laboratory
5	Material Testing Lab	• General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Before performing practical reading of instrument manual is must for all. • Not to play with valves, screws and nuts of any apparatus. • In the absence of instructor no student shall be allowed to work in the laboratory. • Shoes must cover the entire foot. • Open toed shoes and sandals are inappropriate footwear in laboratories. • The performance of unauthorized experiments is strictly forbidden. • Make sure that all equipment is clean and returned to its original place. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones. • CCTV cameras are installed in laboratory. • General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Wearing of covered shoes before entering in the lab is mandatory. • Not to touch anything without the permission of instructor/lab assistant. • Before performing practical reading of instrument manual is must for all. • Not to tamper measuring instruments. • Not to open the casing of the equipment. • Switch off the power supply to the experimental setup on completion of the experiment is must. • Maintain clean and orderly laboratories and work area. • Always be aware of the various experiment controls (start button, stop button, speed control) for each experiment. • Not to leave experiments running unattended. • Any injuries should be reported immediately for proper care. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones. • CCTV cameras are installed in laboratory.
6	Heat Transfer Lab.	• General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Wearing of covered shoes before entering in the lab is mandatory. • Not to touch anything without the permission of instructor/lab assistant. • Before performing practical reading of instrument manual is must for all. • Not to tamper measuring instruments. • Not to open the casing of the equipment. • Switch off the power supply to the experimental setup on completion of the experiment is must. • Maintain clean and orderly laboratories and work area. • Always be aware of the various experiment controls (start button, stop button, speed control) for each experiment. • Not to leave experiments running unattended. • Any injuries should be reported immediately for proper care. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones. • CCTV cameras are installed in laboratory.

7	Dynamics Of Machines Lab.	• General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Wearing of covered shoes before entering in the lab is mandatory. • Not to touch anything without the permission of instructor/lab assistant. • Before performing practical reading of instrument manual is must for all. • Not to tamper measuring instruments. • Not to open the casing of the equipment. • Switch off the power supply to the experimental setup on completion of the experiment is must. • Maintain clean and orderly laboratories and work area. • Always be aware of the various experiment controls (start button, stop button, speed control) for each experiment. • Not to leave experiments running unattended. • Any injuries should be reported immediately for proper care. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • CCTV cameras are installed in laboratory.
8	Metrology & Measurement Lab.	• General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Wearing of covered shoes before entering in the lab is mandatory. • Not to touch anything without the permission of instructor/lab assistant. • Before performing practical reading of instrument manual is must for all. • Not to tamper measuring instruments. • Not to open the casing of the equipment. • Switch off the power supply to the experimental setup on completion of the experiment is must. • Maintain clean and orderly laboratories and work area • Always be aware of the various experiment controls (start button, stop button, speed control) for each experiment. • Not to leave experiments running unattended. • Any injuries should be reported immediately for proper care. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Don't operate any apparatus unless authorized, to do so by the instructor or under his supervision. • CCTV cameras are installed in laboratory. • Always be aware of the various experiment controls (start button, stop button, speed control) for each experiment. • Not to leave experiments running unattended. • Any injuries should be reported immediately for proper care. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Don't operate any apparatus unless authorized, to do so by the instructor or under his supervision. • CCTV cameras are installed in laboratory. • Always be aware of the various experiment controls (start button, stop button, speed control) for each experiment. • Not to leave experiments running unattended. • Any injuries should be reported immediately for proper care. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Don't operate any apparatus unless authorized, to do so by the instructor or under his supervision. • CCTV cameras are installed in laboratory.

9	Refrigeration & Air Conditioning Lab.	• General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Wearing of covered shoes before entering in the lab is mandatory. • Not to touch anything without the permission of instructor/lab assistant. • Before performing practical reading of instrument manual is must for all. • Not to tamper measuring instruments. • Not to open the casing of the equipment. • Switch off the power supply to the experimental setup on completion of the experiment is must. • Maintain clean and orderly laboratories and work area. • Always be aware of the various experiment controls (start button, stop button, speed control) for each experiment. • Not to leave experiments running unattended. • Any injuries should be reported immediately for proper care. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Don't operate any apparatus unless authorized, to do so by the instructor or under his supervision. • CCTV cameras are installed in laboratory.
10	Machining & Machine Tools Lab.	• General Rules of Conduct in Laboratories are displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Work in laboratory wearing loose hair, loose clothing or dangling jewellery is restricted. • Wearing of covered shoes to protect feet is mandatory. • An individual is advised to work only under conditions in which appropriate emergency aid is available when needed. • Work when others are around to provide help if it is needed. • Hand gloves, Safety shoes, , should be used in the lab. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Don't attempt to oil, clean, adjust or repair any machine while it is running, stop the machine and lock the power switch in the off position. • Even after the power is off, don't leave the machine until it has stopped running. Someone else may notice that it is still in motion and be injured. • Don't operate any machine unless authorized, to do so by the instructor or under his supervision. • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones. • CCTV cameras are installed in laboratory.
11	Design Practice Lab	• General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • The student must check the computer unit and its peripherals attached before using it. The student must immediately inform the instructor if there's any defect. • Students are advised to put off their shoes before entering the lab. • You may use the computers in the lab only when a teacher is present. • Students need to place their bags at the front of the lab. • Do not eat or drink in the lab. • Use only the computer you are assigned to. • Report any hardware fault immediately to your teacher. Never attempt to dismantle the different parts of the computer. • Each student must log into his/her account. No sharing of accounts is permitted. • The computers are for your academic use. Playing computer games for entertainment is strictly not allowed. • Do not charge your personal mobile devices in the lab. • Do not charge your personal mobile devices in the lab. • Shut down the computer properly after use. • Keep the lab clean and neat at all times. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • CCTV cameras are installed in laboratory.
12	I C Engine Lab.	• General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Wearing of covered shoes before entering in the lab is mandatory. • Not to touch anything without the permission of instructor/lab assistant. • Before performing practical reading of instrument manual is must for all. • Not to tamper measuring instruments. • Not to open the casing of the equipment. • Switch off the power supply to the experimental setup on completion of the experiment is must. • Maintain clean and orderly laboratories and work area. • Always be aware of the various experiment controls (start button, stop button, speed control) for each experiment. • Not to leave experiments running unattended. • Any injuries should be reported immediately for proper care. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • CCTV cameras are installed in laboratory.

13	Fluid Power Control Lab.	• General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Wearing of covered shoes before entering in the lab is mandatory. • Not to touch anything without the permission of instructor/lab assistant. • Before performing practical reading of instrument manual is must for all. • Not to tamper measuring instruments. • Not to open the casing of the equipment. • Switch off the power supply to the experimental setup on completion of the experiment is must. • Maintain clean and orderly laboratories and work area. • Always be aware of the various experiment controls (start button, stop button, speed control) for each experiment. • Not to leave experiments running unattended. • Any injuries should be reported immediately for proper care. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Don't operate any apparatus unless authorized, to do so by the instructor or under his supervision. • CCTV cameras are installed in laboratory.
14	Advanced Manufacturing Lab.	• General Rules of Conduct in Laboratories are displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Work in laboratory wearing loose hair, loose clothing or dangling jewellery is restricted. • Wearing of covered shoes to protect feet is mandatory. • An individual is advised to work only under conditions in which appropriate emergency aid is available when needed. Work when others are around to provide help if it is needed. • Hand gloves, Safety shoes, Welding goggles, should be used in the lab. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones. • CCTV cameras are installed in laboratory.
15	Advanced Welding Lab	• General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box, fire extinguisher & hand gloves are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Avoiding the use of damaged equipments and provides needful equipments and components. • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones. • Appropriate storage areas. • An individual is advised to work only under conditions in which appropriate emergency aid is available when needed. Work when others are around to provide help if it is needed. • Hand gloves, Safety shoes, Welding goggles, should be used in the lab • Loose clothing is prohibited and wearing cover shoes are must. • Always instruct the student to maintain safe distance from revolving parts. • CCTV cameras are installed in laboratory.
16	Engineering Drawing R-1	• General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box, fire extinguisher & hand gloves are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Avoiding the use of damaged equipments and provides needful equipments and components. • Maintain a clean and organized laboratory. • Hands should be kept clean at all times during work. • Avoiding the use of cellphones. • Appropriate storage areas. • CCTV cameras are installed in laboratory.
17	Engineering Drawing R-2	• General Rules of Conduct in Laboratories are displayed. • Specific Safety Rules for students displayed. • First aid box, fire extinguisher & hand gloves are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Avoiding the use of damaged equipments and provides needful equipments and components. • Maintain a clean and organized laboratory. • Hands should be kept clean at all times during work. • Avoiding the use of cellphones. • Appropriate storage areas. • CCTV cameras are installed in laboratory.
18	Foundry Shop	• General Rules of Conduct in Laboratories are displayed. • First aid box & fire extinguisher are kept in laboratory. • Well trained technical supporting staffs are involved for overall maintaining the lab. • Work in laboratory wearing loose hair, loose clothing or dangling jewellery is restricted. • Wearing of covered shoes to protect feet is mandatory. • An individual is advised to work only under conditions in which appropriate emergency aid is available when needed. Work when others are around to provide help if it is needed. • Hand gloves, Safety shoes, goggles, should be used in the lab. • Avoiding the use of damaged equipments and provides needful equipments and components. • Damaged equipments are identified and serviced at earliest. • Avoiding the use of cellphones • Periodical servicing of the lab equipments. • Damaged equipments are identified and serviced at earliest. • Maintain a clean and organized laboratory. • Avoiding the use of cellphones. • CCTV cameras are installed in laboratory.

D3. Project Laboratory/Research Laboratory

A. Availability of project laboratories/ research laboratories

The Department of Mechanical Engineering has established well-equipped Project Laboratories and Research Laboratories to promote innovation, practical learning, and advanced experimentation beyond the regular curriculum. These laboratories are separate from conventional teaching labs and are specifically designed to support student projects, faculty research, interdisciplinary collaboration, and industry-sponsored work. Major facilities include the Fluid Power Control Project Lab, Blue Star Refrigeration and HVAC Research Lab, Centre for Advanced Manufacturing (CAM), and Thermal and Energy Systems Lab. The laboratories are equipped with modern facilities such as hydraulic power packs, pneumatic trainer kits, PLC-controlled systems, CNC machines, 3D printers, robotic arms, engine test beds, refrigeration test rigs, and advanced measuring instruments to enable real-time experimentation and prototype development.

B. Availability of centre of excellence

The Department has established two industry-supported Centres of Excellence (CoEs) to strengthen outcome-based education, enhance practical learning, and bridge the gap between academia and industry.

1. Blue Star Centre of Excellence (HVAC & Refrigeration):

The Blue Star Centre of Excellence provides advanced facilities for training in Heating, Ventilation, Air Conditioning, and Refrigeration (HVAC&R) systems. The laboratory is equipped with industry-standard training equipment for refrigeration cycles, air conditioning systems, psychrometrics, energy-efficient cooling technologies, refrigeration controls, and system testing. The Centre supports laboratory courses, skill development programmes, value-added courses, industry certification, internships, and student projects in the field of thermal engineering.

2. Bosch Rexroth Centre of Excellence (Industrial Automation):

The Bosch Rexroth Centre of Excellence offers state-of-the-art facilities in Industrial Hydraulics, Pneumatics, Electro-hydraulics, Electro-pneumatics, Mechatronics, PLC-based Automation, and Industrial Control Systems. The Centre enables students to gain hands-on experience in designing, assembling, simulating, and troubleshooting industrial automation systems using modern industrial equipment and software.

Both Centres of Excellence are extensively utilized for curriculum delivery, laboratory experimentation, project work, internships, technical workshops, Faculty Development Programmes (FDPs), industry-oriented training, and skill certification programmes. They significantly contribute to the attainment of Programme Outcomes (POs) and Programme Specific Outcomes (PSOs) by enhancing students' practical skills, problem-solving abilities, innovation, and industry readiness, thereby improving their employability and supporting continuous interaction with industry.

C. Utilization of Project Laboratories / Research Laboratories / Centre of Excellence

The Department effectively utilizes its Project Laboratories, Research Laboratory, **Blue Star Centre of Excellence**, and **Bosch Rexroth Centre of Excellence** to promote experiential learning, research, innovation, and industry-oriented skill development.

The laboratories are utilized for conducting curriculum-based practical sessions, project-based learning, undergraduate major and minor projects, interdisciplinary projects, internships, value-added courses, industrial training, and certification programmes. Students undertake design, fabrication, testing, simulation, and performance evaluation of engineering systems using modern equipment and industrial software.

The **Blue Star Centre of Excellence** provides practical exposure in HVAC and Refrigeration systems, refrigeration cycle analysis, psychrometrics, energy-efficient cooling technologies, installation, testing, commissioning, maintenance, and energy management. It supports student projects, technical workshops, and industry-oriented training in thermal engineering.

The **Bosch Rexroth Centre of Excellence** facilitates hands-on learning in Industrial Hydraulics, Pneumatics, Electro-hydraulics, Electro-pneumatics, PLC Programming, Mechatronics, and Industrial Automation. Students acquire practical skills in circuit design, simulation, troubleshooting, motion control, and industrial automation aligned with Industry 4.0 practices.

The facilities are also utilized for Faculty Development Programmes (FDPs), expert lectures, consultancy activities, sponsored projects, research publications, patent-oriented work, innovation challenges, and technical competitions. The utilization of these laboratories is monitored through laboratory schedules, equipment logbooks, project records, student participation, training reports, and outcome analysis.

The effective utilization of these facilities contributes significantly to the attainment of Programme Outcomes (POs) and Programme Specific Outcomes (PSOs) by enhancing technical competency, analytical ability, innovation, research aptitude, teamwork, and industry readiness.

Table 1: Student Training Programmes Conducted through Centres of Excellence**CAYm1 (2024-25)**

Date	Centre of Excellence	Training Programme Topic	Duration	No. of Students Trained	Learning Outcomes
22.07.2024-26.07.2024	Blue Star CoE	Fundamentals of HVAC & Refrigeration	30 Hours (5 Days)	30	Developed practical knowledge of refrigeration and air conditioning systems, components, and maintenance practices.
18.11.2024-22.11.2024	Blue Star CoE	Energy-Efficient HVAC Systems	30 Hours (5 Days)	27	Understood energy conservation techniques and HVAC performance evaluation.
10.03.2025-14.03.2025	Bosch Rexroth CoE	Industrial Hydraulics & Pneumatics	30 Hours (5 Days)	24	Designed, assembled, and tested hydraulic and pneumatic circuits.
21.04.2025-25.03.2025	Bosch Rexroth CoE	PLC Programming & Industrial Automation	30 Hours (5 Days)	28	Acquired practical skills in PLC programming and industrial automation.
CAYm2 (2023-24)					
24.07.2023-28.07.2023	Blue Star CoE	Refrigeration System Installation & Servicing	30 Hours (5 Days)	28	Gained hands-on experience in installation, testing, and servicing of refrigeration systems.
14.08.2023–18.08.2023	Blue Star CoE	HVAC Controls and Psychrometrics	30 Hours (5 Days)	30	Developed skills in psychrometric analysis and HVAC control systems.
20.09.2023–24.09.2023	Bosch Rexroth CoE	Mechatronics & Electro-Pneumatics	30 Hours (5 Days)	25	Applied automation concepts in industrial applications.
19.02.2024–23.02.24	Bosch Rexroth CoE	Industrial Automation using PLC	30 Hours (5 Days)	27	Designed and implemented PLC-based industrial control systems.
CAYm3 (2022-23)					
8.06.2022–12.06.2022	Blue Star CoE	Refrigeration Cycle Performance Analysis	30 Hours (5 Days)	28	Analysed refrigeration cycle performance and system efficiency.
16. 10.2022–20.10.2022	Blue Star CoE	Green Cooling Technologies	30 Hours (5 Days)	25	Learned sustainable refrigeration technologies and eco-friendly refrigerants.
16.01.2023–20.01.2023	Bosch Rexroth CoE	Hydraulic Circuit Design & Troubleshooting	30 Hours (5 Days)	26	Developed competency in hydraulic system design and fault diagnosis.

Date	Centre of Excellence	Training Programme Topic	Duration	No. of Students Trained	Learning Outcomes
13.03.2023–17.03.2023	Bosch Rexroth CoE	Electro-Hydraulics & Electro-Pneumatics	30 Hours (5 Days)	27	Integrated electrical and hydraulic systems for industrial automation.

Table 2: Faculty Development Programmes (FDPs) Conducted through Centres of Excellence

CAYm1 (2024-25)

Date	Centre of Excellence	FDP Topic	Duration	No. of Faculty	Outcomes
6.01.2025–10.01.2025	Bosch Rexroth CoE	Industrial Automation using PLC & Pneumatics	5 Days	XX	Strengthened expertise in PLC programming, pneumatics, and industrial automation.

CAYm2 (2023-24)

11.11.2024–15.11.2024	Blue Star CoE	Sustainable Refrigeration Technologies	5 Days	XX	Updated faculty on green cooling technologies and environmental regulations.
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CAYm3 (2022-23)

07.08.2023–11.08.2023	Bosch Rexroth CoE	Mechatronics and Fluid Power Systems	5 Days	XX	Upgraded faculty skills in fluid power, mechatronics, and automation technologies.
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D. Relevance to POs/ PSOs

Relevance of the Centres of Excellence to Program Outcomes (POs) and Program Specific Outcomes (PSOs)

The Blue Star Centre of Excellence and the Bosch Rexroth Centre of Excellence significantly contribute to the attainment of the Programme Outcomes (POs) and Programme Specific Outcomes (PSOs) by providing students with opportunities to apply theoretical concepts in real-world engineering applications through hands-on training, laboratory experimentation, industrial projects, and skill development programmes.

Blue Star Centre of Excellence (HVAC & Refrigeration)

The Blue Star Centre of Excellence enables students to gain practical exposure to refrigeration, air conditioning, thermal systems, and energy-efficient technologies. Through laboratory experiments, system performance analysis, installation practices, maintenance, and energy auditing, students strengthen their understanding of thermal engineering concepts and sustainable engineering practices.

Contribution to POs

PO1: Application of engineering fundamentals in refrigeration and air conditioning systems.

PO2: Identification, analysis, and troubleshooting of HVAC-related engineering problems.

PO3: Design and optimization of thermal and cooling systems considering performance and energy efficiency.

PO4: Investigation and performance evaluation of refrigeration and air conditioning systems through experimentation.

PO5: Effective use of modern HVAC equipment, testing instruments, and engineering software.

PO6 & PO7: Understanding safety regulations, environmental impact, and sustainable refrigeration practices.

PO9 & PO10: Team-based practical training, technical communication, and project execution.

PO12: Lifelong learning through industry certification programmes and emerging HVAC technologies.

Bosch Rexroth Centre of Excellence (Industrial Automation)

The Bosch Rexroth Centre of Excellence provides hands-on training in hydraulics, pneumatics, electro-pneumatics, mechatronics, PLC-based automation, and industrial control systems. Students develop competencies in designing, assembling, simulating, and troubleshooting industrial automation systems used in modern manufacturing industries.

Contribution to POs

PO1: Application of mechanical engineering principles in fluid power and automation systems.

PO2: Analysis and diagnosis of industrial automation and fluid power systems.

PO3: Design and development of hydraulic, pneumatic, and automated systems.

PO4: Experimental investigation and validation of industrial control systems.

PO5: Use of modern automation equipment, PLCs, sensors, actuators, and simulation tools.

PO9: Teamwork during laboratory exercises and industrial projects.

PO10: Preparation of technical reports and effective communication of engineering solutions.

PO11: Project planning, resource management, and execution of automation-based projects.

PO12: Continuous professional development through industry-oriented certification and advanced automation training.

Contribution to Programme Specific Outcomes (PSOs)

The Centres of Excellence directly support the attainment of the Departments Programme Specific Outcomes by:

Enhancing students practical competence in thermal engineering, manufacturing, fluid power, automation, and industrial systems.

Developing proficiency in the operation, maintenance, analysis, and optimization of mechanical engineering systems using modern industrial equipment.

Promoting innovation, multidisciplinary project work, and problem-solving using contemporary engineering tools and technologies.

Improving industry readiness through experiential learning, certification programmes, internships, and industry-academia interaction.

Overall, the Blue Star and Bosch Rexroth Centres of Excellence strengthen Outcome-Based Education by integrating industrial practices with academic learning, thereby improving students technical competency, employability, innovation capability, and professional preparedness.

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

S.N.	Name of the Laboratory	
1.	Fluid Power Control project Lab: Hydraulic power pack, pneumatic trainer kits, PLC-controlled hydraulic circuits, servo valves, pressure & flow sensors, data acquisition system. Study and prototyping of hydraulic and pneumatic control systems used in automation, robotics, and industrial machinery. Final-year projects, research in mechatronics, industrial training, automation system design workshops.	
2.	Blue Star Refrigeration and HVAC Research Lab: Blue Star refrigeration test rig, air conditioning unit with heat load simulation, psychrometric test chamber, refrigerant charging station. Performance analysis of refrigeration cycles, HVAC system optimization, energy efficiency studies. UG projects, energy audit projects, industry collaborative testing, skill development in HVAC servicing.	
3.	Centre for Advanced Manufacturing (CAM): CNC lathe, 3D printer, 4 DOF Robotic arm. Precision manufacturing, additive manufacturing	
4.	Thermal and Energy Systems Lab: Engine test bed with dynamometer, IC engines, renewable energy systems, combustion analysis, Research projects, energy innovation challenges.	

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)	1140	57	61	17	92

2024-25(CAYm1)	1140	57	61	17	92
2025-26(CAY)	1320	66	68	21	89

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

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

Items	Budgeted in 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	31151000	26351535	26064000	23061795	13176000	11278915	5111000	4528940
Library	7467000	7119754	5960000	5724961	5677000	5488881	3984000	3856775
Laboratory equipment	21811000	21444694	16382000	16325780	13406000	13129838	7078000	6714960
Teaching and non-teaching staff salary	420681000	410332197	395333000	380982477	330455000	315221276	265530000	255413669
Outreach Programs	2763000	2646338	2220000	2117070	1696000	1608974	1286000	1222820
R&D	35525000	34563234	32570000	30938746	24616000	24024288	21755000	20623249
Training, Placement and Industry linkage	18742000	17935027	16437000	15725663	14503000	13830823	11739000	11137984
SDGs	75556000	74605044	75416000	74410144	64013000	59993074	43981000	44164473
Entrepreneurship	4626000	4400076	4249000	4180072	1778000	1714819	1650000	1646226
Others, specify	75159000	70172101	60556000	58302416	50439000	48060794	29511000	28140028
Total	693481000	669570000	635187000	611769124	519759000	494351682	391625000	377449124

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	2442000.00	2387152.00	2030000.00	2009376.00	1594000.00	1553019.00	670000.00	644587.00
Software	360000.00	353698.00	0	0	0	0	0	0

SDGs	2905000.00	2870549.00	2587000.00	2444713.00	2003000.00	1953019.00	1514000.00	1459119.00
Support for faculty development	595000.00	579809.00	556000.00	528370.00	504000.00	498827.00	458000.00	442604.00
R & D	1070000.00	1039746.00	1038000.00	983965.00	776000.00	760031.00	765000.00	731708.00
Industrial Training, Industry expert, Internship	595000.00	567768.00	524000.00	505303.00	496000.00	476161.00	401000.00	382234.00
Miscellaneous Expenses*	1176000.00	1143523.00	1029000.00	986816.00	924000.00	889514.00	459000.00	440474.00
Total	9143000.00	8942245.00	7764000.00	7458543.00	6297000.00	6130571.00	4267000.00	4100726.00