

NATIONAL BOARD OF ACCREDITATION

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

PART-A: Profile of the Institute

Name of the Program Applied for: B.Tech in Mechanical Engineering

A1: Name of the Institute: - Maulana Azad National Institute of Technology

Year of Establishment : 1960

A2: Institute Address: - Link
Road Number 3, Near Kali
Mata Mandir, Bhopal, Madhya
Pradesh, India - 462003

City:
Bhopal

Pin Code: 462003

E-mail: info@manit.ac.in

A3: Name and Address of the Affiliating University (If any): - NA

Name of the University : City :

State : Pin Code:

A4: Type of the Institution: - (Tick the applicable choice)

Institute of National Importance	<input checked="" type="checkbox"/>	Deemed University	<input type="checkbox"/>
University	<input type="checkbox"/>	Autonomous	<input type="checkbox"/>
Non-Autonomous (Affiliated)	<input type="checkbox"/>	Any other (Please specify) *	<input type="checkbox"/>

***Provide Details:** _____

A5: Ownership Status: - (Tick the applicable choice)

Central Government	<input checked="" type="checkbox"/>	State Government	<input type="checkbox"/>
Government Aided	<input type="checkbox"/>	Self-financing	<input type="checkbox"/>
Any Other (Please specify) *	<input type="checkbox"/>	*Provide Details:	_____

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

❖ No. of UG programs: 12

❖ No. of PG programs: 37

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

S. No.	Level of Program (UG/PG)	Name of the Program	Year of start	Year of Close*	Name of the Department	
1.	UG	B.Tech.	2007	are running	Chemical Engineering	
2.		B.Tech.	1960	are running	Civil Engineering	
3.		B.Tech.	1986	are running	Computer Science & Engineering	
4.		B.Tech.	1960	are running	Electrical Engineering	
5.		B.Tech.	1972	are running	Electronics & Communication Engineering	
6.		B.Tech.	1960	are running	Mechanical Engineering	
7.		B.Tech.	2007	are running	Materials & Metallurgical Engineering	
8.		B.Arch.	1963	are running	Architecture	
9.		B.Plan.	2007	are running	Planning	
10.		B.Tech. and M.Tech. in Mathematics and Data Science (Dual Degree)	2021	are running	Mathematics, Bioinformatics & Computer Applications	
11.		B.Tech. in Engineering Computational Mechanics	2025	are running	Mechanical Engineering	
12.		B.Tech. in Energy and Electric Vehicles Engineering	2025		Energy Science and Engineering	
1.	PG (M.Plan.)	Urban Planning	2011	are running	Architecture & Planning	
2.		Housing	2012	are running		
3.	PG (M.Tech.)	Bio-Technology	2012	are running	Biological Science and Engineering	
4.		Chemical Engineering	2012	are running	Chemical Engineering	
5.		Geo-Informatics & its Applications	2006	are running	Civil Engineering	
6.		Structural Engineering	2006	are running		
7.		Environmental Engineering	2006	are running		
8.		Geotechnical Engineering	1968	are running		
9.		Hydropower Engineering	1968	are running		
10.		Transportation Engineering	2007	are running		
11.		Water Resources Engineering and Management	2012	are running		Centre for Excellence in Water Management
12.		Smart Manufacturing	2021	are running		Centre of Excellence in Product Design & Smart Manufacturing
13.		Artificial Intelligence	2019	are running		Centre for Artificial Intelligence
14.		Information Security	2006	are running		Computer Science & Engineering
15.		Advanced Computing	2012	are running		
16.		Computer Networking	2012	are running		
17.	Digital Communication	1989	2024			

18.		Communication Systems	2024	are running	Electronics & Communication Engineering
19.		VLSI Design & Embedded System	2006	are running	
20.		Electrical Drives	2006	2024	Electrical Engineering
21.		Integrated Power System	2024	are running	
22.		Power System	1996	2024	
23.		Power Electronics and Drives	2024	are running	
24.		Renewable Energy	1997	are running	Energy Centre
25.		Energy System Management	2018	are running	
26.		Material Science & Technology	2012	are running	Materials & Metallurgical Engineering
27.		Thermal Engineering	1996	are running	Mechanical Engineering
28.		Industrial Design	1996	are running	
29.		Automation & Robotics	2022	are running	
30.		Industrial Engineering & Management	2022	are running	
31.		Bioinformatics	2006	are running	Mathematics, Bioinformatics & Computer Applications
32.		Agile Software Engineering	2022	are running	
33.		Nano Technology	2006	are running	Physics
34.	PG(MBA)	Master of Business Administration	2006	are running	Management Studies
35.	PG(MCA)	Master of Computer Applications	1987	are running	Mathematics, Bioinformatics & Computer Applications
36.	PG (M.Sc.)	Physics	2021	are running	Physics
37.	PG (M.Sc.)	Chemistry	2021	are running	Chemistry

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

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

S. N.	Name of the Department	Name of the Program
1.	Mechanical Engineering	B.Tech (Mechanical Engineering)

Table No. A7.2: Allied Department(s) to the Department of the program considered for accreditation as above.

S. N.	Name of the Department (in table no. A9.1)	Name of allied Departments/Cluster (for table no. A9.1)
1.	NIL	NIL

PART-B: Program information

(Data to be filled in for the program applied for Accreditation)

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

Table No. B1: Program details.

S. N.	Program Name	Year of start	Sanctioned Intake	Increase/decrease in intake, if any	Year of increase/decrease	AICTE/Competent Authority Approval Details	Accreditation Status*	No. of times program accredited
1.	B. Tech	1960	60	184	2006,2007,2008,2009, 2010, 2011,2019,2020& 2025		A	02

*Granted accreditation for 2/3 years for the period: Academic Year 2022-23, 2023-24 and 2024-25, i.e., upto 30-06-2025

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

A. Name of the HoD : Prof. K R Aharwal

B. Nature of appointment: (Tick the applicable choice)

❖ Regular

❖ Contract

❖ Ad hoc

C. Qualification: (Tick the applicable choice)

❖ Ph.D.

❖ ME/M.Tech

❖ Any other*

B3: Program Details

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

Item (Information is to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	CAY	CAYm1	CAYm2	CAYm3	CAYm4 (LYG)	CAYm5 (LYGm1)	CAYm6 (LYGm2)
N= Sanctioned intake of the program (as per AICTE /Competent authority)	184	212	212	212	212	212	191
N1= Total no. of students admitted in the 1 st year minus the no. of students, who migrated to other programs/ institutions plus no. of students, who migrated to this program	181	209	210	198	205	207	194
N2= Number of students admitted in 2 nd 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 1 st 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.	181	209	210	198	205	207	194

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.

Item (Students enrolled in the First Year on average over 3 academic years (CAY, CAYm1, and CAYm2))	CAY	CAYm1	CAYm2
N= Sanctioned intake of the program in the 1 st year (as per AICTE/Competent authority)	184	212	212
N1= Total no. of students admitted in the 1 st year minus the no. of students, who migrated to other programs/ institutions plus no. of students, who migrated to this program	181	209	210
N4= Total no. of students admitted in the 1 st year via all supernumerary quotas	0	0	0
Enrolment Ratio (ER)= (N1+N4)/N	98.37	98.58	99.06
Average ER= (ER_1+ ER_2+ ER_3)/3	98.67%		

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	LYG	LYGm1	LYGm2
A*= (No. of students admitted in the 1 st year of that batch and those actually admitted in the 2 nd 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).	205	207	194
B=No. of students who graduated from the program in the stipulated course duration	202	198	189
Success Rate (SR)= (B/A)*100	98.54	95.65	97.42
Average SR of three batches ((SR_1+SR_2+ SR_3)/3)	97.20%		

Note *: If the value of A in Table No. B5.1 is less than the sum of the sanctioned intake (N) and the lateral entry including leftover seats (N2), then the value of A in Table No.B5.1 should be the sum of the sanctioned intake (N) and the lateral entry including leftover seats (N2) of Table No.B3.1.

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	CAYm2	CAYm3
X= (Mean of 1 st 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 1 st year/10)	7.69	7.55	7.55
Y= Total no. of successful students	209	209	203
Z = Total no. of students appeared in the examination	209	209	203
API = X* (Y/Z)	7.69	7.55	7.55
Average API = (API_1 + API_2 + API_3)/3	7.60		

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	CAYm2	CAYm3
X= (Mean of 2 nd 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 2 nd year/10)	7.59	7.24	7.96
Y= Total no. of successful students	210	200	204
Z =Total no. of students appeared in the examination	210	200	204
API = X* (Y/Z)	7.59	7.24	7.96
Average API = (API_1 + API_2 + API_3)/3	7.60		

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	CAYm2	CAYm3
X= (Mean of 3 rd 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 3 rd year/10)	7.41	7.81	8.29
Y= Total no. of successful students	198	203	200
Z= Total no. of students appeared in the examination	198	203	200
API = X* (Y/Z)	7.41	7.81	8.29
Average API = (API_1 + API_2 + API_3)/3	7.84		

B9: Placement, Higher Studies, and Entrepreneurship**Table No.B9.1:** Placement, higher studies, and entrepreneurship details.

Item	LYG	LYGm1	LYGm2
FS*=Total no. of final year students	205	207	194
X= No. of students placed	159	169	158
Y= No. of students admitted to higher studies	2	2	3
Z= No. of students taking up entrepreneurship	3	1	6
X + Y + Z =	164	172	167
Placement Index (P) = (((X + Y + Z)/FS) * 100)	80.00	83.09	86.08
Average placement index = (P_1 + P_2 + P_3)/3	83.06		

Note *: If the value of FS in Table No. B9.1 is less than the sum of the sanctioned intake (N) and the lateral entry including leftover seats (N2), then the value of FS in Table No. B9.1 should be the sum of the sanctioned intake (N) and the lateral entry including leftover seats (N2) of Table No.B3.1.

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**

S.N.	Name of the faculty	PAN No.	APAAR faculty ID*(if any)	Highest Degree	University	Area of Specialization	Date of Joining in this institution	Experience in years in current institute	Designation at Time joining in this institution	Present Designation	The Date on which Designated as Professor/ Associate professor if any	Nature of Association (Regular/Contract/ Ad hoc)	If contractual mention Full time or Part time or hourly based	Currently Associated (Y/N)	Date of Leaving if any (In case currently associated is "No")
1.	R.M.Sarviya	ADDPS3496G	Nil	PhD	IIT Roorkee	Thermal Engineering	12/12/1987	38 Years	Lecturer	Professor	04/06/2011	Regular	NA	Y	No
2.	Siraj Ahmed	AAXPA1901B	Nil	PhD	RGPV	Wind Energy	01/07/1992	32 years	Lecturer	Professor	04/06/2011	Regular	NA	Y	No
3.	J.L. Bhagoria	AAVPB7017R	Nil	PhD	IIT Roorkee	Thermal Engineering & Solar Energy	01/07/1992	32 years	Lecturer	Professor	04/06/2011	Regular	NA	Y	No
4.	S.P.S. Rajput	AAPPR2661H	Nil	PhD	MANIT Bhopal	Refrigeration, and Air conditioning	26/07/1994	31 years	Lecturer	Professor	03/05/2013	Regular	NA	Y	No
5.	Rajesh Gupta	AAUPG8854C	Nil	PhD	MANIT Bhopal	Heat Transfer & CFD	10/08/1994	31 years	Lecturer	Professor	28/12/2018	Regular	NA	Y	No
6.	K.R. Aharwal	ABGPA4955K	Nil	PhD	IIT Roorkee	Thermal Engineering & RAC	02/06/2010	15 years	Associate Professor	Professor	28/12/2018	Regular	NA	Y	No
7.	Rajesh Purohit	AJUPP6347E	Nil	PhD	IIT Delhi	Materials	29/06/2010	15 years	Associate Professor	Professor	28/12/2018	Regular	NA	Y	No

8.	R.K. Dwivedi	AAUPD 7988C	Nil	PhD	MANIT Bhopal	Production	17/04 /1995	30 years	Assistant Workshop Superintendent	Professor	24/02/2020	Regular	NA	Y	No
9.	C.M. Krishna	ABPPC 6261R	Nil	PhD	IIT Kharagpur	Industrial Engineering	02/08 /2010	15 years	Associate Professor	Professor	24/02/2020	Regular	NA	Y	No
10.	V.K. Soni	ADUPS 9265L	Nil	PhD	MANIT Bhopal	Industrial Engineering	31/01 /2003	22 Years	Lecturer	Professor	21/12/2023	Regular	NA	Y	No
11.	Atul Lanjewar	ABTPL 7186Q	Nil	PhD	MANIT Bhopal	Thermal	13/02 /2003	22 years	Lecturer	Professor	21/12/2023	Regular	NA	Y	No
12.	Akhilesh Barve	AGXPB 8701G	Nil	PhD	IIT Delhi	Industrial Engineering	07/02 /2019	6 years	Associate Professor	Professor	21/12/2023	Regular	NA	Y	No
13.	Vilas Warudkar	AAPP W248 1C	Nil	PhD	MANIT Bhopal	Machine Design & Wind Energy	13/02 /2003	22 Years	Lecturer	Professor	24/12/2024	Regular	NA	Y	No
14.	Manoj Arya	AFJPA 4622C	Nil	PhD	MANIT Bhopal	Thermal Engineering	15/07/ 2005	19 yrs.	Lecturer	Associate Professor	31/12/2018	Regular	NA	Y	No
15.	R.S. Rana	AHTPR 6322A	Nil	PhD	MANIT Bhopal	Materials	16/08/ 2003	21 years	Lecturer	Associate Professor	28/12/2018	Regular	NA	Y	No
16.	Ajay Pandey	AGNPP 4065B	Nil	PhD	MANIT Bhopal	Industrial Design	15/07/ 2005	19 years	Lecturer	Associate Professor	21/12/2023	Regular	NA	Y	No
17.	Amit Telang	ABXPT 0634K	Nil	PhD	MANIT Bhopal	Industrial design	15/07/ 2005	19 Years	Lecturer	Associate Professor	21/12/2023	Regular	NA	Y	No
18.	Alok Singh	AKSPB 1981D	Nil	PhD	MANIT Bhopal	Thermal Engineering	15/07/ 2005	19 years	Lecturer	Associate Professor	21/12/2023	Regular	NA	Y	No
19.	Tikendra Nath Verma	AFRPV 3876R	Nil	PhD	NIT Raipur	Thermal Engineering	03/06/ 2020	5years	Assistant Professor	Associate Professor	21/12/2023	Regular	NA	Y	No
20.	Vishal Parashar	ANYPP 0127A	Nil	PhD	MANIT Bhopal	Production Engineering	15/07/ 2005	19 years	Lecturer	Associate Professor	24/12/2024	Regular	NA	Y	No
21.	Amit Suhane	BNBPS 8392E	Nil	PhD	MANIT Bhopal	Tribology	18/07/ 2005	19 years	Lecturer	Associate Professor	24/12/2024	Regular	NA	Y	No
22.	Manish Vishvakarma	AAQPV 2176G	Nil	PhD	MANIT Bhopal	Maintenance engineering & production	22/08/ 2005	19 years	Lecturer	Associate Professor	29/12/2024	Regular	NA	Y	No
23.	Arvind Kumar	BEVPK 4515G	Nil	PhD	MANIT Bhopal	Thermal Engineering	24/05/ 2010	15 years	Assistant Professor	Associate Professor	24/12/2024	Regular	NA	Y	No

24.	Ajay Verma	ADRPV0659E	Nil	PhD	Devi Ahilya Vishwa Vidhyalaya, Indore	Supply Chain Competitiveness	01/06/2010	15 years	Assistant Professor	Associate Professor	24/12/2024	Regular	NA	Y	No
25.	P.K. Soni	BASPS5734A	Nil	PhD	MANIT Bhopal	Manufacturing	14/07/2005	19 years	Lecturer	Assistant Professor	NA	Regular	NA	Y	No
26.	Akhilesh Soni	BNBPS8241J	Nil	PhD	MANIT Bhopal	Machine Design	16/08/2005	19 years	Lecturer	Assistant Professor	NA	Regular	NA	Y	No
27.	Sudhanshu Kumar	DMVPK3726F	Nil	PhD	SVNIT Surat	Manufacturing	07/01/2019	7 years	Assistant professor	Assistant Professor	NA	Regular	NA	Y	No
28.	Abhinav Varshney	AMCPV0800F	Nil	PhD	IIT Kanpur	Materials	07/01/2019	7	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
29.	Mohammad Taufik	AQRPT3862G	Nil	PhD	IIITDM Jabalpur	Manufacturing	17/01/2019	7	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
30.	Vinod Yadav	AGZPY4255C	Nil	PhD	IIT Guwahati	Manufacturing	21/01/2019	7	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
31.	Narendra Laxman Gajbhiye	AWUPG3108M	Nil	PhD	IIT Kanpur	Thermal & Fluid Sciences	08/02/2019	7	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
32.	Vijay Panchole	DGFPP9269C	Nil	PhD	IISc Bangalore	Mechanical Vibration & FEM	04/03/2020	6	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
33.	Deepak Kumar	DHYPK2103Q	Nil	PhD	IIT Patna	Design, Solid Mechanics	16/03/2020	6	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
34.	Vikash Kumar	CWYPK5125L	Nil	PhD	NIT JAMSHEDPUR	Thermal, Solar, Renewable Energy	20/03/2020	6	Assistant professor	Assistant Professor	NA	Regular	NA	Y	No
35.	Emon Barua	AUBPB9492N	Nil	Ph.D.	NIT Silchar	Design, Materials Science and Biomaterials	29/12/2023	2.5 years	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
36.	Lalsingh Devsoth	AYPPD6491B	Nil	Ph.D.	IIT Hyderabad	Fluid Dynamics & CFD	24/10/2024	1.5 years	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
37.	Aningi Mokhalingam	BDAPA7009M	Nil	Ph.D.	IIT Kanpur	Machine Design	04/11/2024	1.5 years	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
38.	Soumya Ranjan Guru	BERPG5194R	Nil	Ph.D.	IIT KHARAGPUR	Machine Design, Tribology	06-11-2024	1.5 years	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No

39.	Ashish Das	BJVPD 2371J	Nil	Ph.D	MNNIT Allahabad	Additive Manufacturing	23/01/2024	3 years	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
40.	Jayanth Kumar	BCFPJ 7505K	Nil	Ph.D	NIT Trichy	Additive Manufacturing	02/01/2024	2 years	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
41.	Jitendra Adhikari	BMLPA 7515G	Nil	Ph.D	IIT Mandi	Machine learning & Smart Materials	28/10/2024	1.5 years	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
42.	Gajendra Dixit	AAYPD 1684R	Nil	PhD	RRL CSIR Bhopal	Materials	28/11/1982	41 Years	Lecturer	Professor	22/01/2003	Contract	Full Time	N	30/06/2024
43.	Siddhant Shrivastava	EBAPS 5858F	Nil	PhD	IIT Kanpur	Product Design & social innovation	13/08/2024	1.0 years	Assistant professor (Adhoc)	Assistant Professor (Adhoc)	NA	Contract	Full Time	Y	13/07/2025
44.	Kuldeep Yadav	AKXPY 7003N	Nil	PhD	IIT Delhi	Applied Mechanics	18/09/2025	0.5 years	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
45.	Ashish Kumar Panday	BPUPP 8323R	Nil	PhD	IIT Delhi	Machine Design	19/09/2025	0.5 years	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No
46.	Krishnan S	BTYPS 2461P	Nil	PhD	IIT Kanpur	Solid Mechanics	04/12/2025	0.5 years	Assistant Professor	Assistant Professor	NA	Regular	NA	Y	No

❖ No. of UG(Engineering) programs in Department including allied departments/ clusters (UG_n):

- UG₁=1st UG program
- UG_n=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 (PG_m):

- PG₁=1st PG program.
- PG_m=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)).

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

Year	CAY 2025-2026	CAYm1 2024-2025	CAYm2 2023-2024
UG ₁ .B	212	212	212
UG ₁ .C	212	212	212
UG ₁ .D	212	212	212
UG₁	636	636	636
PG ₁ .A	12	12	21
PG ₁ .B	12	21	22
PG₁	24	33	43
PG ₂ .A	0	21	21
PG ₂ .B	21	21	22
PG₂	21	42	43
PG ₃ .A	15	15	21
PG ₃ .B	15	21	22
PG₃	30	36	43
PG ₄ .A	12	15	21
PG ₄ .B	15	21	22
PG₄	27	36	43
PG ₅ .A	15		
PG ₅ .B	0		
PG₅	15		
PG_m	117	147	172
DS=Total no. of students in all UG and PG programs in the Department	753	783	808
AS=Total no. of students of all UG and PG programs in allied departments	0	0	0
S=Total no. of students in thenDepartment (DS) and allied departments (AS)	753	783	808
DF=Total no. of faculty members in the Department	44	39	35
AF= Total no. of faculty members in the allied Departments	2	3	3

F=Total no. of faculty members in the Department (DF) and allied Departments (AF)	44+2=46	39+3=42	35+3=38
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)	16.36	18.64	21.26
Average SFR for 3 years	18.75		

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	FQI=2.5*[(10X+4Y)/RF]
CAY	46	0	37.65	30.54
CAYm1	42	0	39.15	26.81
CAYm2	38	0	44.4	21.39
Average Assessment				26.24

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 Faculty (RF1)	Available Faculty (AF1)	Required Faculty (RF2)	Available Faculty (AF2)	Required Faculty (RF3)	Available Faculty (AF3)
CAY	4.18	13	8.36	06	25.08	27
CAYm1	4.35	12	8.70	07	26.1	23
CAYm2	4.48	10	8.96	06	26.88	22
Average numbers	RF1=4.33	AF1=11.66	RF2=8.67	AF2=6.33	RF3=26.02	AF3=24

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.

S.N.	Name of the Person	Designation & Organization	Name of the Course	No. of hours handled
CAYm1				
1	NA	NA	NA	Nil
Total no. of hours:				Nil
CAYm2				
1	NA	NA	NA	Nil
Total no. of hours:				Nil
CAYm3				
	NA	NA	NA	Nil
Total no. of hours:				Nil

C6: Academic Research**Table No. C6.1:** Faculty publication details.

S.N.	Item	CAY	CAYm1	CAYm2	CAYm3
1	No. of peer reviewed journal papers published	146	142	144	175
2	No. of peer reviewed conference papers published	12	33	37	60
3	No. of books/book chapters published	5	3	1	3

C7: Sponsored Research Project**Table No. C7.1:** List of sponsored research projects received from external agencies.

S. NO	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)
CAYm1 (2024-25)							
1	Dr. Ravi Kumar Mandavala,	Dr. Deepak Kumar	Mechanical Engineering	Calf Simulation and Foot Drop Exercise Machine	IHFC-IIT Delhi	2024	2325000
2	Dr. Abhinav Varshney		Mechanical Engineering	Design and Development of an instrument for real-time assessment of ferromagnetic phase fraction in ferrous alloys	Department of Science and Technology (DST)	2 Years (2022-2024)	4830000
3	Dr. Vishal Parashar	Dr. Emon Barua	Mechanical Engineering	Development of Patient-Specific MgO-Reinforced HA/PMMA Composite Bone Scaffolds with optimized Fabrication Parameters using DOE for Critical Bone Defect Repair.	M.P. Council of Science and Technology, Madhya Pradesh	24 months	9,40,000
4	Dr. Akhilesh Barve		Mechanical Engineering	Programmable Automated Field Deployable High Frequency Rainwater Sampler	ISRO	2022-now	8,60,000
5	Dr. Akhilesh Barve		Mechanical Engineering	Indigenously Developed Ankle CPM	BIRAC DBT India	2024	1,87,500

6	Dr. Akhilesh Barve	Dr. Abhinav Varshney & Dr. Varun Bajaj	Mechanical Engineering	Capacity building in design and Entrepreneurship project	MoE	2024	50,00,000.
Amount Received							14142500/-

CAYm2 (2023-24)

1	Vijay Panchore		Mechanical Engineering	EMEQ-DST	DST	2023	1851000
2	Dr. Sudhanshu Kumar		Mechanical Engineering	A Study of Learning Gap during Covid-19 Period among Government Elementary School Students	ICSSR, New Delhi	2023 (Ongoing)	550000
3	Vijay Panchore	NA	Mechanical Engg.	Aeroelastic Analysis and Stability Analysis of Helicopter Rotor Blade: Finite Element in Space and Time	SERB	2 Years	1856000
Amount Received							42,57,000

CAYm3 (2022-23)

1	Dr. Vinod Yadav,	Dr. Akhilesh Barve	Mechanical Engineering	Development of PET waste plastic and bamboo-based composite tiles	Carbon Zero Challenge, IIT Madras	24 Months	500000
2	Dr. Vinod Yadav		Mechanical Engineering	Manufacturing and Fabrication of Gasoline Engine-Based Saw Chain	Army Design Bureau, New Delhi	24 Months	2200000
3	Dr. Akhilesh Barve	Dr. Deepak Kumar	Mechanical Engineering	Programmable Automated Field Deployable High-Frequency Rainwater Sampler	Indian Space Research Organization (ISRO)	24 Months	860000
4	Dr. Deepak Kumar,	Dr. Vinod Yadav, Dr. Akhilesh Barve	Mechanical Engineering	Indigenously Developed Ankle CPM	BIRAC Govt. of India (E-Yuva Fellow Scheme)	24 Months	500000
5	Dr. Sudhanshu		Mechanical Engineering	Generation of Accurate Bore Cavity by	DST-SERB	2020 - Dec 2022	2336000

	Kumar			Developing an Algorithm in Electro Discharge Boring (EDB) Process			
6	Dr. SPS Rajput		Mechanical Engineering	Indian Knowledge System Of Materials In Science And Technology	IKS Division, AICTE	2022	460000
7	Dhakar Krishnakant	Manoj Arya	Mechanical Engineering	Development and Experimental Investigation of Micro-Ultrasonic Form Machining	M.P. Council of Science & Technology	24 Months	495000
8	Vishwakarma	Manish, Manoj Arya	Mechanical Engineering	Ancient Indian Skills: A Voyage of Bhartiya Gyan Parampara	Indian Knowledge Systems Division, Ministry of Education	24 Months	600000
9	Dr. Gaurav Dwivedi	Tikendra Nath Verma	Mechanical Engineering	Green Hydrogen Production Employing Waste Biomass	DST-Core Research Grant (CRG)	36 Months	2793000
10	Dr. Gaurav Dwivedi	Dr. Tikendra Nath Verma, Dr. Prashant Baredar	Mechanical Engineering	Enhancement of Cold Flow Properties of Waste Cooking Biodiesel and Diesel	M.P. Council of Science and Technology (MPCST)	12 Months	652000
11	Vijay Duryodhan (PI),	Narendra Gajbhije (Co-PI)	Mechanical Engineering	Development of Electrohydrodynamic Pump for Thermal Management of Electronic Devices	Science and Engineering Research Board (SERB)	36 Months	4064000
12	Narendra Gajbhije		Mechanical Engineering	Numerical Investigation of MHD Flow and Pressure Drop in 3-D Sudden Expansion with Partitioned Channels Using Wall-Function Treatment	Science and Engineering Research Board (SERB)	36 Months	2689000
13	Vilas Wardukar (PI),	Narendra Gajbhije (Co-PI), Anoop	Mechanical Engineering	Development of Miniaturized Pressure Regulator (Non-Moving Type) for Low Flow Rate Applications	Indian Space Research Organization (ISRO)	24 Months	1227000

		Arya (Co-PI), Pragati Agrawal (Co-PI)					
1 4	Dr. Moham mad Taufik	(Co-PI)	Mechanical Engineerin g	Development of a UV-Assisted 3D Printing System for PCB Manufacturing	Indian Space Research Organization (ISRO)	24 Months	1888000
1 5	Dr. Abhinav Varshne y	Dr. Gajendr a Dixit	Mechanical Engineerin g	DST, New Delhi		2.5 years	48,33000
Amount received (Rs.)							26097000/-

C8: Consultancy Work**Table No. C8.1:** List of consultancy projects received from external agencies.**CAYm1 (2024-25)**

S. No	PI Name	Co-PI	Department	Project Title	Funding Agency	Duration	Amount (Rs)
1	Dr. Akhilesh Barve	Dr. Vimlesh Kumar Soni	Mechanical Engineering				6,63,160
2	Dr. Kashiram Aharwal	Dr. Manoj Arya	Mechanical Engineering	Implementation of technical standard for the cold storage	National Horticulture Board Ministry of Agriculture and Farmer welfare Govt. of India	3 years	2,12,400
3	Dr. Kashiram Aharwal	Dr. R K Dwivedi	Mechanical Engineering	M P Mandi Board Krishi Upaj Mandi Sagar	01 week		2,23,020
4	Dr. Kashiram Aharwal	Dr. Manoj Arya	Mechanical Engineering	Implementation of technical standard for the cold storage	National Horticulture Board Ministry of Agriculture and Farmer welfare Govt. of India	3 years	2,36,000
5	Dr. Kashiram Aharwal	Dr. Manoj Arya	Mechanical Engineering	Implementation of technical standard for the cold storage	National Horticulture Board Ministry of Agriculture and Farmer welfare Govt. of India	3 years	70,800

6	Dr. Vilas Warudkar	Dr. Emon Barua	Mechanical Engineering				59,000
7	Dr. Vilas Warudkar	Dr. Emon Barua	Mechanical Engineering				70,800
8	Dr. Vilas Warudkar	Dr. Emon Barua	Mechanical Engineering				59,000
9	Dr. R K Dwivedi	Dr. Rajesh Gupta	Mechanical Engineering				8,10,070
10	Dr. R K Dwivedi	Dr. Deepak Kumar	Mechanical Engineering				4,42,500
11	Dr. Satish Pal Singh Rajput	Dr. Manish Vishwakarma	Mechanical Engineering				41,300
12	Dr. Satish Pal Singh Rajput	Dr. Manish Vishwakarma	Mechanical Engineering				41,300
13	Dr. Satish Pal Singh Rajput	Dr. Manish Vishwakarma	Mechanical Engineering				35,400
Amount Received							29,64,750

CAYm2 (2023-24)							
S. No	PI Name	Co-PI	Department	Project Title	Funding Agency	Duration	Amount (Rs)
1	Dr. Kashiram Aharwal	Dr. Manoj Arya	Mechanical Engineering	Implementation of technical standard for the cold storage	National Horticulture Board Ministry of Agriculture and Farmer welfare Govt. of India	3 years	3,54,000
2	Dr. Kashiram Aharwal	Dr. Manoj Arya	Mechanical Engineering	Implementation of technical standard for the cold storage	National Horticulture Board Ministry of Agriculture and Farmer welfare Govt. of India	3 years	2,59,600
3	Dr. Kashiram Aharwal	Dr. Manoj Arya	Mechanical Engineering	Implementation of technical	National Horticulture Board	3 years	1,88,800

				standard for the cold storage	Ministry of Agriculture and Farmer welfare Govt. of India		
4	Dr. J L Bhagoria	Dr. Vikas Kumar	Mechanical Engineering				41,300
5	Dr. Kashiram Aharwal	Dr. Manoj Arya	Mechanical Engineering	Implementation of technical standard for the cold storage	National Horticulture Board Ministry of Agriculture and Farmer welfare Govt. of India	3 years	3,30,400
6	Dr. P K Soni	Dr. Rajesh Gupta	Mechanical Engineering				59,000
7	Dr. Satish Pal Singh Rajput	Dr. Manish Vishwakarma	Mechanical Engineering				29,500
8	Dr. R S Rana	Dr. Akhilesh Soni	Mechanical Engineering	Vetting of Design and Drawing of Two Wheeler 5000 and 5500 Liter Tanker and 5000 Liter tanker with Fire Fighter System.	Ganraj Traders And Fabricators, Gulab Baba Mandir Road, Subedar Ward, Sagar (M.P),	14	70,800
9	Dr. R S Rana	Dr. Akhilesh Soni	Mechanical Engineering				1,77,000
10	Dr. Kashiram Aharwal	Dr. Narendra Gajbhiye	Mechanical Engineering	Weartech Refrigeration Bhopal			29,500
11	Dr. Kashiram Aharwal	Dr. Manoj Arya	Mechanical Engineering	National Horticulture Board Ministry of Agriculture and Farmer welfare Govt. of India			2,36,000

12	Dr. G. Dixit	Dr. R K Dwivedi	Mechanical Engineering				1,47,500
13	Dr. Vinod Yadav	Dr. M S Hora	Mechanical Engineering				3,54,000
Amount Received							22,77,400

CAYm3 (2022-2023)

1	Dr. Ravindra Singh Rana	Dr. SPS Rajput	Mechanical Engineering	Inspection of Hook Loader, Machines, Containers used for composting waste for Smart City Gwalior	HYVA (India) Pvt. Ltd., Navi Mumbai	Jan 18, 2023	1,00,000
3	Dr. R. K. Dwivedi		Mechanical Engineering	Valuation of cast iron scrap material	Executive Engineer, Water Works, Nagar Nigam Bhopal	2023	1,42,000
4	Dr. R. K. Dwivedi		Mechanical Engineering	Assessment of unused articles belonging to Kolar water supply & 1500mm diameter old pipes	Executive Engineer, Water Works, Nagar Nigam Bhopal	2023	21,87,000
5	Dr. R. K. Dwivedi		Mechanical Engineering	Evaluation of unused items under Tilhan Sangh	Liquidator MP Tilhan Sangh	2023	1,14,000
6	Dr. K. R. Aherwal		Mechanical Engineering	M/s Weartech Private Engineering Ltd.	Private Firm, Bhopal	2023	35,000
7	Dr. Rajesh Purohit	Dr. R. S. Rana	Mechanical Engineering Dept.	Development and Testing of Polymer Matrix Nanocomposite	NIT Patna	November 2022 To November 2024.	29500

				Samples			
8	Dr. Akhilesh Barve		Mechanical Engineering	Third Party Study of Sustainability and Economy for Inviting Bids on Point to Point basis or Per MT Per KM basis in Road Transport Contract	FCI Bhopal	(2023)	663000
9	Dr. K. R. Aharwal		Mechanical Engineering	To provide the consultancy services for the implementation of technical standard of cold storage	National Horticulture Board, Ministry of Agriculture,		854780
10	Dr. K. R. Aharwal		Mechanical Engineering	Verification of sorting grading machine	M P State Agriculture Board		223020
Amount received (Rs.)							43,48,300

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.

S.N.	Faculty name	Project title/ Support for Activity	Duration	Amount (Lacs)	Amount Utilized (Lacs)	Outcomes of the project
CAYm1						
1	Dr. Emon Barua	Investigation on the physico-mechanical and biological properties of Magnesium Oxide (MgO) reinforced Polymethylmethacrylate (PMMA) and Hydroxyapatite (HA) based composite Bone Scaffolds for Orthopaedic and Dental applications.	12 months	5.25	5.17	Ongoing
2	Dr. A. Mokhalingam	Coupled Vibrational Modes in Stacked 2D Material Heterostructures for Sensing Applications	12 months	5.0	4.5	Ongoing

3.	Dr. Lalsingh Devsoth	Experimental and Theoretical analysis of a cantilever beam oscillating in fluid medium	12 months	5.0	4	Ongoing
4.	Dr. Soumya Ranjan Guru	Sustainable Cactus Based coating with Polymer Additives for Superior Tribological and Mechanical behavior	12 months	5.0	4.5	Ongoing
Amount received (Rs.) 20.25						
CAYm2						
Nil						
CAYm3						
Nil						
Total amount (Lacs) received for the past 3 years					20.25	

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.

Sl. No.	Name of the Laboratory	Number of students per setup (Batch Size)	Name of the major equipment	Weekly utilization status (all the Courses for which the lab is utilized)	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
1.	Heat and Mass Transfer Lab (HMT)	5(35)	1) Thermal conductivity of Metal rod, 2) Film wise And Dropwise Condensation Apparatus 3) Set-up for the measurement of thermal conductivity by lag-pipe metgod 4) Thermal conductivity of insulating material. 5) Emissivity Apparatus 6) Lagged Pipe Apparatus 7) Pin Fin Apparatus 8) Parallel Counter Flow Heat Exchanger	12 Hours (Weekly)	Mr. Bhanu Pratap Saxena	Technician	B.E. (Mechanical Engineering)
2.	Refrigeration and Air Conditioning Lab (RAC)	5(35)	1) VCRs Apparatus 2) VAR Apparatus 3) Ice Plant 4) Humidification And Dehumidification Apparatus 5) Heat Pump 6) Air-conditioning test rig. 7) Gas charging kit.	12 Hours (Weekly)	Mr. Bhanu Pratap Saxena	Technician	B.E.(Mechanical Engineering)

			8) Automobile air-conditioning kit.				
3.	Manufacturing Tech Lab -1	5 (35)	<ol style="list-style-type: none"> 1) Centre Lathe 2) Shaper Machine 3) Radial Drill 4) Milling machine(Horizontal & Vertical Cum Drilling) 5) Bench Drill 6) Planner Machine 7) Sheet Shearing Machine 8) Sheet Bending Machine 9) Forging/ Friction Screw Press Machine 10) Power Hacksaw 11) Grinding Machine (Surface, Cylindrical, Tool End Cutter , Pedestal 	12 Hours (Weekly)	Mr. Pawan Pawar Mr. Anil Amritphale	Technician Lab Assistant	B. Tech. (Mechanical Engineering) ITI
4.	Foundary Lab	5(35)	<ol style="list-style-type: none"> 1) Plastic Injection Moulding Machine 2) High Temperature Furnace -1200°C 3) Salt bath furnace-400°C 	12 Hours (Weekly)	Mr. Vishal Dole	Technician	B.E (Mechanical Engineering)
5.	Manufacturing Techniques Lab - II	5(35)	<ol style="list-style-type: none"> 1) MIG Robotic Welding 2) EDM Drill 3) 5 Axis CNC Milling 4) CNC Lathe 5) EDM Die Sinking 6) Gear Hobbing Machine 7) Welding simulator 	12 Hours (Weekly)	Mr. Prakash Chandra Vishwakarma Mr Manish Manker	Technical Assistant Technician	B. Tech. (Mechanical Engineering) B. Tech. (Mechanical Engineering)
6.	Material Characterization Lab	5(35)	<ol style="list-style-type: none"> 1) Optical Microscope 2) Disc Polishing Machine 3) Muffle Furnace 4) Ultrasonic Flaw Detector 	12 Hours (Weekly)	Mr. Prakash Chandra Vishwakarma	Technical Assistant	B. Tech. (Mechanical Engineering)
7.	Mechanics of Materials Lab	5(35)	<ol style="list-style-type: none"> 1) UTM 2) Charpy & Izod Impact Testing Machine 3) Brinell Cum Rockwell Hardness Tester 	12 Hours (Weekly)	Mr Manish Manker	Technician	B. Tech. (Mechanical Engineering)

			4) Torsion Testing Machine				
8	Modelling, Simulation & Graphics Lab	5(35)	1) 50 License Educational CAD software 20 Student version 2) 72 Autodesk Inventor (Educator License)	12 Hours (Weekly)	Mr. Ankit Kumar	Technician	PhD (Mechanical Engineering)
9	I.C. Engine Lab	5(35)	1) Suzuki: 3-cylinder petrol engine set-up 2) Kirloskar: Single cylinder vertical DI engine 3) 4-cylinder, 4-stroke petrol engine 4) Multifuel variable compression ratio engine test rig 5) 4-cylinder 4-stroke petrol cut model 6) Single cylinder 4-stroke diesel engine test setup 7) Ruston horizontal diesel engine 8) Four-wheeler chassis dynamometer 9) Two-wheeler chassis dynamometer	12 Hours (Weekly)	Mr. Prakash Chandra Vishwakarma	Technical Assistant	B. Tech. (Mechanical Engineering)
10	Turbomachine Lab	5(35)	1) Reader vertical steam engine 2) 4 BHP steam turbine 3) Steam power generation unit 4) Nozzle test rig 5) Nestler boiler 6) 40 BHP steam boiler 7) Two stage steam turbines 8) Two stage air compressor test set 9) Centrifugal pump test rig 10) Centrifugal blower test rig 11) Reciprocating water pump test rig 12) Piston wheel turbine 13) Francis's turbine test rig 14) 5 HP Centrifugal Blower Test Rig with Hydraulic Variable Speed Drive 15) Two-stage compressor	12 Hours (Weekly)	Mr. Bhanu Pratap Saxena	Technician	B.E. (Mechanical Engineering)

11	CNC Lab		<ol style="list-style-type: none"> 1) MIG Robotic Welding 2) EDM Drill 3) 5 Axis CNC Milling 4) CNC Lathe 5) EDM Die Sinking 6) Gear Hobbing Machine 	12 Hours (Weekly)	<p>Mr. Prakash Chandra Vishwakarma</p> <p>Mr Manish Manker</p>	<p>Technical Assistant</p> <p>Technician</p>	<p>B. Tech. (Mechanical Engineering)</p> <p>B. Tech. (Mechanical Engineering)</p>
12	Vibration Lab		<ol style="list-style-type: none"> 1) Photo Elasticity 2) Rotodynamic Setup 	12 Hours (Weekly)	Mr Manish Manker	Technician	B. Tech. (Mechanical Engineering)
13	Advance Machine & Additive Manufacturing Lab		<ol style="list-style-type: none"> 1) MFI Tester 2) Surface Roughness Tester 3) FDM 3D Printer 	12 Hours (Weekly)	Shri R.K. Shukla	Technical Assistant	B. Tech. (Mechanical Engineering)
14	Heat Engines Lab	5(35)	<ol style="list-style-type: none"> 1) Model of Benson Boiler 2) Model of Air Preheater 3) Model of Lamont Boiler 4) Model of combined high steam & low water safety valve. 5) Model of Centrifugal pump. 6) Model of two stroke diesel engine. 7) Model of Cochran Boiler. 8) Model of Green Economiser. 9) Model of Surface Condenser. 10) Model of Spring loaded safety valve. 11) Model of Lever safety valve. 12) Model of Water level indicator. 13) Model of stop valve hopkinson type. 14) Model of Feed check valve. 15) Model of Dead weight safety valve. 16) Model of Blow off cock. 17) Model of Four stroke engine. 18) Model of Two stroke petrol engine. 19) Model of Two stroke diesel engine. 	12 Hours (Weekly)	Mr. Bhanu Pratap Saxena	Technician	B.E. (Mechanical Engineering)

			20) Model of Locomotive Boiler model. 21) Model of Babcock & Wilcox Boiler. 22) Double pipe heat exchanger 23) Model of sudgen's superheater. 24) Model of pressure gauge. 25) Model of Semi diesel engine. Model of expansion steam trap.				
15	Mechanism of Machine Lab	5(35)	1) Gyroscopic effect analysis apparatus 2) Cam & follower analysis apparatus 3) Epicyclic gear train & holding torque apparatus 4) Universal governor apparatus 5) Static & dynamic balancing apparatus 6) Whirling speed of shaft apparatus 7) Flat belt pulley, rope pulley, V-belt pulley 8) Model of single plate clutch, conical plate friction clutch 9) Model of band & block brake 10) Model of chain drive 11) Model of multiplate clutch 12) Scotch yoke mechanism 13) Model of claw clutch 14) Model of friction wheel drive 15) Model of Ackerman's steering mechanism 16) Model of slotted link bar mechanism 17) Model of reciprocating engine mechanism 18) Model of centrifugal clutch 19) Model of beam engine mechanism 20) Model of oscillating cylinder mechanism 21) Model of Whitworth quick return mechanism 22) Model of Crank & slotted link mechanism 23) Model of Crank & slotted link mechanism 24) Coriolis component of acceleration 25) Model of pantograph mechanism 26) Crank & connecting rod	12 Hours (Weekly)	Shri R.K. Shukla	Technical Assistant	B.Tech (Mechanical Engineering)

			Chain drive				
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D2: Safety Measures in Laboratories

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

S.N.	Name of the Laboratory	Safety measures
1.	Heat and Mass Transfer Lab. (HMT)	<ol style="list-style-type: none">1) Always wear shoes before entering in the lab.2) Do not touch anything without the permission of the Lab Technician.3) Read carefully the lab manual before performing experiments.4) Do not tamper with measuring instruments.5) Do not open the casing of the equipment.6) Switch off the power supply to the experimental setup on completion of the experiment.7) Maintain clean and orderly laboratories and work areas.8) Be aware of the various experiment controls (start button, stop button, speed control) for each experiment.9) Do not leave running equipment unattended.10) Any injuries should be reported immediately for proper care.
2.	Refrigeration and Air Conditioning Lab. (RAC)	<ol style="list-style-type: none">1) Ensure all connections (electrical and refrigerant lines) are secure before operation.2) Do not touch compressor, condenser, or piping during or immediately after operation due to high temperatures.3) Be cautious of refrigerant leaks — ensure good ventilation and avoid inhalation.4) Check pressure gauges before starting; avoid operating at high pressures beyond limits.5) Handle lithium bromide or ammonia-based systems with caution (if used).6) Avoid direct contact with absorbent chemicals or refrigerants.7) Never open system valves during operation.8) Allow sufficient time for cooling before performing any maintenance or inspections.9) Do not touch hot or cold coils without thermal gloves.10) Pre-check all gauges, electrical switches, fluid levels, and valves before starting.

<p>3.</p>	<p>Manufacturing Tech-1 Lab.</p>	<ol style="list-style-type: none"> 1) Always wear apron along with shoes while working in workshop. 2) Never wear necktie, loose sweater, wristwatch, bangles, rings, and loose fitting clothing while working in workshop. 3) Do not keep your belongings near working area. 4) Always use prescribed safety wears, protective clothing's, safety mask, hand gloves, safety goggles etc as per instructions. 5) Do not leave the machine on even after the power is off and until it has 6) Stopped running completely. 7) Do not oil, clean, adjust or repair any machine while it is running. Stop 8) The machine and lock the power switch in the off position. 9) Do not operate any machine unless authorized to do so by the authorize person in the shop. 10) Always check that work and cutting tools on any machine are clamped 11) Securely before starting. 12) The floor should be kept clean and clear of metal chips or curls and 13) Wastë pieces. Put them in the container provided for such things. 14) Defective guards must be replaced or repaired immediately.
<p>4.</p>	<p>Foundry Lab.</p>	<ol style="list-style-type: none"> 1) Always Wear an Apron Along With Shoes While Working In a Workshop. 2) Never Wear a Necktie, a Loose Sweater, a Wristwatch, Bangles, Rings, or Fitting Clothing While Working In a Workshop. 3) Do Not Keep Your Belongings Near the Working Area. 4) Always Use Prescribed Safety Wear, Protective Clothing, Safety Mask, Hand Gloves, Safety Goggles, etc., As Per Instructions. 5) Do Not Leave The Machine On Even After The Power Is Off And Until It Has 6) Stopped Running Completely. 7) Do Not Oil, Clean, Adjust Or Repair Any Machine While It Is Running. Stop

		8) The Machine And Lock The Power Switch In The Off Position.
5.	Manufacturing Techniques -II Lab.	<ol style="list-style-type: none"> 1) Always wear apron along with shoes while working in workshop. 2) Never wear necktie, loose sweater, wristwatch, bangles, rings, and loose fitting clothing while working in workshop. 3) Do not keep your belongings near working area. 4) Always use prescribed safety wears, protective clothing's, safety mask, hand gloves, safety goggles etc as per instructions. (5)do not leave the machine on even after the power is off and until it has 5) Stopped running completely. 6) Do not oil, clean, adjust or repair any machine while it is running. Stop 7) The machine and lock the power switch in the off position. 8) Do not operate any machine unless authorized to do so by the authorize person in the shop. 9) Always check that work and cutting tools on any machine are clamped 10) Securely before starting. 11) The floor should be kept clean and clear of metal chips or curls and 12) Waste pieces. Put them in the container provided for such things. 13) Defective guards must be replaced or repaired immediately.
6.	Material Characterization Lab.	<ol style="list-style-type: none"> 1) Personal Protective Equipment (PPE): <ul style="list-style-type: none"> • Lab coat: Wear a lab coat with full sleeves to protect skin from splashes and spills. • Safety goggles/glasses: Protect eyes from chemical splashes and dust. • Gloves: Wear appropriate gloves (e.g., nitrile, latex) when handling chemicals, especially those that may cause skin irritation or sensitization. • Closed-toe shoes: Protect feet from chemical spills and sharp objects. 2) Handling Chemicals:

		<ul style="list-style-type: none"> • Labeling: Ensure all chemical containers are properly labeled. • Double-check labels: Before using any chemical, double-check the label to ensure you are using the correct substance. • Avoid direct contact: Never taste or smell chemicals directly. If you need to smell a chemical, waft a small amount of vapor towards your nose. <p>3) Disposal of Waste:</p> <ul style="list-style-type: none"> • Chemical waste: Dispose of chemical waste in designated containers, according to lab safety guidelines. • Sharp objects: Dispose of sharp objects (e.g., broken glass, needles) in puncture-proof containers. <p>4) Equipment Safety:</p> <ul style="list-style-type: none"> • Familiarize yourself: Understand the operation and safety precautions of all equipment you will be using. • Regular maintenance: Ensure equipment is properly maintained and inspected.
7.	Mechanics of Material Lab.	<ol style="list-style-type: none"> 1) Always follow the experiment instructions precisely. 2) Wear the appropriate lab attire. 3) Never work in the lab without supervision. 4) Know the location of first aid kits, fire extinguishers, and emergency contacts. 5) Use the lab only when a qualified person (demonstrator, teaching assistant) is present. 6) Return all instruments carefully when the experiment is complete. 7) Obtain power supply only through the lab technician. 8) Ensure all machines are in working condition before use.

		<p>9) Follow machine instructions carefully and be aware of controls like start, stop, and speed.</p> <p>Do not attempt to repair faulty instruments.</p>
8.	Heat Engines Lab.	<ol style="list-style-type: none"> 1) Only trained personnel and students under supervision are allowed. 2) Lab coat, safety goggles, and closed-toe shoes are mandatory. 3) No loose clothing or accessories while operating rotating or heated models. 4) Ensure availability of fire extinguishers (CO₂ and dry chemical type). 5) Clearly mark and make accessible emergency shut-off switches. 6) First aid kit and emergency contact list must be visible. 7) Check for exposed wires or faulty plugs before powering any model. <p>Avoid wet hands or surfaces while operating electrical panels.</p>
9.	Modelling, Simulation & Graphics Lab.	<ol style="list-style-type: none"> 1) Adjust chairs and monitor height to prevent neck and back strain. 2) Maintain good posture and take short breaks every 45–60 minutes. 3) Use only designated sockets for power; avoid using external extension boards. 4) Do not switch off UPS or power sources without faculty permission. 5) Report any loose wires, overheating, or electrical sparks immediately. 6) Handle keyboards, mouse, and other peripherals gently. <p>Do not plug/unplug devices forcefully—inform lab technician if any issue arises.</p>
10.	I.C. Engine Lab.	<ol style="list-style-type: none"> 1) Handle fuel and lubricants cautiously; wear gloves if necessary. 2) Immediately report any leaks, strange noises, overheating, or equipment damage. 3) Do not touch moving belts, pulleys, fans, or rotating shafts.

		<ol style="list-style-type: none"> 4) Never fuel the engine while hot or during operation. 5) Do not modify engine configurations without faculty approval. 6) Verify fuel, oil, coolant levels. 7) Check all mechanical fasteners, electrical connections, and load sensors. <p>8. Clear the area of unnecessary tools and loose items.</p>
11.	Turbo machine Lab.	<ol style="list-style-type: none"> 1) Never bypass safety valves, pressure switches, or interlocks. 2) Do not touch rotating or hot parts while running. 3) No loose clothing, mobile phone use, or distractions in the lab. 4) No unauthorized fuel, water, or pressure input adjustments. 5) Safety goggles, heat-resistant gloves, safety shoes, and lab coats are mandatory. 6) Ear protection is required during compressor or turbine operation. 7) Ensure all steam lines are leak-proof before operation. 8) Never open steam valves rapidly—open slowly and in sequence. 9) Keep a safe distance from rotating shafts and couplings. <p>Do not touch steam pipes or casings immediately after use (they can cause burns).</p>
12.	Mechanism of Machine Lab.	<ol style="list-style-type: none"> 1) Never touch rotating or sliding parts during operation. 2) Do not apply external loads to models unless designed for it. 3) Do not disassemble models without faculty approval. 4) Avoid using motors or power sources on manual models. 5) Keep hands away from rotating shafts, gears, and cams.

		<p>6) Report any unusual vibration, noise, or mechanical obstruction immediately.</p> <p>Handle all models with care to avoid misalignment or damage.</p>
13.	Smart Manufacturing Lab	<ol style="list-style-type: none"> 1) Do not install unauthorized software or change configurations. 2) Save work regularly and maintain backups. 3) Avoid using personal drives without scanning for viruses. 4) Do not override machine safety features or interlocks. 5) Never leave machines operating unattended. 6) Attend safety briefing before using any new equipment. 7) Report any equipment malfunction or breakage immediately. 8) Log usage and condition of machines in the maintenance register. 9) Clean and reset the work area after completing experiments.
14	Nano-Composite Lab.	<ol style="list-style-type: none"> 1) Lab coat (preferably anti-static), gloves (nitrile for chemical work), and closed-toe shoes. 2) Safety goggles or face shields must be worn at all times. 3) Use a respirator mask or work inside a fume hood/glove box when handling nanomaterials in powder form. 4) Do not use damaged glassware, frayed cables, or expired chemicals. 5) Do not operate equipment when alone in the lab for high-risk tasks (e.g., furnace operation, solvent heating). <p>Immediately report accidents, spills, or equipment failures to the lab supervisor.</p>
15.	CNC Lab.	<ol style="list-style-type: none"> 1) Simulate the program using CAM software before uploading to CNC. 2) Dry-run the CNC program without material to check for errors.

		<ol style="list-style-type: none"> 3) Use proper G-code and M-code sequences with attention to feed/speed limits. 4) Never attempt to open the machine door or reach inside while it is in motion. 5) Do not touch hot or sharp machined parts immediately after cutting. <p>Avoid unauthorized USB devices or software on CNC controllers.</p>
16.	Robotics Lab.	<ol style="list-style-type: none"> 1) Do not place water bottles or food near robots or electronics. 2) Avoid sudden movements around active robots. 3) Always power off the robot before making hardware changes. 4) Check all joints, sensors, and power connections. 5) Calibrate the robot if required before execution. <p>Ensure the programming code is verified in simulation.</p>
17.	Non-Lubricant Lab.	<ol style="list-style-type: none"> 1) Ensure aware that high friction can generate sparks or smoke—ensure proper ventilation is in place. 2) Do not use flammable materials or wear flammable clothing in the lab. 3) Avoid inhaling fumes or dust generated during testing—wear a dust mask or use fume extractors if required. 4) Never apply any oil, grease, or lubricant unless explicitly instructed. 5) Do not bypass machine safety covers or interlocks. <p>Avoid using oversized or incorrect test specimens.</p>
18.	Vibration Lab.	<ol style="list-style-type: none"> 1) Do not operate any equipment without faculty approval. 2) Do not remove safety guards or interlocks. 3) Do not place loose items (tools, bags, books) near machines in motion. 4) Do not tamper with sensors, data acquisition systems, or calibration settings. <p>Avoid manual excitation unless directed; use vibration exciters where provided.</p>
19.	Advance Refrigeration Lab.	<ol style="list-style-type: none"> 1) Prevent direct skin contact with any refrigerants or absorbent chemicals.

		<ol style="list-style-type: none"> 2) Do not open any system valves while the unit is in operation. 3) Allow the system to cool adequately before performing maintenance or inspection tasks. 4) Wear thermal protective gloves when handling hot or cold coils. 5) Conduct a thorough pre-start inspection, including checking gauges, switches, fluid levels, and valves. <p>Be alert to potential refrigerant leaks. Maintain good ventilation and avoid inhaling refrigerant vapors.</p>
20.	Advanced Heat Transfer Lab.	<ol style="list-style-type: none"> 1) Never leave an experiment running unattended. 2) Turn off the power supply to the experimental setup after completing the experiment. 3) Keep the laboratory and work area clean and well-organized at all times. 4) Carefully read the laboratory manual before beginning any experiment. <p>Keep the laboratory and work area clean and well-organized at all times.</p>
21.	Biomaterial Lab.	<ol style="list-style-type: none"> 1) Use biohazard containers for disposal of biological waste. 2) Work with biohazardous materials only under proper biosafety cabinets. 3) Maintain aseptic conditions while handling biomaterials to prevent contamination. 4) Dispose of used needles, scalpels, or broken glassware in designated sharps containers. <p>Avoid unnecessary movement or distractions during experimental work.</p>
22.	Mechatronics Lab.	<ol style="list-style-type: none"> 1) Ensure all pneumatic connections are secure before powering the system. 2) Do not exceed the recommended air pressure limits in the pneumatic setup. 3) Always disconnect power supply before modifying any PLC wiring or circuits. 4) Wear safety goggles and avoid loose clothing around moving actuators. <p>Use FluidSim software for simulation first to verify logic before hardware implementation.</p>

D3: Project Laboratory/Research Laboratory**Table No. D3.1:** List of project laboratory/research laboratory /Centre of Excellence.

S.N.	Name of the Laboratory
1	Project-based Lab. (Robotics Lab)
2	Smart Manufacturing Lab
3	Nano-Composite Lab.
4	Non-Lubricant Lab.
5	Advance Refrigeration Lab.
6	Advanced Heat Transfer Lab.
7	Biomaterial Lab.
8	Mechatronics Lab.
9	Advance Machine & Additive Manufacturing Lab
10	CFD 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= $\frac{\text{No. of faculty members } ((NS1*0.8) + (NS2*0.2))}{\text{No. of required faculty (RF4)}}$ Percentage= $\frac{((NS1*0.8) + (NS2*0.2))}{RF4}$
CAY	1203	60	54	41	84.67%
CAY _{m1}	1203	60	50	41	80.33%
CAY _{m2}	1203	60	50	43	81.00%
Average Percentage					82.33%

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 CFY	Actual expenses in CFY (till ...)	Budgeted in CFYm1	Actual Expenses in CFYm1	Budgeted in CFYm2	Actual Expenses in CFYm2	Budgeted in CFYm3	Actual Expenses in CFYm3
Infrastructure Built-Up	4.23	3.86	15	12.38	33	32.41	15	12.34
Library	4.0	3.21	5	3.73	5	4.25	5	1.83
Laboratory equipment	40.0	14.98	32.6	21.72	32	31.8	10	9.2
Teaching and non-teaching staff salary	130.0	100.43	114.38	114.38	101.7	101.7	101.7	101.7
Outreach Programs	1.04	1.04	0.34	0.34	0.46	0.46	0.4	0.4
R&D	29.10	26.41	29.0	28.49	29.0	27.3	25.0	22.06
Training, Placement and Industry linkage	5	3.82	5	1.12	5	2.08	5	1.34
SDGs	0.07	0.07	0.05	0.05	0.04	0.04	0.05	0.05
Entrepreneurship	0	0	0	0	0	0	0	0
Others*, pl. specify	78.79	71.87	87.77	87.77	72.03	72.03	72.08	72.08
Total amount	287.23	221.91	255.14	240.37	244.23	242.69	204.23	197.6

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 CFY	Actual expenses inCFY (till ...)	Budgeted inCFYm1	Actual Expenses inCFYm1	Budgeted inCFYm2	Actual Expenses inCFYm2	Budgeted inCFYm3	Actual Expenses inCFYm3
Laboratory equipment	40044000	5418582	13276840	63629262	50255249	10157069	1491000	2892449
Software								
R&D								
Support for faculty development	1000000	0	2025000	2025000	0	0	0	0
SDGs	14500	14500	0	0	0	0	0	0
Industrial Training, Industry expert, Internship								
Miscellaneous expenses *	2085500	2085526	1900000	1479087	3000000	1388150	1600000	1328879
Total amount	66303400	7518608	67901840	67133349	88496749	11545219	4641000	4221328