NATIONAL BOARD OF ACCREDITATION

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

Program Name : Chemical Engineering	**Discipline**: Engineering & Technology
Level : Under Graduate	**Tier**: 1
Application No: 10487	**Date of Submission**: 09-04-2025

PART A- Profile of the Institute

A1.Name of the Institute: AMRITA VISHWA VIDYAPEETHAM, AMRITA SCHOOL OF ENGINEERING	
Year of Establishment : 1994	Location of the Institute: Coimbatore
A2. Institute Address:AMRITA SCHOOL OF ENGINEERING AMRITA NAGAR PO ETTIMADAI COIMBATORE - 641 112 TAMIL NADU	
City:Coimbotore	State:Tamil Nadu
Pin Code:641112	Website:www.amrita.edu
Email:s_sivesh@cb.amrita.edu	Phone No(with STD Code):0422-2685502
A3. Name and Address of the Affiliating University (if any):	
Name of the University :	City:
State :	Pin Code: 0
A4. Type of the Institution: Deemed University	
A5. Ownership Status: Self financing	

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

- No. of UG programs: **14**
- No. of PG programs: **18**

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

Sr.No.	Discipline	Level of program	Name of the program	Year of Start	Year of Closed	Name of The Department
1	Engineering & Technology	UG	Aerospace Engineering	2007	--	Aerospace Engineering
2	Engineering & Technology	PG	Artificial Intelligence	2020	--	Computer Science and Engineering
3	Engineering & Technology	UG	Artificial Intelligence and Data Science	2023	--	Artificial Intelligence and Data Science
4	Engineering & Technology	UG	Automation & Robotics	2021	--	Mechanical Engineering
5	Engineering & Technology	PG	Automotive Electronics	2015	--	Electronics and Communication Engineering
6	Engineering & Technology	PG	Automotive Engineering	2011	--	Mechanical Engineering
7	Engineering & Technology	PG	Biomedical Engineering	2007	--	Electronics and Communication Engineering
8	Engineering & Technology	UG	Chemical Engineering	2007	--	Chemical Engineering
9	Engineering & Technology	UG	Civil Engineering	2008	--	Civil Engineering

10	Engineering & Technology	PG	Communication Systems	2019	2024	Electronics and Communication Engineering
11	Engineering & Technology	UG	Computer & Communication Engineering	2019	--	Electronics and Communication Engineering
12	Engineering & Technology	UG	Computer Science and Engineering	1995	--	Computer Science and Engineering
13	Engineering & Technology	PG	Computer Science and Engineering	2011	--	Computer Science and Engineering
14	Engineering & Technology	UG	Computer Science and Engineering (Artificial Intelligence)	2019	--	Computer Science and Engineering
15	Engineering & Technology	UG	Computer Science and Engineering (Cyber Security)	2021	--	Cyber Security
16	Engineering & Technology	PG	Cyber Security	2006	--	Cyber Security
17	Engineering & Technology	PG	Data Science	2020	--	Artificial Intelligence and Data Science
18	Engineering & Technology	PG	Defence Technology	2021	--	Electronics and Communication Engineering
19	Engineering & Technology	UG	Electrical & Electronics Engineering	1994	--	Electrical and Electronics Engineering
20	Engineering & Technology	UG	Electrical and Computer Engineering	2019	--	Electrical and Electronics Engineering
21	Engineering & Technology	UG	Electronics & Communication Engineering	1994	--	Electronics and Communication Engineering
22	Engineering & Technology	UG	Electronics & Instrumentation Engineering	2004	2018	Electronics and Communication Engineering
23	Engineering & Technology	PG	Embedded Systems	2008	--	Electrical and Electronics Engineering
24	Engineering & Technology	PG	Engineering Design	2003	--	Mechanical Engineering
25	Engineering & Technology	PG	Industrial Intelligent Systems	2019	2022	Electrical and Electronics Engineering
26	Engineering & Technology	PG	Manufacturing & Automation	2003	--	Mechanical Engineering
27	Engineering & Technology	PG	Material Science and Engineering	2015	--	Chemical Engineering
28	Engineering & Technology	UG	Mechanical Engineering	1994	--	Mechanical Engineering
29	Engineering & Technology	PG	Power Electronics & Drives	2019	--	Electrical and Electronics Engineering
30	Engineering & Technology	PG	Renewable Energy Technologies	2014	--	Electrical and Electronics Engineering
31	Engineering & Technology	PG	Structural and Construction Engineering	2014	--	Civil Engineering
32	Engineering & Technology	PG	VLSI Design	2002	--	Electronics and Communication 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
Civil Engineering	No	Civil Engineering	UG
Chemical Engineering	No	Chemical Engineering	UG
Aerospace Engineering	No	Aerospace 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	Chemical Engineering	UG	2007 / --	60	No	NA	60	2007	F.No. Southern/1-43655461262/2024/EOA Dated 24-May-2024	Granted accreditation for 3 years for the period (specify period)	2022	2025	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 :	Nikhil K. Kothurkar
B. Nature of appointment:	Regular
C. Qualification:	Ph.D

B3. Program Details

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

Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)	2024-25 (CAY)	2023-24 (CAYm1)	2022-23 (CAYm2)	2021-22 (CAYm3)	2020-21 (CAYm4)	2019-20 (CAYm5)	2018-19 (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	69	59	56	54	47	32	53
N2=Number of students admitted in 2nd year in the same batch via lateral entry including leftover seats	0	0	0	0	0	0	0
N3=Separate division if any	0	0	0	0	0	0	0
N4=Total no. of students admitted in the 1st year via all supernumerary quotas	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.	69	59	56	54	47	32	53

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]
2024-25 (CAY)	60	0	0	115.00
2023-24 (CAYm1)	60	0	0	98.33
2022-23 (CAYm2)	60	0	0	93.33

Average [(ER1 + ER2 + ER3) / 3] = 102.22≡ 100

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

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

Item	(2020-21) LYG	(2019-20) LYGm1	(2018-19) 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).	60.00	60.00	60.00
B=No. of students who graduated from the program in the stipulated course duration	40.00	30.00	52.00
Success Rate (SR)= (B/A) * 100	66.67	50.00	86.67

Average SR of three batches ((SR_1+ SR_2+ SR_3)/3): 67.78

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(2023-24)	CAYm2(2022-23)	CAYm3 (2021-22)
Mean of CGPA or mean percentage of all successful students(X)	7.48	7.37	7.10
Y=Total no. of successful students	59.00	56.00	54.00
Z=Total no. of students appeared in the examination	59.00	56.00	54.00
API [X*(Y/Z)]	7.48	7.37	7.10

Average API[(AP1+AP2+AP3)/3] : 7.32

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 (2023-24)	CAYm2 (2022-23)	CAYm3 (2021-22)
X=(Mean of 2nd year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 2rd year/10)	7.36	7.27	7.28
Y=Total no. of successful students	55.00	53.00	47.00
Z=Total no. of students appeared in the examination	56.00	54.00	47.00
API [X * (Y/Z)]	7.23	7.14	7.28

Average API [(AP1 + AP2 + AP3)/3] : 7.22

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 (2023-24)	CAYm2 (2022-23)	CAYm3 (2021-22)
X=(Mean of 3rd year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 3rd year/10)	7.16	7.22	6.98
Y=Total no. of successful students	53.00	47.00	32.00
Z=Total no. of students appeared in the examination	53.00	47.00	32.00
API [X*(Y/Z)]:	7.16	7.22	6.98

Average API [(AP1 + AP2 + AP3)/3] : 7.12

B9. Placement, Higher Studies, and Entrepreneurship

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

Item	LYG (2020-21)	LYGm1(2019-20)	LYGm2(2018-19)
FS*=Total no. of final year students	60.00	60.00	60.00
X=No. of students placed	25.00	22.00	28.00
Y=No. of students admitted to higher studies	12.00	4.00	17.00
Z= No. of students taking up entrepreneurship	2.00	0.00	0.00
Placement Index(P) = (((X + Y + Z)/FS) * 100):	65.00	43.33	75.00

Average Placement Index = (P_1 + P_2 + P_3)/3: 61.11 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	Amal G. S.	XXXXXXX69L	M.E/M.Tech	National Institute of Technology, Jalandhar	Chemical Engineering	11/07/2022	2.8	Assistant Professor	Assistant Professor		Regular	Yes		No
2	Murali Rangarajan	XXXXXXX68N	Ph.D	University of Florida, Gainesville, USA	Chemical Engineering	02/01/2008	17.2	Assistant Professor	Professor	01/01/2018	Regular	Yes		No
3	Hareesh Padyath	XXXXXXX13H	M.E/M.Tech	Indian Institute of Technology, Bombay	Chemical Engineering	07/03/2022	3.1	Assistant Professor	Assistant Professor		Regular	Yes		No
4	Nikhil K. Kothurkar	XXXXXXX55Q	Ph.D	University of Florida, Gainesville FL, USA	Nano Technology	01/10/2007	17.5	Assistant Professor	Professor	01/07/2021	Regular	Yes		Yes
5	Sriram Devanathan	XXXXXXX43B	Ph.D	Iowa State University, Ames, Iowa, USA	Chemical Engineering and Statistics	01/02/2006	19.1	Professor	Professor		Regular	Yes		No
6	Jayanarayanan K	XXXXXXX59A	Ph.D	Mahatma Gandhi University, Kottayam	Polymer Science and Engineering	02/07/1999	25.8	Assistant Professor	Professor	01/01/2018	Regular	Yes		No
7	Sasangan Ramanathan	XXXXXXX56G	Ph.D	Clarkson University, Postdam, New York, USA	Chemical Engineering	01/04/2014	10.11	Professor	Professor		Regular	Yes		No
8	Meera Balachandran	XXXXXXX32L	Ph.D	Amrita Vishwa Vidyapeetham, Coimbatore	Polymer Technology	03/08/2000	24.7	Assistant Professor	Professor	01/07/2021	Regular	Yes		No
9	Duraisamy Kumaresan	XXXXXXX54E	Ph.D	Indian Institute of Technology Bombay	Materials and Photochemistry	01/05/2009	15.11	Assistant Professor	Professor	01/07/2021	Regular	Yes		No
10	Udaya Bhaskar Reddy Ragula	XXXXXXX92N	Ph.D	Florida Institute of Technology, Melbourne, FL USA	Chemical Engineering	03/02/2011	14.1	Assistant Professor	Professor	01/07/2021	Regular	Yes		No
11	Thirugnasambandam G M	XXXXXXX84B	Ph.D	Eindhoven University of Technology, The Netherlands	Materials Science	02/06/2014	10.9	Assistant Professor	Associate Professor	01/07/2021	Regular	Yes		No
12	Krishna Prasad R	XXXXXXX57L	Ph.D	SASTRA University, Thanjavur	Chemical Engineering	20/12/2010	14.3	Assistant Professor	Associate Professor	01/05/2023	Regular	Yes		No

13	Nithya K	XXXXXXX72A	Ph.D	Anna University, Chennai	Environmental Managment	16/07/2007	17.8	Assistant Professor	Associate Professor	01/05/2023	Regular	Yes		No
14	Rasana N	XXXXXXX39A	Ph.D	Amrita Viswa Vidyapeetham, Coimbatore	Chemical Engineering	18/07/2007	17.8	Assistant Professor	Associate Professor	01/07/2024	Regular	Yes		No
15	Kannan M	XXXXXXX67E	Ph.D	Mahatma Gandhi University, Kottayam	Polymer Chemistry	01/06/2001	23.8	Assistant Professor	Assistant Professor		Regular	No	31/01/2025	No
16	Sindhu S	XXXXXXX46C	Ph.D	Amrita Viswa Vidyapeetham, Coimbatore	Biopharmeceutical Technology	11/07/2007	17.8	Assistant Professor	Assistant Professor		Regular	Yes		No
17	R. Senthilkumar	XXXXXXX41N	Ph.D	Amrita Viswa Vidyapeetham, Coimbatore	Chemical Engineering	01/02/2022	3.1	Assistant Professor	Assistant Professor		Regular	Yes		No

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

C2. Student-Faculty Ratio (SFR)

No. of UG(Engineering) programs in Department including allied departments/ clusters (UGn):
UG1=1st UG program
UGn=nth UG program
B= No. of Students in UG 2nd year (ST)
C= No. of Students in UG 3rd year (ST)
D= No. of Students in UG 4th year (ST)
No. of PG (Engineering) programs in Department including allied departments/ clusters (PGm):
PG1=1st PG program.
PGm=mth PG program
A= No. of Students in PG 1st year
B= No. of Students in PG 2nd year
Student Faculty Ratio **(SFR)** = S/F
S= No. of students of all programs in the Department including all students of allied departments/clusters.
No. of students (ST)=Sanctioned Intake (SA)+ Actual admitted students via lateral entry including leftover seats (L) if any (limited to 10 % of SA)
Students who admitted under supernumerary quotas (SNQ, EWS, etc) will not be considered in calculating SFR value. Those students are exempted.
F=Total no. of regular or contractual faculty members (Full Time) in the Department, including allied departments/clusters (excluding first year faculty (The faculty members who have a 100% teaching load in the first-year courses)).

No. of UG Programs in the Department1 No. of PG Programs in the Department1

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

Description	**CAY(2024-25)**	**CAYm1 (2023-24)**	**CAYm2 (2022-23)**
UG1.B	60	60	60
UG1.C	60	60	60
UG1.D	60	60	60
UG1: Chemical Engineering	**180**	**180**	**180**
PG1.A	18	18	18
PG1.B	18	18	18

Description	CAY(2024-25)	CAYm1 (2023-24)	CAYm2 (2022-23)
PG1: Material Science and Engineering	**36**	**36**	**36**
DS=Total no. of students in all UG and PG programs in the Department	216	216	216
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=** 216	**S2=** 216	**S3=** 216
DF=Total no. of faculty members in the Department	16	17	17
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=** 16	**F2=** 17	**F3=** 17
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= 13.50**	**SFR2= 12.71**	**SFR3= 12.71**
Average SFR for 3 years	**SFR= 12.97**		

C3. Faculty Qualification

- Faculty qualification index (FQI) = 2.5 * [(10X +4Y)/RF] where
- X=No. of faculty members with Ph.D. degree or equivalent as per AICTE/UGC norms.
- Y=No. of faculty members with M. Tech. or ME degree or equivalent as per AICTE/ UGC norms.
- RF=No. of required faculty in the Department including allied Departments to adhere to the 20:1 Student-Faculty ratio, with calculations based on both student numbers and faculty requirements as per section C2 of this documents: (RF=S/20).

Table No.C3.1: Faculty qualification.

Year	X	Y	RF	FQ = 2.5 x [(10X + 4Y) / RF)]
2024-25(CAY)	13	3	10.00	35.50
2023-24(CAYm1)	14	3	10.00	38.00
2022-23(CAYm2)	14	3	10.00	38.00

C4. Faculty Cadre Proportion

- Faculty Cadre Proportion is 1(RF1): 2(RF2): 6(RF3)
- RF1= No. of Professors required = 1/9 * No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per C2 of this documents:.
- RF2= No. of Associate Professors required = 2/9 * No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents:.
- RF3= No. of Assistant Professors required = 6/9 * No. of Faculty required to comply with 20:1 Student-Faculty ratio based on no. of students (S) as per section C2 of this documents:.
- Faculty cadre and qualification and experience should be as per AICTE/UGC norms.

Table No.C4.1: Faculty cadre proportion details.

Year	Professors		Associate Professors		Assistant Professors	
	Required RF1	Available AF1	Required RF2	Available AF1	Required RF3	Available AF3
2024-25	1.00	8.00	2.00	4.00	7.00	4.00
2023-24	1.00	8.00	2.00	3.00	7.00	6.00
2022-23	1.00	8.00	2.00	1.00	7.00	8.00

Average	RF1=1.00	AF1=8.00	RF2=2.00	AF2=2.67	RF2=7.00	AF2=6.00

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	Dr. B. Venkataraman	Distinguished Professor	Amrita Vishwa Vidyapeetham	19CHE205 - Materials Technology, 19CHE214 - Strength of Materials	35.00
2	Dr. Raju Ananth	Senior Consultant (Retd)	Structural Integrity Inc., USA	19CHE204 - Principles of Heat Transfer, 19CHE213 - Design of Heat Transfer Equipment	20.00

(CAYm2)

S.No	Name of the Person	Designation	Organization	Name of the Course	No. of hours handled
1	Dr. B. Venkataraman	Distinguished Professor	Amrita Vishwa Vidyapeetham	19CHE205 - Materials Technology, 19CHE214 - Strength of Materials	40.00
2	Dr. Raju Ananth	Senior Consultant (Retd)	Structural Integrity Inc., USA	19CHE204 - Principles of Heat Transfer, 19CHE213 - Design of Heat Transfer Equipment	20.00

(CAYm3)

C6. Academic Research

Table No. C6.1: Faculty publication details.

S.No.	Item	2023-24 (CAYm1)	2022-23 (CAYm2)	2021-22 (CAYm3)
1	No. of peer reviewed journal papers published	20	25	20
2	No. of peer reviewed conference papers published	2	3	3
3	No. of books/book chapters published	3	3	1

C7. Sponsored Research Project

Table No. C7.1: List of sponsored research projects received from external agencies.

(CAYm1)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25
Dr. Thirugnasambandam G M	Dr. Murali Rangarajan, Dr. Prasanna Ramani, and Dr. Udaya Bhaskar Reddy Ragula	Department of Chemical Engineering and Materials Science	Design, Development & Demonstration of polymer membrane electrolyte (PEM) Fuel Cell Technology	Center for High Technology & High Energy Batteries, India	May 2023 to April 2025	183.57
						Amount received (Rs.):183.57

(CAYm2)

(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. Sudip Kumar Batabyal and Dr. Udaya Bhaskar Reddy Ragula	Dr. Udaya Bhaskar Reddy Ragula	Department of Chemical Engineering and Materials Science	Development of Chemically Modified Carbon-based Interfacial Solar Evaporator	DST – TMD – Water and Clean Energy	August 2021 to August 2024	33.50
Dr. Udaya Bhaskar Reddy Ragula	Dr. Sriram Devanathan	Department of Chemical Engineering and Materials Science	Development of an Integrated Wastewater Treatment, Hydrogen and Fuel Production System using Ceramic Membranes and Microchannel Reactors	DST – Technology Mission Division	October 2020 to Septem ber 2023	18.50
Dr. Udaya Bhaskar Reddy Ragula	Dr. Sasangan Ramanathan (Co-PI) and Dr. Sriram Devanathan (Co-PI)	Department of Chemical Engineering and Materials Science	Design and Testing of an Efficient Microchannel Reactor for Hydrogen Production via Heat Integrated Combustion and Steam Reformation of Methane	HPCL Green R&D Center, Bangalore	September 2020 to August 2022	44.96
Dr.Meera Balachandran	Dr. Jayanarayanan, Dr. Shantanu Bowmick	Department of Chemical Engineering and Materials Science	High performance polyrther ketone carbon fibre composite for future generation aviation and space applications	ISRO	March 2019-September 2023	15.41
Dr. K.M.Mini	Dr.Jayanarayanan K, Dr. Dhanya Sathyan	Department of Civil Engineering	Development of boron carbide cement concrete for neutron shielding	BRNS	2022-2024	12.59
Dr. Thirugnasambandam G M	Dr. Sasangan Ramanathan	Department of Chemical Engineering and Materials Science	Fluorite structured Mg based ternary system for hydrogen storage and NiMH battery applications	Australian Mines	1 year	64.44
						Amount received (Rs.):189.40

Total Amount (Lacs) Received for the Past 3 Years: 372.97

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)

(CAYm2)

PI Name	Co-PI names if any	Name of the Dept., where project is sanctioned	Project Title*	Name of the Funding agency	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25
Dr. K. Jayanarayanan		Department of Chemical Engineering and Materials Science	Utilization of edge trims of coir fiber mat into cement bonded particle board	M/s, Vruthi Ecomats, Dindigul	March 2023-June 2023	0.88
Dr. Udaya Bhaskar Reddy Ragula	Dr. Sasangan Ramanathan	Department of Chemical Engineering and Materials Science	Development od Microchannel Cold Plate Prototype for Etching Applications	Lam Research, USA	May 2022 to April 2023	20.21
Dr. Murali Rangarajan		Department of Chemical Engineering and Materials Science	ANN-based Microwave Sensor for Real-Time Monitoring of Cu(II), SO4(II-) and Cl(-) Ions in Plating Baths	LAM Research, USA	November 2022-October 2023	41.50
						Amount received (Rs.):62.59

(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. Murali Rangarajan	Dr. Udaya Bhaskar Reddy Ragula	Department of Chemical Engineering and Materials Science	Thermal Management and Decarbonization in Foundation Industries	Durham University, UK	November 2021 to March 2022	15.05
						Amount received (Rs.):15.05

Total amount (Lacs) received for the past 3 years: 77.64

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

(CAYm2)

Faculty name	Project title/ Support for Activity	Duration of the project	Amount(Lacs) i.e. 15,25,000=15.25	Amount Utilized(Lacs) i.e. 15,25,000=15.25	Outcomes of the project
Dr. Nithya K	Development of high performance hybrid nanocomposites for continuous wastewater treatment	2 years	22.81	16.58	Paper published (2)
Dr. Meera Balachandran	Simulation Studies of Biomimetic Functional Coatings for Reduction	1 year	11.93	11.93	Patent applied
Dr. Murali Rangarajan	In-House-Developed, Versatile, Low-Pressure Chemical Vapor Deposition Facility	2 years	44.11	32.08	Paper published (2)
Dr. Murali Rangarajan (CO-PI)	Design and Development of an Indigenous Smart Electronic Sniffer using 2-D materials	2 years	40.70	21.98	Paper published (4)
Dr. Nithya K (CO-PI)	Algal biomass valorization for a clean	2 years	29.18	18.72	Patent applied
			Amount received (Rs.): 148.73		

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

Total amount (Lacs) received for the past 3 years : 148.73

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	19 CHE 281 Chemical Technology lab	4	a) Redwood viscometer, b) Pensky Martein flash point apparatus, c) Magnetic stirrer, d) Water bath, e)	2 days	Dr. A.Baladhanpani	Senior lab Instructor	Ph.D
2	19 CHE 281 Chemical Engineering Instrumentation Lab	4	a) Temperature Measurement b) Viscosity Measurement c) Concentration Measurement d)	2 days	Mr. Manikandaprabhu	Lab Technician	M Sc.(Nanotechnology)
3	19 CHE 282 Fluid Mechanics lab	4	a) Venturimeter b) Orifice meter c) Rotameter d) Pump - centrifugal & reciprocating e) Friction loss in pipe flow	2 days	Mr.C. Ramamoorthy	Lab Instructor	Diploma in Plastics Techn
4	19 CHE 282 Mechanical operations lab	4	a) Sieve analysis apparatus, b) Jaw crusher c) Roll crusher, d) Ball mill, e) Cyclone separator f) Drop weight	2 days	Mr. Manikandaprabhu	Lab Technician	M Sc.(Nanotechnology)
5	19 CHE 381 Heat transfer lab	4	a) Heat exchanger, b) Fin pin apparatus, c) Natural convection apparatus, d) Forced convection apparatus,	2 days	Mr.C. Ramamoorthy	Lab Instructor	Diploma in Plastics Techn
6	19 CHE 381 Strength of Materials Lab	4	a) Universal Testing Machine b) Tensile test machine for wires c) Rockwell hardness tester d) Brinell	2 days	Mr. K. Srinivasan (Civil En	Senior lab Instructor	M Tech
7	19 CHE 382 Chemical Reaction Engineering	4	a) Reactor - Batch reactor; b) Semi batch reactor; c) Sono batch reactor; d) CSTR; e) Combined reactor	2 days	Dr. A.Baladhanpani	Senior lab Instructor	Ph.D
8	19 CHE 382 Thermodynamics Lab	4	a) Performance of a Turbine and Thermodynamic Analysis of a Power Cycle; b) Thermodynamic Analysis	2 days	Mr.C. Ramamoorthy	Lab Instructor	Diploma in Plastics Techn
9	19 CHE 481 Mass transfer lab	4	a) Simple distillation, b) Steam distillation, c) Packed bed distillation, d) Simple leaching apparatus, e)	2 days	Mr.C. Ramamoorthy	Lab Instructor	Diploma in Plastics Techn
10	19 CHE 481 Chemical process control lab	4	a) First and second order systems. b) Interacting and non-interacting systems c) Control valve characteristics,	2 days	Mr. Manikandaprabhu	Lab Technician	M Sc.(Nanotechnology)

11	19 CHE 432 Computer aided design lab	1	a) Solving Material and Energy Balance Problems using HYSYS b) Thermodynamic Property Estimation c) Simulation and Design of Heat Exchangers and Heat	1 day	This lab is handled by faci	Professor, Asst.Professor	Ph.D, M Tech

D2. Safety Measures in Laboratories

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

Sr. No	Laboratory Name	Safety Measures
1	Polymer Processing Lab	Fire Extinguisher, First Aid Box, Mask, Gloves, Helmet Safety instructions and guidelines are displayed prominently Lab staff have undergone fire and safety training
2	Chemical Technology Lab/ Mechanical Operations Lab	Eye Wash and Safety shower, Fire Extinguisher, First Aid Box, Mask, Gloves Safety instructions and guidelines are displayed prominently Lab staff have undergone fire and safety training
3	Mass Transfer/ Chemical Reaction Engineering/ Thermodynamics Lab	Eye Wash and Safety shower , Fire Extinguisher, First Aid Box, Mask, Gloves Safety instructions and guidelines are displayed prominently Lab staff have undergone fire and safety training
4	CoE- AMGT Lab	Safety shower, Fire Extinguisher, First Aid Box, Mask, Gloves Safety instructions and guidelines are displayed prominently Lab staff have undergone fire and safety training
5	Process Instrumentation /Process Control Lab	Fire Extinguisher, First Aid Box, Mask, Gloves Safety instructions and guidelines are displayed prominently Lab staff have undergone fire and safety training

D3. Project Laboratory/Research Laboratory

Apart from the regular academic laboratories advanced equipment are available for the project work of the students. The research laboratories and the facilities available are listed below

The final year students utilize these equipment at an average 12 hours/week.

Table B 7.5. Project Laboratories and facilities

List of Equipment for Project Work of Students			
Lab		Name of Equipment	*Equipment Cost*
Polymers & Nanocomposites Laboratory	Microprocesssor Controlled Fully Automatic Injection Molding Machine (50 T)		11.46 lakhs
	Two Roll Mill		5.82 lakhs
	Single Screw Segmented Barrel Extruder		6.07 lakhs
	Oscillating Disk Rheometer		2.4 lakhs
	Twin Screw Extruder with Accessories		21.98 lakhs
	Hydralic Compression Moulding Hot press-500T		18.72 lakhs

List of Equipment for Project Work of Students		
Central Facility Laboratory	Thermal Analysis Facility [Differential Scanning Calorimeter -DSC, Thermogravimetry - Differential Thermal Analyzer -TG-DTA]	38.07 lakhs
	Fourier Transform Infrared Spectrometer	12 lakhs
	XRD facility with Accessories (Powder, thin film, SAXS)	94 lakhs
	ELECTRONIC BALANCE, CAP:220gm, RESOLUTION: 0.1MG, MODEL:ATX-224	0.80 lakhs
	Shimadzu gas chromatograph mass spectrometer, model: Qp 2010 Ultra EI/PCI with accessories	37. 37 lakhs (60,000 US$)
	Field Emission Scanning Electron Microscope (FESEM)	236 lakhs
	Ion Chromatograph (IC)	18.45 lakhs
	Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES)	60.00 lakhs
	BET Surface Analyzer and Chemisorption	62.74 lakhs
	Ultraviolet Visible with Diffuse Reflectance Spectroscopy (UV-DRS)	10.34 lakhs

List of Equipment for Project Work of Students		
Energy Materials & Devices Laboratory	Ball Mill	5. 00 lakhs
	Auto Lab [Electrochemistry Work Station]	22. 00 lakhs
	Electrochemical Workstations - BIOLOGIC	7. 25 lakhs
	Electrochemical Workstations - Origaflex - Origalys	6.67 lakhs
	10500, Class A (Make: Abet Technologies Inc., Low-cost Solar Simulator)	3.6 lakhs
	Probe Sonicator with accessories	1.5 lakhs
	Magnetic stirrer with ceramic hot plate	0.90 lakhs
	Electrochemical Cells [5 Nos]	5. 00 lakhs
	Compact Nano Fiber Electrospinning Unit	6. 02 lakhs
	Arc Melting Furnace	12. 00 lakhs
	PCT PRO	100. 00 lakhs
	Vacuum Furnace	7.58 lakhs
	Glove Box	16. 00 lakhs
	Fume Hood	1.86 lakhs

List of Equipment for Project Work of Students		
Advanced Functional Materials Laboratory	Pulse Power Supply	2.27 lakhs
	Bain cut Diamond Saw	3.51 lakhs
	Ultrapure Water Facility	4.4 lakhs
	Metallurgical Microscope	2.78 lakhs
	pH Meter	0.28 lakhs
	Muffle Furnace	0.30 lakhs
	Centrifuge	0.19 lakhs
	Rotating Disk Electrode Setup with Potentiostat/ Galvanostat (WaveNow®)	7.4 lakhs
	Electrochemical Workstation with Impedance Analyzer (CHI604E)	6.0 lakhs
	Vacuum Furnace	0.35 lakhs

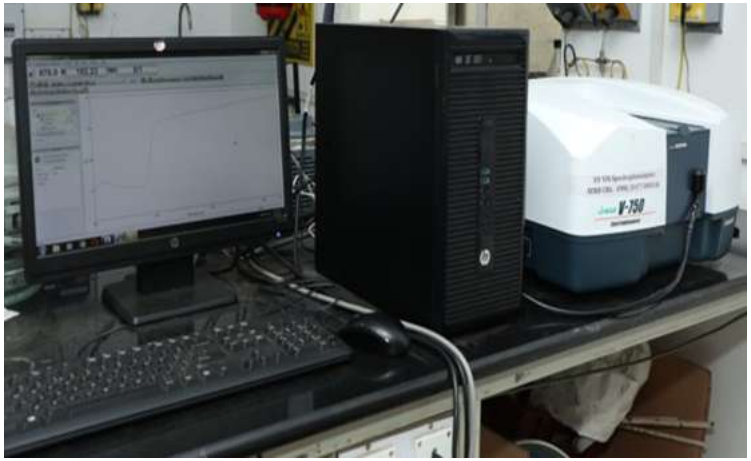
List of Equipment for Project Work of Students		
Nanomaterials Laboratory	Hot Air Oven	0.18 lakhs
	Digital Electronic Balance 0.1mg Accuracy	0.67 lakhs
	Syringe Pump	0.36 lakhs
	Nanovoltmeter with DC Power Supply	4.00 lakhs
	Micro Milli Ohm Meter	0.18 lakhs
	CENTRIFUGE Make: "REMI" MODEL-R8C With 8X15 ml Rotor heads	0.19 lakhs
	All glass double distillation unit 3362-4.0L, DAPS-1.5L (Power supply) BOROSIL	0.7 lakhs
	FD12 - Two stage oil sealed, rotary vane vacuum pump with single phase motor, 220V±10%, 50 Hz	0.46 lakhs
	Magentic stirrer with hot plate	0.60 lakhs
	Keithley 2450 Source Meter	5 lakhs
	Tubular Two Zone Furnace	6 lakhs
	Vacuum Coating Unit's Thermal Evaporator	8 lakhs
	Photoluminescence SHIMADZU	5 lakhs
	Solar Simulator	6.1 lakhs
	Keysight Source Meter	16 lakhs
	Spin Coater	3 lakhs

List of Equipment for Project Work of Students		
Solar Energy & Optoelectronics Laboratory	Muffle furnace	0.80 lakhs
	Servo hot air oven	0.20 lakhs
	Teflon lined acid digestion bomb with accessories	1.20lakhs
	Rotary evaporator with accessories	1.73 lakhs
	FD12 - Two stage oil sealed, rotary vane vacuum pump with single phase motor, 220V±10%, 50 Hz	0.46 lakhs
	Spin Coater	2.60 lakhs
	Ultrasonicator	0. 13 lakhs
	Magnetic Stirrer with ceramic hot plate	0.30 lakhs
	Solar Cell Current Voltage Test Station	5.0 lakhs
	UV with DRS	11.0 lakhs
	UV Chamber	0.07 lakhs
	Screen Printer	3.5 lakhs
	IPCE Instrument	19.0 lakhs
Energy Systems & Process Intensification Laboratory	Flow Imaging System	0.55 lakhs
	Regenerative Hemodialyzer	0.44 lakhs
	Three phase fluidization setup	0.15 lakhs
	GHC 3-Zone Tube Furnace w/ accessories	11. 48 lakhs
	CNC Router with 100 micron precision	17.43 lakhs
	Magnetic stirrer with hot plate	1.20 lakhs

The photographs of certain major equipment are given below

Gas Chromotography Mass Spectrometer (GC-MS)

Ultraviolet Visible with Diffuse Reflectance Spectroscopy setup (UV-DRS)



Brunauer-Emmett-Teller (BET) surface Area Analyzer

Field Emission Scanning Electron Microscope (FESEM)

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
2022-23(CAYm2)	1320	66	74	68	110
2023-24(CAYm1)	1440	72	80	85	112
2024-25(CAY)	1980	99	84	101	88

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 2024-2025	Actual Expenses in 2024-2025 till	Budgeted in 2023-2024	Actual Expenses in 2023-2024 till	Budgeted in 2022-2023	Actual Expenses in 2022-2023 till	Budgeted in 2021-2022	Actual Expenses in 2021-2022 till
Infrastructure Built-Up	69000000	71812496	63000000	65260771	56000000	55807472	262000000	227590356
Library	33000000	31752441	24000000	24673925	64000000	63091836	96000000	91424028
Laboratory equipment	54000000	50960549	28000000	25159375	15000000	15183885	11000000	9123871
Teaching and non-teaching staff salary	1113000000	1135763217	1087000000	1097974733	1034000000	1044140652	768000000	760008856
Outreach Programs	23500000	23878785	26000000	25992719	27000000	28304929	10000000	10634248
R&D	195000000	189632130	115000000	111365553	81000000	78901094	23000000	20618716
Training, Placement and Industry linkage	6000000	5917481	4500000	4785665	5000000	4987162	5000000	4838902
SDGs	27000000	26000000	24000000	23300000	20000000	18900000	5500000	5200000
Entrepreneurship	1000000	960000	1000000	892800	1000000	866016	500000	649512
Others, specify	615000000	585583135	598000000	553435027	574000000	546376752	606000000	572157256
Total	**2136500000**	**2122260234**	**1970500000**	**1932840568**	**1877000000**	**1856559798**	**1787000000**	**1702245745**

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 2024-2025	Actual Expenses in 2024-2025 till	Budgeted in 2023-2024	Actual Expenses in 2023-2024 till	Budgeted in 2022-2023	Actual Expenses in 2022-2023 till	Budgeted in 2021-2022	Actual Expenses in 2021-2022 till
Laboratory equipment	1100000	932970	700000	644361	7900000	7575834	3100000	2975297
Software	800000	743111	50000	44442	600000	535869	600000	589168
SDGs	750000	742126	700000	692635	550000	532165	125000	149224
Support for faculty development	210000	196709	150000	124772	100000	23300	100000	17000
R & D	5000000	4669617	4100000	3736549	2000000	1685739	400000	328980

Industrial Training, Industry expert, Internship	60000	20926	150000	153617	160000	123672	85000	49491
Miscellaneous Expenses*	24000000	22807802	23000000	21183291	20000000	18399144	17400000	16873548
Total	**31920000**	**30113261**	**28850000**	**26579667**	**31310000**	**28875723**	**21810000**	**20982708**