

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: Mechanical Engineering- B.Tech

A1: Name of the Institute: - Toc H Institute of Science and Technology

Year of Establishment : 2002

Location of the Institute: Kerala

A2: Institute Address: - Arakunnam, Ernakulam Pin-682 313 Kerala

City : Ernakulam

State : Kerala

Pin Code : 682313

Website: www.tistcochin.edu.in

E-mail : principal@tistcochin.edu.in

Phone No (with STD Code): 0484-2748388

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

Name of the University : Dr APJ Abdul Kalam Technological University

City : Thiruvananthapuram

State : Kerala

Pin Code: 695016

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

Institute of National Importance

☐

Deemed University

☐

University

☐

Autonomous

☐

Non-Autonomous (Affiliated)

☒

Any other (Please specify) *

☐

***Provide Details:** _____

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

Central Government

☐

State Government

☐

Government Aided

☐

Self-financing✓

☒

Any Other (Please specify) *

☐

***Provide Details:** _____

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

❖ No. of UG programs: 9

❖ No. of PG programs: 6

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

S.N.	Level of program (UG/PG)	Name of the program	Year Start	Year close*	Name of the Department
1	UG	Civil Engineering	2006	--	Civil Engineering

2	UG	Computer Science and Engineering	2002	--	Computer Science and Engineering
3	PG	Construction Engineering & Management	2013	--	Civil Engineering
4	PG	Data Science	2020	--	Computer Science and Engineering
5	UG	Electrical and Computer Engineering	2020	--	Electrical and Computer Engineering
6	UG	Electrical and Electronics Engineering	2004	--	Electrical and Electronics Engineering
7	UG	Electronics & Communication Engineering	2002	--	Electronics and Communication Engineering
8	UG	Information Technology	2002	--	Information Technology
9	UG	Mechanical Engineering	2006	--	Mechanical Engineering
10	PG	Power Electronics	2012	2024	Electrical and Electronics Engineering
11	UG	Robotics and Automation	2019	--	Robotics and Automation
12	UG	Safety & Fire Engineering	2011	--	Safety and Fire Engineering
13	PG	Thermal Engineering	2013	2024	Mechanical Engineering
14	PG	Wireless Technology	2011	2024	Electronics and Communication Engineering
15	PG	Masters in Business Administration	2008	--	Management

A7:

Programs to be considered for Accreditation vide this Application:

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

Cluster ID.	Name of the Department	Name of the Program
1	Mechanical Engineering	Mechanical Engineering
2	Safety and Fire Engineering	Safety & Fire Engineering
3	Computer Science and Engineering	Computer Science and Engineering
4	Electronics and Communication Engineering	Electronics & Communication Engineering
5	Civil Engineering	Civil Engineering

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)
1.		
...		

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 Approval Details	Accreditation Status*	No. of times program accredited
1.	B.Tech Mechanical Engineering	2006	60	60 increased	2014	F.No.06/06/KER/ENGG/2002/29 Dated:10/08/2006	Granted provisional accreditation for three years for the period (2023-2026)	2
				60 Decreased	2020	F.No. South-West/1-7003815890/2020/EOA		

* Write applicable one:

- ❖ Applying first time
- ❖ Granted accreditation for 2/3 years for the period (specify period)
- ❖ Granted accreditation for 5/6 years for the period (specify period)
- ❖ Not accredited (specify visit dates, year).
- ❖ Withdrawn (specify visit dates, year)
- ❖ Not eligible for accreditation.

B2: Detail of Head of the Department for the program under consideration:**A. Name of the HoD :Dr. Rajesh Kocheril****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*

☐***Please provide details:** _____

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)	60	60	60	60	60	60	120
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	59	42	27	33	29	46	43
N2= Number of students admitted in 2 nd year in the same batch via lateral entry including leftover seats	-	6	5	4	6	3	3
N3= Separate division if any	-	0	0	0	0	0	0
N4= Total no. of students admitted in the 1 st year via all supernumerary quotas	-	-	-	-	-	-	-
Total number of students admitted in the program (N1 + N2 + N3 + N4) - excluding those admitted through multiple entry and exit points.	59	48	32	37	35	49	46

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)	60	60	60
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	59	42	27
N4= Total no. of students admitted in the 1 st year via all supernumerary quotas	-	-	-
Enrolment Ratio (ER)= (N1+N4)/N	ER_1 =98.3	ER_2 =70	ER_3=45
Average ER= (ER_1+ ER_2+ ER_3)/3	71.1		

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).	66	63	123
B=No. of students who graduated from the program in the stipulated course duration	17	23	15
Success Rate (SR)= (B/A)*100	SR_1=25.76	SR_2=36.50	SR_3=12.19
Average SR of three batches ((SR_1+SR_2+ SR_3)/3)	24.82		

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)	4.7	3.75	5.34
Y= Total no. of successful students	42	27	33
Z = Total no. of students appeared in the examination	42	27	33
API = X* (Y/Z)	API_1=4.7	API_2=3.7	API_3=5.3
Average API = (API_1 + API_2 + API_3)/3	4.56		

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)	3.45	4.53	4.74
Y= Total no. of successful students	27	37	35
Z =Total no. of students appeared in the examination	32	37	35
API = X* (Y/Z)	API_1=2.91	API_2=4.53	API_3=4.74
Average API = (API_1 + API_2 + API_3)/3	4.06		

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)	5.07	4.83	5.43
Y= Total no. of successful students	36	35	45
Z= Total no. of students appeared in the examination	37	35	46
API = X* (Y/Z)	AP_1=4.93	AP_2=4.83	AP_3=5.31
Average API = (API_1 + API_2 + API_3)/3	5.02		

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	66	63	123
X= No. of students placed	16	23	21
Y= No. of students admitted to higher studies	3	3	5
Z= No. of students taking up entrepreneurship	0	1	0
X + Y + Z =	19	27	26
Placement Index (P) = (((X + Y + Z)/FS) * 100)	P_1=28.78	P_2=42.85	P_3=21.13
Average placement index = (P_1 + P_2 + P_3)/3	30.92		

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)

Faculty details of Department and Allied Departments

Sr.No.	Name of the Faculty		PAN No.	APAA R 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 Full time or (Part time or hourly based)	Currently Associated (Y/N)	Date of Leaving if any (In case Currently Associated is "No")
1	Dr. Rajesh Kocheril		AMBP K8068 M	NA	Ph.D	CUSAT	Thermal Engineering	16-06-2009	16.6	Assistant Professor	Associate Professor	01/06/2021	Regular	Full time	Y	
2	Shajan K Thomas		AFRPT 4069E	NA	M.Tech, MBA	Anna University	Engineering Design.	17-07-2006	19.5	Assistant Professor	Assistant Professor		Regular	Full time	Y	
3	Aby S		AOMP A3523 N	NA	M.Tech	IIT-Madras	Thermal Engineering	30-10-2006	19.2	Assistant Profes	Assistant Profes		Regular	Full time	Y	

									sor	sor						
4	Sai Govind V S		CQEPS 2071P	NA	M.E	Anna Unvier sity	Enginee ring Design	19-06-2009	16.6	Assista nt Profes sor	Assista nt Profes sor		Regula r	Full time	Y	
5	Anoof M S		AJFPA 4228G	NA	M.E	Anna Unvier sity	Enginee ring Design	04-06-2010	15.7	Assista nt Profes sor	Assista nt Profes sor		Regula r	Full time	Y	
6	Dr. Ritwik A		AUQP A1203P	NA	Ph. D	CUSA T	Producti on and Industri al Enginee ring	01-06-2012	13.7	Assista nt Profes sor	Associ ate Profes sor	01/05/ 2025	Regula r	Full time	Y	
7	Nidhee sh P		COMPP 6890P	NA	M.T ech	IIT- Madras	Applied Mechan ics	29-07-2013	12.5	Assista nt Profes sor	Assista nt Profes sor		Regula r	Full time	Y	
8	Suraj Kumar B		APCPK 9995B	NA	M.T ech	CUSA T	Thermal Enginee ring	03-08-2015	10.5	Assista nt Profes sor	Assista nt Profes sor		Regula r	Full time	Y	
9	Radhak rishnan P		ALPPP 3340J	NA	M.T ech	Amrita Vishwa Vidyap eetham	Enginee ring Design	12-07-2017	8.5	Assista nt Profes sor	Assista nt Profes sor		Regula r	Full time	Y	
10	Lovin K John		APMPJ 8755L	NA	Ph. D	Amrita Vishwa Vidyap eetham	Machin e Design	09-11-2021	4.1	Assista nt Profes sor	Assista nt Profes sor		Regula r	Full time	Y	
11	Dr. K. Vinoth Babu		AGHP V9202 A	NA	Ph. D	Kalasal ingam Univer sity	Compos ites	30-08-2022	3.4	Assista nt Profes sor	Associ ate Profes sor	01/05/ 2025	Contra ct	Full time	Y	
12	Rohith		GCBPR	NA	M-	KTU	Enginee	28-	0.5	Assista	Assista		Contra	Full	Y	

	S P		6906M		Tec h		ring Design	07-2025		nt Profes sor	nt Profes sor		ct	time		
13	Ajithku mar K T		BWKP K1982 N	NA	M.T ech	NIT Calicut	Energy Manage ment	01-08-2025	0.5	Assista nt Profes sor	Assista nt Profes sor		Contra ct	Full time	Y	
14	Vineeth Devass y		DQDP D6989 K	NA	M.T ec	MG Univer sity	Producti on & Industri al Enginee ring	30-08-2025	0.4	Assista nt Profes sor	Assista nt Profes sor		Contra ct	Full time	Y	
15	Prasant h M A		CVCPA 5229E	-	M.T ech	KTU	Machin e design	01-11-2021	3.1	Assista nt Profes sor	Assista nt Profes sor		Regula r	Full time	N	19-12-2024
16	Rahul Ravi		CMHP R3798D	NA	M.T ech	KTU	Propulsi on enginee ring	15-11-2021	2.7	Assista nt Profes sor	Assista nt Profes sor		Regula r	Full time	N	22-7-2024
17	Naveen Prakash K V		DBLPP4 135G	NA	M.T ech	-	Machine design	03-11-2021		Assista nt profess or	Assista nt profess or		Regular	Full time	N	31-10-23
18	Emlin V		AATPE6 499E	NA	M.T ech	CUSAT	Thermal Engineer ing	25-08-22		Assista nt profess or	Assista nt profess or		Regular	Full time	N	13-9-2023
19	Alen John		BAEPJ2 570F	NA	M.T ech	-	Machine Design	30-08-22		Assista nt profess or	Assista nt profess or		Contra ct	Full time	N	14-8-2023
20	Divesh Prakash		CJQPP1 461H	NA	M.T ech	NIT Trichy	Industri al Safety Enginee ring	01-08-2022	3.1	Assista nt Profes sor	Assista nt Profes sor		Regula r	Full time	N	15/09/2025

- $PG_1 = 1^{st}$ PG program.
- $PG_m = m^{th}$ 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	CAYm1	CAYm2
UG ₁ . B // 2 nd year students of UG ₁ program	66	65	64
UG ₁ . C // 3 rd year students of UG ₁ program	64	64	66
UG ₁ . D // 4 th year students of UG ₁ program	64	66	62
UG ₁ // Total no.of students(2 nd , 3 rd , 4 th) in UG ₁ program	194	195	192
...			
UG _n . B // 2 nd year students of UG _n program			
UG _n . C // 3 rd year students of UG _n program			
UG _n . D // 4 th year students of UG _n program			
UG _n // Total no.of students(2 nd , 3 rd , 4 th) in UG _n program	UG _n .B+UG _n .C+UG _n .D	UG _n .B+UG _n .C+UG _n .D	UG _n .B+UG _n .C+UG _n .D
PG ₁ . A // 1 st year students of PG ₁ program	0	0	12
PG ₁ . B // 2 nd year students of PG ₁ program	0	12	12
PG ₁ // Total no.of students(1 st , 2 nd) in PG ₁ program	0	12	24
.....			
PG _m . A // 1 st year students of PG _m program			
PG _m . B // 2 nd year students of PG _m program			
PG _m // Total no.of students(1 st , 2 nd) in PG _m program	PG _m .A+ PG _m .B	PG _m .A+ PG _m .B	PG _m .A+ PG _m .B
DS=Total no. of students in all UG and PG programs in the Department	194	207	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)	194	207	216
DF=Total no. of faculty members in the Department	14	12	14
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)	14	12	14

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= 13.86	SFR2=17.25	SFR3=15.43
Average SFR for 3 years	Average SFR=15.51		

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	4	10	9	22.22
CAYm1	2	10	10	15
CAYm2	2	12	10	17

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	1	0	2	3	6	8
CAYm1	1	0	2	1	6	11
CAYm2	1	0	2	1	7	13
Average Numbers	RF1=1	AF1=0	RF2=2	AF2=1.67	RF3=6.33	AF3=10.67

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				
..				
Total no. of hours:				
CAYm2				
1				
..				
Total no. of hours:				

CAYm3				
1				
..				
Total no. of hours:				

C6: Academic Research

Table No. C6.1: Faculty publication details.

S.N.	Item	CAYm1	CAYm2	CAYm3
1	No. of peer reviewed journal papers published	4	5	3
2	No. of peer reviewed conference papers published	0	1	0
3	No. of books/book chapters published	0	0	0

C7: Sponsored Research Project

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

S.N.	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							
1	Dr. Rajesh Kocheril	Mr. Shajan K Thomas	Mechanical Eng.	Design & Fabrication of electric buggy (EZ CRUIZE	Graceland Foundation	2 Years	1.30
2	Mr. Prasanth M A		Mechanical Eng	Waste oil derived greases: A comparative tribological	KSCSTE	6 months	0.41
Amount received (Rs.)							1.71
CAYm2							
1	Mr. Shajan K Thomas		Mechanical Eng	Design and fabrication	Dairy farm Perumbavoor	6 months	0.10
...							
Amount received (Rs.)							0.10
CAYm3							
1	Dr. Ritwik A		Mechanical Eng	Design and fabrication of portable magnetic refrigerator	ISHRAE	1 Year	0.50
2	Dr. Rajesh Kocheril	Asst.prof.Aby S	Mechanical Eng	RPS	AICTE	3 Years	10.70
Amount received (Rs.)							11.20
Total Amount (Lacs) Received for the Past 3 Years							13.01

C8: Consultancy Work**Table No. C8.1:** List of consultancy projects received from external agencies.

S.N.	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							
1							

..							
Amount received (Rs.)							
CAYm2							
1							
...							
Amount received (Rs.)							
CAYm3							
1	Dr. Rajesh Kocheril		Mechanical Engineering	One District One idea cluster management	K DISC	2 Years	4.57
..							
Amount received (Rs.)							4.57
Total amount (Lacs) received for the past 3 years							4.57

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						
..						
Amount received (Rs.)						
CAYm2						
1	Mr.Shajan K Thomas	Aero Lab Equipment and Materials	1 Year	0.30	27408.00	Used for the completion of various aero models
..						
Amount received (Rs.)						0.30
CAYm3						
1						
..						
Amount received (Rs.)						
Total amount (Lacs) received for the past 3 years						

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.

S.N.	Name of the Laboratory	No. 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	Basic Mechanical Workshop	1 No	1	TIG Welding Machine (97815)	09 Hours	Mr.R Ananthakrishnan	Lab instructor	B.Tech Mechanical
			2	Industrial muffle furnace (Electrical) (44413)				
			3	Air compressor (30792)				
			4	Gas Welding Machine (23948)				
			5	Arc Welding Machine (12324)				
			6	Wood work Lathe (11440)				
			7	Wood cutting Machine (11440)		Mr.Pushparajan	Technical Asst.Gr.II	ITI-Fitter
			8	Power Hacksaw (10150)		Mr.Antony V.D	Lab instructor	Diploma Mechanical
			9	Hand Grinding Machine (8642)		Mr.Shaji K. T	Lab Attender	SSLC
			10	Cutting Machine (7896)		Mr.Pushparajan M	Technical Asst.Gr.II	ITI-Fitter
			11	Pedestal Grinding Machine (5327)				
			12	Open hearth forge (5000)				
			13	Hand Shear Machine (3640)				
			14	Jig-saw (2750)				
			15	Bench Drilling Machine - 1 No (2190)				
			16	Bench vice - 60 Nos (1980)				
			17	Carpentry Planing Machine (1955)				
			18	Hand Drilling Machine - 2 Nos (1200)				
			19	Gas fired small size cupola Furnace				
2	Fluid Mechanics	3 Nos	1	Free and Forced Vortex				

	Laboratory			Apparatus (48000)	18 Hours			
			2	Closed Circuit Notch Tank Test Rig(Rectangular and Triangular Notch) (28500)				
			3	Closed Circuit Orifice and mouth piece (27500)				
			4	Closed Circuit Reynold's Apparatus (26700)				
			5	Closed Circuit Minor Losses Apparatus (26200)				
			6	Closed Circuit Venturi Meter Apparatus (25500)				
			7	Closed Circuit Orifice Meter Test Rig(25500)				
			8	Closed Circuit Bernoulli's Apparatus (24600)				
			9	Closed Circuit Pipe Friction Test Rig (24300)				
			10	Hele-Shaw Apparatus (19400)				
			11	Metacentric Height Apparatus (14300)				
3	Hydraulic Machines Lab	3 Nos	1	Wind Tunnel Apparatus (191700)		Mr.Philip Mathew	Technical Asst.Gr.III	ITI
			2	Closed Circuit Francis Turbine Test Rig (142500)				
			3	Closed Circuit Kaplan Turbine Test Rig (170000)				
			4	Closed Circuit Pelton Wheel Turbine Test Rig (135000)				
			5	Closed Circuit Hydraulic Ram Apparatus (57420)				
						Mr.Pushparajan	Technical Asst.Gr.II	ITI-Fitter

			6	Closed Circuit Plunger Pump Test Rig (29610)		Mr.Philip Mathew	Technical Asst.Gr.II	ITI
			7	Closed Circuit Centrifugal Pump Test Rig (29000)				
			8	Closed Circuit Multistage Centrifugal Pump Test Rig (29000)				
			9	Closed Circuit Jet Pump Test Rig (26900)				
			10	Closed Circuit Impact of Jet on Vane (26010)				
			11	Closed Circuit Gear oil pump Test Rig (25200)				
			12	Impeller of Turbines and pumps (19000)				
			13	Closed Circuit Reciprocating pump Test Rig (6075)				
			14	Cut model of Centrifugal Pump (6075)				
			15	Cut model of Reciprocating pump (6075)				
4	Machine Shop	2 Nos	1	High speed high precision Centre lathe (HMT NH-26) - 1No (1420429)	12 Hours	Mr.Sajayan M	Technical Asst.Gr.II	
			2	Horizontal Milling machine - 1No (947492)				
			3	Planing Machine - 1No (663775)				
			4	Cylindrical Grinding Machine - 1No (569513)				
			5	Surface Grinding Machine - 1No (493691)				
			6	Vertical Milling machine - 1 Nos. (325464)		Mr.Reji Paul	Technical Asst.Gr.III	
			7	Shaping Machine - 2 Nos (259339)				

			8	Capstan Lathe - 1No (243000)				
			9	Tool & Cutter Grinding Machine - 1No (237336)				
			10	Slotting Machine - 1No (231192)				
			11	Radial drilling machine - 1No (135260)				
			12	Centre lathe - 18 Nos (127292)				
			13	Power Hacksaw - 1No (62643)				
			14	Hydraulic press - 1No (60863)				
			15	Pillar drilling machine- 1 Nos. (59000)				
			16	Pedestal Grinding Machine - 2 Nos (3550)				
5	Metrology Lab	3 Nos	1	Profile projector(205986)	6 Hours	Mr.Sajayan M	Technical Asst.Gr.II	
			2	Metallurgical microscope (112332)				
			3	Inside micrometer (98662)				
			4	Autocollimator (83812)				
			5	Slip gauge set (78752)				
			6	Perthometer (77625)		Mr.Reji Paul	Technical Asst.Gr.III	
			7	Tool makers microscope (69509)				
			8	Lathe tool Dynamometer - 2 Nos. (35000)				
			9	Milling machine dynamometer (32395)				
			10	Drilling machine dynamometer (27692)				
			11	Depth micrometer (19901)				
			12	Outside caliper (16537)				
			13	Vernier Bevel protractor (16030)				

			14	Surface Plate (14078)				
			15	Vernier height gauge (11446)				
			16	Wire gauge (6825)				
			17	Angle plate (5670)				
			18	Radius gauge set (4178)				
			19	Vernier depth gauge (4083)				
			20	Ring gauge (3500)				
			21	v-block (3181)				
			22	Dial Gauges- 2 Nos. (2948)				
			23	Screw thread micrometer (2918)				
			24	Screw pitch gauge set (2812)				
			25	Outside micrometer (2642)				
			26	Sine bar (2475)				
			27	Inside caliper (2250)				
			28	Vernier calliper (2242)				
			29	Feeler gauge set (2215)				
			30	Double ended Snap gauge (1776)				
			31	Plug gauge (1351)				
			32	Tri-square				
			33	Parallel block				
			34.	Quick check educational Gauge(20000)				
6	Thermal Engineering Laboratory	4 Nos	1	Computerized variable compression ratio diesel engine . computerized variable compression up gradation into dual fuel option & EGR (1040942)	12 Hours	Mr.Shyne Mathew	Lab Instructor	
			2	Four cylinder 4 stroke diesel engine (ISUZU) test rig.10 HP At 1500rpm				

				coupled with A.C. Generator and resistance load bank and computerized data acquisition system. (735750)			
			3	Experimental test rig for performance & Morse test(Multi cylinder) (394651)			
			4	AVL India pollution testing machinery sl.no 3556 AVL Smoke meter 437C with accessory (265000)			
			5	Four- cylinder 4 stroke petrol engine Test rig with Hydraulic dynamometer 10 HP, 1500 rpm (Morse test) (263880)			
			6	(AVL-DIGAS 444) 5 Gas analyzer with accessories (D-14010) pollution testing machinery.(254257)			
			7	Test rig for variable compression Ratio - Petrol engine (study purpose) (178650)			
			8	Single cylinder 4 stroke diesel engine with Mechanical rope brake dynamometer with external flywheel along with retardation test facility (Kirloskar) (97470)	Mr.Amal NS	Lab Instructor Gr.111	
			9	Diesel engine test rig with AC generator &			

				resistance load bank and data acquisition system. 10 HP, 1500 rpm. (90000)			
			10	Test on air conditioning equipment. (1 Ton capacity) (88695)			
			11	Two stage 2 cylinder air compressor 3 HP, 1400 rpm, 12 kg /cm ² , 250 litres. (79695)			
			12	Bomb Calorimeter (65323)			
			13	Pitot static tube apparatus (63910)			
			14	Single cylinder 2 stroke petrol engine Load test attachment with Rope-brake dynamometer - 2.5HP/ 3000 rpm (Study purpose) (62820)			
			15	Refrigeration test rig (56592)			
			16	Apparatus for Performance of simple journal Bearings (41020)			
			17	Saybolt viscometer (20200)			
			18	Single cylinder ,4-stroke Diesel engine cut model (15075)			
			19	Viscosity of fuels & Oils (Redwood Viscometer) (8550)			
			20	Flash point & Fire point Apparatus (8055)			
			21	Infrared thermometer (Laser digital			

				thermometer) (2200)				
			22	Demo Model of Engine				
			23	Demo Model of Gear Box				
			24	Demo Model of Differential gear				
			25	Demo Model of Brake system				
7	Heat & Mass Transfer Laboratory	3 Nos	1	Combined parallel flow ,counter flow & crossed flow heat exchanger. (59254)	6 Hours	Mr.Shyne Mathew	Lab Instructor	
			2	Shell and Tube Heat Exchanger (53550)				
			3	Condensation of dropwise filmwiseForms (51750)				
			4	Pressure measurement trainer & Dead weight pressure gauge tester. (48480)				
			5	Boiling Heat Transfer Apparatus (39375)				
			6	Temperature measurement trainer for thermocouple (RTD PT100) & thermister. (38686)		Mr.Amal NS	Lab Instructor Gr.III	
			7	Thermal conductivity measurement apparatus for liquids. (38686)				
			8	Heat transfer through composite slab apparatus. (38197)				
			9	Heat transfer through natural convection. (38197)				
			10	Thermal Conductivity of Metal Rod (24975)				
			11	Unsteady state of heat transfer Apparatus				

				(24975)				
			12	Critical Heat Flux Apparatus (27525)				
			13	Apparatus of forced convection heat transfer for tube flow. (24795)				
			14	Emissivity Measurement Apparatus (21825)				
			15	Apparatus for Heat Transfer in Forced Convection (5980)				
			16	Parallel Flow / Counter Flow Heat Exchanger (3881)				
8	CAD Lab1	1 Nos	1	Computers - 31 Nos	18 Hours	Mr.Shyne Mathew Mr.AbidethC	Lab Instructor Lab Instructor	
				Software Installed:				
			(a)	Auto-CAD - 31 license (Freeware)				
			(b)	Unigraphics(UG NX 6.0) - 30 license				
			(c)	Ansys FEA- 25 license				
			d)	Autodesk - Fusion 360- Freeware				
9	CAM and Robotics Lab	3 Nos	1	Six Axis Articulated Stand Alone Robot (ABBIRB1410) (1889475)	12 Hours	Mr.Reji Paul	Technical Asst.Gr.III	SSLC, ITI-Turner

			2	LMW Smart turn CNC lathe with siemens 802D CNC system (1400000)				
10	Mechanical Engineering Lab	3 Nos	1	Vibration apparatus(88400)	6 Hours	Mr.Shyne Mathew	Lab Instructor	Diploma in Mechanical
			2	Universal Governor apparatus (35000)				
			3	Whirling of shaft apparatus (33200)				
			4	Motorized Gyroscope (28500)		Mr.Amal NS	Lab Instructor Grade III	Diploma in Mechanical
			5	Static & Dynamic balancing machine (21000)				
			6	Vibration platform				

D2: `Safety Measures in Laboratories

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

Sl. No.	Name of Laboratory	Safety Measures
1.	Instruction common to all Laboratories	1. All students are instructed to wear shoes and lab coat while doing experiments. 2. All students are instructed to wear Personal Protective Equipment while operating machine. 3. Handle the tools and equipment with extreme care and return the tools to their proper places. 4. First aid boxes are provided in the lab for emergencies. 5. Fire extinguishers are provided in the lab for emergencies. 6. Seek approval from staff before using any machines/equipment. 7. Keep out the ID cards, or any other loosely worn items from your body 8. In case of any emergency, use emergency stop button
Specific Instruction		
2	Basic Mechanical Workshop	1. Weld only in a fire safe area; remove fire catching material nearby if any. 2. Choose the proper cutter for the job. Cutters are designed for a specific type, hardness, and size of material. 3. The speed of the grinding machine must always be monitored. Grinding machine should not rotate faster than the maximum RPM stated on the wheel 4. Check the grinding wheel for any kind of crack or damage before using. 5. Ensure proper housekeeping after the use of machinery.

3.	Fluid mechanics and Hydraulics Laboratory	1. Students are to be careful for wet floor in the lab. 2. Ensure enough water in tanks before doing the experiment. 3. Water level inside the water related equipment must not rise beyond the safe level. 4. Operate the machines under the supervision of concerned lab staff
4.	Machine Shop	1. No machine shall be left unattended while it is in running. 2. Cleaning, oiling or adjusting any machine shall not be done while the machine is running. 3. Use PPEs wherever necessary 4. Use Aisle marking for movements 5. Proper Housekeeping and cleaning before and after the experiment
5.	Thermal Engineering Laboratory	1. Before operating engine, make sure that there is no fuel or gas leakage. 2. Handle fuels with extreme caution. 3. Make sure that there is no fuel or oil spill on the floor. 4. Operate the machines under the supervision of concerned lab staff
6.	CAD Lab-I	1. All students are instructed to turn OFF the equipment before leaving the lab. 2. All students are instructed to keep the work station clean. 3. Unauthorized users are not permitted in CAD lab.
7.	Heat and Mass Transfer Laboratory	1. All students are instructed not to touch on hot surface. 2. Always monitor the pressure gauge of steam boiler to ensure that pressure does not exceed the allowed limit.

8.	Mechanical Engineering Lab	1. Always keep apparatus free from dust. 2. Do not run the machine below low voltage (Less than 180V) 3. Ensure proper housekeeping after the use of machinery. 4. Ensure the shaft is fixed tightly in the whirling of shaft apparatus before it is switched on 5. Keep away from the rotating parts before it is switched on 6. Do not keep the tools (screw drivers, spanners, Allen keys etc.) in the machines or equipment's after use
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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.	Research & Development Lab
2	Advanced Engine Lab
3	Student Project Lab
4	Daikin 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	570	28	16	0	46
CAYm1	480	24	16	0	53
CAYm2	450	22	15	0	55

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								
Library								
Laboratory equipment								
Teaching and non-teaching staff salary								
Outreach Programs								
R&D								
Training, Placement and Industry linkage								
SDGs								
Entrepreneurship								
Others*, pl. specify								
Total amount								

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 in CFY (till ...)	Budgeted in CFYm1	Actual Expenses in CFYm1	Budgeted in CFYm2	Actual Expenses in CFYm2	Budgeted in CFYm3	Actual Expenses in CFYm3
Laboratory equipment	165000	30981	1112000	1100641	140000	111279	360000	231660
Software	0	0	0	0	0	0	0	0
SDGs	5000	0	5000	5000	0	0	0	0
Support for faculty development	15000	1480	3000	3000	10000	8920	10000	2000
R & D	10000	0	0	0	20000	0	100000	94131
Industrial Training, Industry expert, Internship	428000	327117	437000	431873	315000	306153	385000	270122
Miscellaneous expenses *	317000	235251	250000	246021	230000	211140	550000	541271
Total amount	940000	594829	1807000	1786535	715000	637492	1405000	1139184