

## NATIONAL BOARD OF ACCREDITATION

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

|                                              |                                             |
|----------------------------------------------|---------------------------------------------|
| <b>Program Name :</b> Mechanical Engineering | <b>Discipline:</b> Engineering & Technology |
| <b>Level :</b> Under Graduate                | <b>Tier:</b> 1                              |
| <b>Application No:</b> 11963                 | <b>Date of Submission:</b> 18-06-2026       |

## PART A- Profile of the Institute

|                                                                     |                                      |
|---------------------------------------------------------------------|--------------------------------------|
| <b>A1.Name of the Institute:</b> MALNAD COLLEGE OF ENGINEERING      |                                      |
| Year of Establishment : 1960                                        | Location of the Institute: Hassan    |
| <b>A2. Institute Address:</b> P.B.NO.21 SALAGAME ROAD HASSAN        |                                      |
| City:Hassan                                                         | State:Karnataka                      |
| Pin Code:573201                                                     | Website:WWW.MCEHASSAN.AC.IN          |
| Email:OFFICE@MCEHASSAN.AC.IN                                        | Phone No(with STD Code):08172-245317 |
| <b>A3. Name and Address of the Affiliating University (if any):</b> |                                      |
| Name of the University : VISVESVARYA TECHNOLOGICAL UNIVERSIT        | City: Belgaum                        |
| State : Karnataka                                                   | Pin Code: 590018                     |
| <b>A4. Type of the Institution:</b> Autonomous CAY(2008-09)         |                                      |
| <b>A5. Ownership Status:</b> Government Aided                       |                                      |

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

- No. of UG programs: **13**
- No. of PG programs: **7**

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

| Sr.No. | Discipline               | Level of program | Name of the program                                                           | Year of Start | Year of Closed | Name of The Department                    |
|--------|--------------------------|------------------|-------------------------------------------------------------------------------|---------------|----------------|-------------------------------------------|
| 1      | Computer Application     | PG               | Master of Computer Application                                                | 2025          | --             | Computer Application                      |
| 2      | Engineering & Technology | PG               | Artificial Intelligence and Data Science                                      | 2023          | --             | Computer Science and Engineering          |
| 3      | Engineering & Technology | UG               | Automobile Engineering                                                        | 1982          | 2021           | Automobile Engineering                    |
| 4      | Engineering & Technology | UG               | Civil Engineering                                                             | 1960          | --             | Civil Engineering                         |
| 5      | Engineering & Technology | PG               | Computer Aided Design of Structures                                           | 1993          | --             | Civil Engineering                         |
| 6      | Engineering & Technology | PG               | Computer Application in Industrial Drives                                     | 1994          | 2022           | Electrical and Electronics Engineering    |
| 7      | Engineering & Technology | UG               | Computer Science and Business Systems                                         | 2022          | --             | Computer Science and Engineering          |
| 8      | Engineering & Technology | UG               | Computer Science and Engineering                                              | 1983          | --             | Computer Science and Engineering          |
| 9      | Engineering & Technology | UG               | Computer Science and Engineering (Artificial Intelligence & Machine Learning) | 2022          | --             | Computer Science and Engineering          |
| 10     | Engineering & Technology | PG               | Digital Electronics & Communication Engineering                               | 1986          | --             | Electronics and Communication Engineering |

|    |                          |    |                                                      |      |      |                                           |
|----|--------------------------|----|------------------------------------------------------|------|------|-------------------------------------------|
| 11 | Engineering & Technology | UG | Electrical and Electronics Engineering               | 1960 | --   | Electrical and Electronics Engineering    |
| 12 | Engineering & Technology | UG | Electronics & Communication Engineering              | 1967 | --   | Electronics and Communication Engineering |
| 13 | Engineering & Technology | UG | Electronics & Instrumentation Engineering            | 1984 | 2023 | Electronics and Communication Engineering |
| 14 | Engineering & Technology | UG | Electronics Engineering (VLSI Design and Technology) | 2025 | --   | Electronics and Communication Engineering |
| 15 | Engineering & Technology | UG | Industrial & Production Engineering                  | 1981 | 2021 | Industrial and Production Engineering     |
| 16 | Engineering & Technology | PG | Industrial Automation & Robotics                     | 2004 | 2023 | Mechanical Engineering                    |
| 17 | Engineering & Technology | UG | Information Science & Engineering                    | 2000 | 2025 | Computer Science and Engineering          |
| 18 | Engineering & Technology | UG | Mechanical Engineering                               | 1960 | --   | Mechanical Engineering                    |
| 19 | Engineering & Technology | PG | Power and Energy Systems                             | 2022 | --   | Electrical and Electronics Engineering    |
| 20 | Engineering & Technology | UG | Robotics and Artificial Intelligence                 | 2025 | --   | Robotics and Artificial Intelligence      |

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

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

| Name of the Department                 | Having Allied Departments | Name of the Program                    | Program Level |
|----------------------------------------|---------------------------|----------------------------------------|---------------|
| Electrical and Electronics Engineering | No                        | Electrical and Electronics Engineering | UG            |
| Mechanical Engineering                 | Yes                       | Mechanical Engineering                 | UG            |
| Civil Engineering                      | No                        | Civil 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)

| Allied Department/Cluster Name | Program Name           | Program Level |
|--------------------------------|------------------------|---------------|
| Automobile Engineering         | Automobile Engineering | UG            |

**PART-B: Program information****B1. Provide the Required Information for the Program Applied For:**

Table No. B1: Program details.

A. List of the Programs Offered by the Department:

| SR.NO. | PROGRAM NAME           | PROGRAM APPLIED LEVEL | YEAR OF START / YEAR OF CLOSED | SANCTIONED INTAKE | INCREASE/ DECREASE INTAKE (if any) | YEAR OF INCREASE/ DECREASE | CURRENT INTAKE | YEAR OF AICTE APPROVAL | AICTE/COMPETENT AUTHORITY ARROVAL DETAILS | ACCREDITATION STATUS                                              | FROM | TO   | NO. OF TIMES PROGRAM ACCREDITED | PROGRAM DURATION |
|--------|------------------------|-----------------------|--------------------------------|-------------------|------------------------------------|----------------------------|----------------|------------------------|-------------------------------------------|-------------------------------------------------------------------|------|------|---------------------------------|------------------|
| 1      | Mechanical Engineering | UG                    | 1960 / --                      | 120               | Yes                                | 2023                       | 120            | 2023                   | F.No. South-West/1-36474256504/2023/EOA   | Granted accreditation for 3 years for the period (specify period) | 2023 | 2026 | 4                               | 4                |

| 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 |
|-------------------------------------------------------------------------------------------|--------------|-----------------------|--------------------------------|-------------------|------------------------------------|----------------------------|----------------|------------------------|-------------------------------------------|----------------------|------|----|---------------------------------|------------------|
| <b>Sanctioned Intake for Last Five Years for the Industrial Automation &amp; Robotics</b> |              |                       |                                |                   |                                    |                            |                |                        |                                           |                      |      |    |                                 |                  |
| <b>Academic Year</b>                                                                      |              |                       | <b>Sanctioned Intake</b>       |                   |                                    |                            |                |                        |                                           |                      |      |    |                                 |                  |
| 2025-26                                                                                   |              |                       | 120                            |                   |                                    |                            |                |                        |                                           |                      |      |    |                                 |                  |
| 2024-25                                                                                   |              |                       | 120                            |                   |                                    |                            |                |                        |                                           |                      |      |    |                                 |                  |
| 2023-24                                                                                   |              |                       | 120                            |                   |                                    |                            |                |                        |                                           |                      |      |    |                                 |                  |
| 2022-23                                                                                   |              |                       | 180                            |                   |                                    |                            |                |                        |                                           |                      |      |    |                                 |                  |
| 2021-22                                                                                   |              |                       | 180                            |                   |                                    |                            |                |                        |                                           |                      |      |    |                                 |                  |
| 2020-21                                                                                   |              |                       | 180                            |                   |                                    |                            |                |                        |                                           |                      |      |    |                                 |                  |

List of the Allied Departments/Cluster and Programs:

| SR.NO.                                                                      | ALLIED DEPARTMENT NAME | 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                                                                           | Automobile Engineering | Automobile Engineering | UG                       | 1982 / 2021                    | 50                | Yes                                | 2021                       | 0              | 2021                   | F.No. South-West/1-9320802810/2021/EOA    | Granted accreditation for 3 years for the period (specify period) | 2020 | 2023 | 3                               | 4                |
| <b>Sanctioned Intake for Last Five Years for the Automobile Engineering</b> |                        |                        |                          |                                |                   |                                    |                            |                |                        |                                           |                                                                   |      |      |                                 |                  |
| <b>Academic Year</b>                                                        |                        |                        | <b>Sanctioned Intake</b> |                                |                   |                                    |                            |                |                        |                                           |                                                                   |      |      |                                 |                  |
| 2025-26                                                                     |                        |                        | 0                        |                                |                   |                                    |                            |                |                        |                                           |                                                                   |      |      |                                 |                  |
| 2024-25                                                                     |                        |                        | 0                        |                                |                   |                                    |                            |                |                        |                                           |                                                                   |      |      |                                 |                  |
| 2023-24                                                                     |                        |                        | 0                        |                                |                   |                                    |                            |                |                        |                                           |                                                                   |      |      |                                 |                  |
| 2022-23                                                                     |                        |                        | 0                        |                                |                   |                                    |                            |                |                        |                                           |                                                                   |      |      |                                 |                  |
| 2021-22                                                                     |                        |                        | 0                        |                                |                   |                                    |                            |                |                        |                                           |                                                                   |      |      |                                 |                  |
| 2020-21                                                                     |                        |                        | 60                       |                                |                   |                                    |                            |                |                        |                                           |                                                                   |      |      |                                 |                  |

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

|                           |                   |
|---------------------------|-------------------|
| A. Name of the HoD :      | Dr. EzhilVannan S |
| B. Nature of appointment: | Regular           |
| C. Qualification:         | Ph.D              |

**B3. Program Details**

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

| Item (Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable) | 2025-26 (CAY) | 2024-25 (CAYm1) | 2023-24 (CAYm2) | 2022-23 (CAYm3) | 2021-22 (CAYm4) | 2020-21 (CAYm5) | 2019-20 (CAYm6) |
|---------------------------------------------------------------------------------------------------------------|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| N=Sanctioned intake of the program (as per AICTE /Competent authority)                                        | 120           | 120             | 120             | 180             | 180             | 180             | 180             |

|                                                                                                                                                                              |     |     |     |     |     |     |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|
| 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 | 119 | 96  | 66  | 44  | 82  | 129 | 161 |
| N2=Number of students admitted in 2nd year in the same batch via lateral entry including leftover seats                                                                      | 0   | 34  | 68  | 97  | 60  | 59  | 18  |
| 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   | 6   | 6   | 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.                                      | 119 | 136 | 140 | 141 | 142 | 188 | 179 |

CAY= Current Academic Year. CAYm1= Current Academic Year Minus 1 CAYm2= Current Academic Year Minus 2. LYG= Last Year Graduate. LYGm1= Last Year Graduate Minus 1. LYGm2= Last Year Graduate Minus 2.

B4. Enrolment Ratio in the First Year

Table No. B4.1: Student enrolment ratio in the 1st year.

| Year of entry   | N (From Table 4.1) | N1 (From Table 4.1) | N4 (From Table 4.1) | Enrollment Ratio [(N1/N)*100] |
|-----------------|--------------------|---------------------|---------------------|-------------------------------|
| 2025-26 (CAY)   | 120                | 119                 | 0                   | 99.17                         |
| 2024-25 (CAYm1) | 120                | 96                  | 6                   | 85.00                         |
| 2023-24 (CAYm2) | 120                | 66                  | 6                   | 60.00                         |

Average [ (ER1 + ER2 + ER3) / 3 ] = 81.39≐ 17.00

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

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

| Item                                                                                                                                                                                                                                                                                                          | (2021-22)<br>LYG | (2020-21)<br>LYGm1 | (2019-20)<br>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). | 198.00           | 198.00             | 198.00             |
| B=No. of students who graduated from the program in the stipulated course duration                                                                                                                                                                                                                            | 101.00           | 119.00             | 132.00             |
| Success Rate (SR)= (B/A) * 100                                                                                                                                                                                                                                                                                | 51.01            | 60.10              | 66.67              |

Average SR of three batches ((SR\_1+ SR\_2+ SR\_3)/3): 59.26

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

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

| Academic Performance                                          | CAYm1( 2024-25 ) | CAYm2( 2023-24 ) | CAYm3 ( 2022-23 ) |
|---------------------------------------------------------------|------------------|------------------|-------------------|
| Mean of CGPA or mean percentage of all successful students(X) | 6.05             | 6.28             | 6.60              |
| Y=Total no. of successful students                            | 88.00            | 60.00            | 39.00             |
| Z=Total no. of students appeared in the examination           | 102.00           | 72.00            | 44.00             |
| API [X*(Y/Z)]                                                 | 5.22             | 5.23             | 5.85              |

Average API[ (AP1+AP2+AP3)/3 ] : 5.43

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

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

| Academic Performance                                                                                                                                                   | CAYm1 ( 2024-25 ) | CAYm2 ( 2023-24 ) | CAYm3 ( 2022-23 ) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|-------------------|
| X=(Mean of 2nd year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 2rd year/10) | 5.51              | 6.17              | 5.97              |
| Y=Total no. of successful students                                                                                                                                     | 98.00             | 136.00            | 137.00            |

|                                                     |        |        |        |
|-----------------------------------------------------|--------|--------|--------|
| Z=Total no. of students appeared in the examination | 128.00 | 136.00 | 138.00 |
| API [ X * (Y/Z) ]                                   | 4.22   | 6.17   | 5.93   |

Average API [ (AP1 + AP2 + AP3)/3 ] : 5.44

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

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

| Academic Performance                                                                                                                                                   | CAYm1 (2024-25) | CAYm2 (2023-24) | CAYm3 (2022-23) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| X=(Mean of 3rd year grade point average of all successful students on a 10-point scale) or (Mean of the percentage of marks of all successful students in 3rd year/10) | 5.98            | 6.06            | 6.38            |
| Y=Total no. of successful students                                                                                                                                     | 130.00          | 134.00          | 173.00          |
| Z=Total no. of students appeared in the examination                                                                                                                    | 136.00          | 137.00          | 178.00          |
| API [ X*(Y/Z) ]:                                                                                                                                                       | 5.72            | 5.92            | 6.20            |

Average API [ (AP1 + AP2 + AP3)/3 ] : 5.95

B9. Placement, Higher Studies, and Entrepreneurship

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

| Item                                           | LYG (2021-22) | LYGm1(2020-21) | LYGm2(2019-20) |
|------------------------------------------------|---------------|----------------|----------------|
| FS*=Total no. of final year students           | 198.00        | 198.00         | 198.00         |
| X=No. of students placed                       | 70.00         | 100.00         | 90.00          |
| Y=No. of students admitted to higher studies   | 1.00          | 2.00           | 2.00           |
| Z= No. of students taking up entrepreneurship  | 1.00          | 2.00           | 1.00           |
| Placement Index(P) = (((X + Y + Z)/FS) * 100): | 36.36         | 51.52          | 46.97          |

Average Placement Index = (P\_1 + P\_2 + P\_3)/3: 44.95 Placement Index Points:

PART C: Faculty Details in Department and Allied Departments  
(Data to be filled in for the Department and Allied Departments)

C1. Faculty details of Department and Allied Departments

Table No.C1: Faculty details in the Department for the past 3 years including CAY

| Sr.No | Name of the Faculty | PAN No.    | Highest degree | University           | Area of Specialization                  | Date of Joining in this Institution | Experience in years in current institute | Designation at Time Joining in this Institution | Present Designation | The date on which Designated as Professor/ Associate Professor if any | Nature of Association (Regular/ Contract/ Ad hoc) | Currently Associated (Y/N) | In case of NO, Date of Leaving | IS HOD? |
|-------|---------------------|------------|----------------|----------------------|-----------------------------------------|-------------------------------------|------------------------------------------|-------------------------------------------------|---------------------|-----------------------------------------------------------------------|---------------------------------------------------|----------------------------|--------------------------------|---------|
| 1     | Dr. EzhilVannan S   | XXXXXXX06D | Ph.D           | Bangalore University | Manufacturing Science & Engineering     | 25/05/2018                          | 8                                        | Professor                                       | Professor           | 25/05/2018                                                            | Regular                                           | Yes                        |                                | Yes     |
| 2     | Dr. S. Pradeep      | XXXXXXX06A | Ph.D           | IIT Roorkee          | Materials and Manufacturing Engineering | 05/09/1994                          | 31.9                                     | Lecturer                                        | Professor           | 02/02/2015                                                            | Regular                                           | Yes                        |                                | No      |
| 3     | Dr.Amarendra H. J.  | XXXXXXX61F | Ph.D           | IIT Roorkee          | Materials and Manufacturing Engineering | 03/01/1994                          | 32.5                                     | Lecturer                                        | Professor           | 10/05/2017                                                            | Regular                                           | Yes                        |                                | No      |

|    |                           |            |        |                                                   |                                                              |            |       |                     |                     |            |         |     |            |    |
|----|---------------------------|------------|--------|---------------------------------------------------|--------------------------------------------------------------|------------|-------|---------------------|---------------------|------------|---------|-----|------------|----|
| 4  | Mr. Sreerajendra          | XXXXXXX99G | M.Tech | Mysore                                            | Automation                                                   | 17/08/1988 | 36.3  | Lecturer            | Associate Professor | 24/10/2011 | Regular | No  | 30/11/2024 | No |
| 5  | Dr. Hareesh M             | XXXXXXX54D | Ph.D   | Dayanandasagar University<br>Bengaluru            | Thermal Engineering                                          | 24/08/2011 | 14.9  | Assistant Professor | Associate Professor | 31/12/2025 | Regular | Yes |            | No |
| 6  | Dr. K. R. Dushyanthkumar  | XXXXXXX86R | Ph.D   | Visvesvaraya technological university<br>Belagavi | Production Engineering                                       | 20/02/1991 | 34.5  | Lecturer            | Professor           | 03/02/2025 | Regular | No  | 31/07/2025 | No |
| 7  | Dr. Jeevan T.P            | XXXXXXX12J | Ph.D   | Visvesvaraya technological university<br>Belagavi | Manufacturing Engineering                                    | 02/09/2011 | 14.9  | Lecturer            | Associate Professor | 27/02/2020 | Regular | Yes |            | No |
| 8  | Mr. Vijaya Kumar G Tile   | XXXXXXX42H | M.Tech | Visvesvaraya technological university<br>Belagavi | Thermal Engineering                                          | 16/10/2006 | 19.8  | Assistant Professor | Assistant Professor |            | Regular | Yes |            | No |
| 9  | Dr.M.G.Vasundhara         | XXXXXXX20N | Ph.D   | Anna University                                   | Design Engineering                                           | 17/06/2011 | 15    | Assistant Professor | Associate Professor | 31/12/2025 | Regular | Yes |            | No |
| 10 | Dr. Satish V.T.           | XXXXXXX26J | Ph.D   | Anna University                                   | Maintenance Engineering, composites                          | 23/12/2014 | 11.5  | Assistant Professor | Assistant Professor |            | Regular | Yes |            | No |
| 11 | Dr. B.S Shivashankar      | XXXXXXX78R | Ph.D   | Visvesvaraya technological university<br>Belagavi | Automation                                                   | 03/08/2010 | 15.10 | Lecturer            | Associate Professor | 03/09/2024 | Regular | Yes |            | No |
| 12 | Dr. RaghavendraRao R      | XXXXXXX09F | Ph.D   | Visvesvaraya technological university<br>Belagavi | Thermal Engineering, Materials and Manufacturing Engineering | 25/08/2010 | 15.9  | Lecturer            | Associate Professor | 03/09/2024 | Regular | Yes |            | No |
| 13 | Mr. Shambulingamurthy G.C | XXXXXXX04B | M.E.   | Bangalore University                              | Thermal Engineering                                          | 12/01/2015 | 11.5  | Assistant Professor | Assistant Professor |            | Regular | Yes |            | No |
| 14 | Dr. Mahesh Kumar V        | XXXXXXX38R | Ph.D   | Visvesvaraya technological university<br>Belagavi | Design Engineering                                           | 20/08/2013 | 12.10 | Assistant Professor | Associate Professor | 09/05/2025 | Regular | Yes |            | No |
| 15 | Dr. P.Madhu               | XXXXXXX36B | Ph.D   | Visvesvaraya technological university<br>Belagavi | Materials and Manufacturing Engineering                      | 21/08/2013 | 12.9  | Assistant Professor | Associate Professor | 24/09/2024 | Regular | Yes |            | No |
| 16 | Dr. Pradeep D. G.         | XXXXXXX89P | Ph.D   | Visvesvaraya technological university<br>Belagavi | Materials and Manufacturing Engineering                      | 07/09/2013 | 12.9  | Assistant Professor | Associate Professor | 09/05/2025 | Regular | Yes |            | No |
| 17 | Dr. Sharath B.N           | XXXXXXX64N | Ph.D   | Visvesvaraya technological university<br>Belagavi | Materials and Manufacturing Engineering                      | 21/08/2015 | 10.9  | Assistant Professor | Associate Professor | 09/05/2025 | Regular | Yes |            | No |

|    |                        |            |                     |                                                       |                                         |            |       |                     |                     |            |         |     |               |
|----|------------------------|------------|---------------------|-------------------------------------------------------|-----------------------------------------|------------|-------|---------------------|---------------------|------------|---------|-----|---------------|
| 18 | Dr. Madhu K.S          | XXXXXXX78K | Ph.D                | Visvesvaraya technological university Belagavi        | Design                                  | 22/08/2015 | 10.9  | Assistant Professor | Associate Professor | 09/05/2025 | Regular | Yes | No            |
| 19 | Dr. Ashrith H.S.       | XXXXXXX93R | Ph.D                | NITK Suratkal                                         | Materials and Manufacturing Engineering | 21/08/2019 | 6.9   | Assistant Professor | Associate Professor | 05/01/2026 | Regular | Yes | No            |
| 20 | Dr. Shashanklingappa   | XXXXXXX19C | Ph.D                | Visvesvaraya technological university Belagavi        | Materials and Manufacturing Engineering | 03/09/2019 | 6.9   | Assistant Professor | Assistant Professor |            | Regular | Yes | No            |
| 21 | Dr. H.V.Divya          | XXXXXXX97R | Ph.D                | Visvesvaraya technological university Belagavi        | Materials and Manufacturing Engineering | 01/09/2010 | 15.9  | Lecturer            | Associate Professor | 03/09/2024 | Regular | Yes | No            |
| 22 | Mr. PremKumar B.G      | XXXXXXX32J | M.Tech              | Visvesvaraya technological university Belagavi        | Design                                  | 20/08/2015 | 10.10 | Assistant Professor | Assistant Professor |            | Regular | Yes | No            |
| 23 | Mr. Dileep K.J.        | XXXXXXX82R | M.Tech              | Visvesvaraya technological university Belagavi        | Thermal Engineering                     | 01/03/2019 | 7.3   | Assistant Professor | Assistant Professor |            | Regular | Yes | No            |
| 24 | Dr. LaxmanaNaik L      | XXXXXXX11C | Ph.D                | Jain University                                       | Materials and Manufacturing Engineering | 13/03/1996 | 29.4  | Lecturer            | Professor           | 25/09/2019 | Regular | No  | 31/07/2025 No |
| 25 | Mr. M.S. Prathap       | XXXXXXX70C | M.Tech              | Visvesvaraya technological university Belagavi        | Materials and Manufacturing Engineering | 22/08/2013 | 12.9  | Assistant Professor | Assistant Professor |            | Regular | Yes | No            |
| 26 | Mr. Sharath H.K        | XXXXXXX76H | M.Tech              | Visvesvaraya technological university Belagavi        | Industrial Automation and Robotics      | 21/08/2013 | 12.9  | Assistant Professor | Assistant Professor |            | Regular | Yes | No            |
| 27 | Dr. Yashas Gowda T.G.  | XXXXXXX91J | Ph.D                | King Mongkut's University of Technology North Bangkok | Machine Design                          | 31/01/2017 | 9.4   | Assistant Professor | Assistant Professor |            | Regular | Yes | No            |
| 28 | Manjunath Ichchangi    | XXXXXXX89R | M.Tech              | Visvesvaraya technological university Belagavi        | Thermal Engineering                     | 06/08/2025 | 0.10  | Assistant Professor | Assistant Professor |            | Regular | Yes | No            |
| 29 | Dr. B Yogesha          | XXXXXXX25D | Ph.D                | IIT Madras                                            | Material science                        | 23/11/1988 | 34.6  | Lecturer            | Professor           | 01/09/2006 | Regular | No  | 31/05/2023 No |
| 30 | Mr. G.C.Gopalakrishna  | XXXXXXX02P | M.Tech              | KSOU Mysore                                           | Thermal Engineering                     | 05/10/1990 | 35.8  | Lecturer            | Associate Professor | 05/10/2004 | Regular | Yes | No            |
| 31 | Mr. S.L.Dinesh         | XXXXXXX27A | M.Sc. (Engineering) | Mysore                                                | Tribology                               | 25/09/1991 | 34.8  | Lecturer            | Associate Professor | 26/09/2005 | Regular | No  | 30/05/2026 No |
| 32 | Mr. B N Prasanna Kumar | XXXXXXX72A | M.Sc. (Engineering) | Mysore                                                | Production Engineering                  | 09/04/1990 | 36.2  | Lecturer            | Associate Professor | 31/07/2020 | Regular | Yes | No            |

|    |                    |            |                        |                                                         |                              |            |      |          |                        |            |         |     |  |    |
|----|--------------------|------------|------------------------|---------------------------------------------------------|------------------------------|------------|------|----------|------------------------|------------|---------|-----|--|----|
| 33 | Mr. S.S. Mahesh    | XXXXXXX70E | M.Sc.<br>(Engineering) | Visvesvaraya<br>technological<br>university<br>Belagavi | Production<br>Engineering    | 20/09/1993 | 32.9 | Lecturer | Associate<br>Professor | 27/08/2007 | Regular | Yes |  | No |
| 34 | Mr. Ravikiran D.N. | XXXXXXX47B | M.Sc.<br>(Engineering) | Visvesvaraya<br>technological<br>university<br>Belagavi | Manufacturing<br>Engineering | 06/02/2011 | 15.4 | Lecturer | Assistant<br>Professor |            | Regular | Yes |  | No |

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

| Sr.No | 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) | Currently Associated (Y/N) | In case of NO, Date of Leaving | IS HOD? |
|-------|---------------------|------------|---------------------------|------------------------|------------------------------------------------|-------------------------|-------------------------------------|------------------------------------------|-------------------------------------------------|---------------------|-----------------------------------------------------------------------|---------------------------------------------------|----------------------------|--------------------------------|---------|
| 1     | R. Vijay            | XXXXXXX74K | NA                        | M.Tech                 | Visvesvaraya technological university Belagavi | Thermal                 | 25/08/2008                          | 16.7                                     | Assistant Professor                             | Assistant Professor |                                                                       | Regular                                           | No                         | 09/04/2025                     | No      |
| 2     | Dr. M k Ravishankar | XXXXXXX66N | NA                        | Ph.D                   | IIT Madras                                     | Maintenance Engineering | 12/04/1997                          | 26.5                                     | Assistant Professor                             | Professor           | 14/05/2015                                                            | Regular                                           | No                         | 11/09/2023                     | No      |
| 3     | Dr. A N Basavaraju  | XXXXXXX40N | NA                        | Ph.D                   | Visvesvaraya technological university Belagavi | Production Engineering  | 15/09/1997                          | 26                                       | Assistant Professor                             | Professor           | 06/01/2017                                                            | Regular                                           | No                         | 11/09/2023                     | Yes     |
| 4     | Dr. Y M Shashidhara | XXXXXXX96Q | NA                        | Ph.D                   | Visvesvaraya technological university Belagavi | Maintenance Engineering | 15/04/1997                          | 26.5                                     | Assistant Professor                             | Professor           | 18/05/2015                                                            | Regular                                           | No                         | 11/09/2023                     | No      |
| 5     | Dr. K P Ravikumar   | XXXXXXX24E | NA                        | Ph.D                   | Visvesvaraya technological university Belagavi | Automobile Engineering  | 01/09/2005                          | 18                                       | Assistant Professor                             | Professor           | 18/05/2015                                                            | Regular                                           | No                         | 11/09/2023                     | No      |
| 6     | Mr. H S Lokesh      | XXXXXXX14G | NA                        | M.Sc.<br>(Engineering) | Visvesvaraya technological university Belagavi | FEM                     | 01/09/2005                          | 18                                       | Assistant Professor                             | Assistant Professor |                                                                       | Regular                                           | No                         | 11/09/2023                     | No      |

**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(2025-26)       | CAYm1 (2024-25)    | CAYm2 (2023-24)    |
|-------------------------------------------------------------------------------------|--------------------|--------------------|--------------------|
| UG1.B                                                                               | 132                | 132                | 198                |
| UG1.C                                                                               | 132                | 198                | 198                |
| UG1.D                                                                               | 198                | 198                | 198                |
| <b>UG1: Mechanical Engineering</b>                                                  | <b>462</b>         | <b>528</b>         | <b>594</b>         |
| UG2.B                                                                               | 0                  | 0                  | 0                  |
| UG2.C                                                                               | 0                  | 0                  | 0                  |
| UG2.D                                                                               | 0                  | 0                  | 66                 |
| <b>UG2: Automobile Engineering</b>                                                  | <b>0</b>           | <b>0</b>           | <b>66</b>          |
| PG1.A                                                                               | 0                  | 0                  | 0                  |
| PG1.B                                                                               | 0                  | 0                  | 18                 |
| <b>PG1: Industrial Automation &amp; Robotics</b>                                    | <b>0</b>           | <b>0</b>           | <b>18</b>          |
| DS=Total no. of students in all UG and PG programs in the Department                | 462                | 528                | 612                |
| AS=Total no. of students of all UG and PG programs in allied departments            | 0                  | 0                  | 66                 |
| S=Total no. of students in the Department (DS) and allied departments (AS)          | <b>S1= 462</b>     | <b>S2= 528</b>     | <b>S3= 678</b>     |
| DF=Total no. of faculty members in the Department                                   | 30                 | 31                 | 32                 |
| AF= Total no. of faculty members in the allied Departments                          | 0                  | 0                  | 1                  |
| F=Total no. of faculty members in the Department (DF) and allied Departments (AF)   | <b>F1= 30</b>      | <b>F2= 31</b>      | <b>F3= 33</b>      |
| FF=The faculty members in F who have a 100% teaching load in the first-year courses | 4                  | 4                  | 5                  |
| Student Faculty Ratio (SFR)=S/(F-FF)                                                | <b>SFR1= 17.77</b> | <b>SFR2= 19.56</b> | <b>SFR3= 24.21</b> |
| Average SFR for 3 years                                                             | <b>SFR= 20.51</b>  |                    |                    |

### C3. Faculty Qualification

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

Table No.C3.1: Faculty qualification.

| Year           | X  | Y  | RF    | FQ = $2.5 \times [(10X + 4Y) / RF]$ |
|----------------|----|----|-------|-------------------------------------|
| 2025-26(CAY)   | 17 | 13 | 23.00 | 24.13                               |
| 2024-25(CAYm1) | 18 | 13 | 26.00 | 22.31                               |
| 2023-24(CAYm2) | 18 | 15 | 33.00 | 18.18                               |

**C4. Faculty Cadre Proportion**

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

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

| Year    | Professors   |               | Associate Professors |               | Assistant Professors |               |
|---------|--------------|---------------|----------------------|---------------|----------------------|---------------|
|         | Required RF1 | Available AF1 | Required RF2         | Available AF1 | Required RF3         | Available AF3 |
| 2025-26 | 3.00         | 3.00          | 5.00                 | 9.00          | 15.00                | 18.00         |
| 2024-25 | 3.00         | 4.00          | 6.00                 | 2.00          | 18.00                | 25.00         |
| 2023-24 | 4.00         | 4.00          | 8.00                 | 2.00          | 23.00                | 27.00         |
| Average | RF1=3.33     | AF1=3.67      | RF2=6.33             | AF2=4.33      | RF2=18.67            | AF2=23.33     |

**C5. Visiting/Adjunct Faculty/Professor of Practice**

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

(CAYm1)

(CAYm2)

(CAYm3)

**C6. Academic Research**

Table No. C6.1: Faculty publication details.

| S.No. | Item                                             | 2024-25<br>(CAYm1) | 2023-24<br>(CAYm2) | 2022-23<br>(CAYm3) |
|-------|--------------------------------------------------|--------------------|--------------------|--------------------|
| 1     | No. of peer reviewed journal papers published    | 37                 | 26                 | 20                 |
| 2     | No. of peer reviewed conference papers published | 4                  | 1                  | 1                  |
| 3     | No. of books/book chapters published             | 13                 | 5                  | 5                  |

**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)<br>i.e. 15,25,000=15.25 |
|-------------------------|--------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------------|--------------------------------------|
| Dr. Shashank Lingappa M | Hithali Dinesh, Bhoomika B K, Shashank M N | Mechanical Engineering                         | Development of 3D Printed Non- Conventional Orthopedic Implants and Testing it is Real Life Conditions | New-age-innovation-network-2.0-(NAIN-2.0) | 1 Year                  | 2.00                                 |
|                         |                                            |                                                |                                                                                                        |                                           |                         | Amount received (Rs.):2.00           |

(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)<br>i.e. 15,25,000=15.25 |
|---------|--------------------|------------------------------------------------|----------------|----------------------------|-------------------------|--------------------------------------|
| -       | -                  | -                                              | -              | -                          | -                       | 0.00                                 |
|         |                    |                                                |                |                            |                         | Amount received (Rs.):0.00           |

(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)<br>i.e. 15,25,000=15.25 |
|---------|--------------------|------------------------------------------------|----------------|----------------------------|-------------------------|--------------------------------------|
| -       | -                  | -                                              | -              | -                          | -                       | 0.00                                 |
|         |                    |                                                |                |                            |                         | Amount received (Rs.):0.00           |

**Total Amount (Lacs) Received for the Past 3 Years: 2.00****Note\*:**

- Only sponsored research projects will be considered. Infrastructure-based projects will not be considered here.

**C8. Consultancy Work**

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

(CAYm1)

| PI Name | Co-PI names if any | Name of the Dept., where project is sanctioned | Project Title* | Name of the Funding agency | Duration of the project | Amount(Lacs)<br>i.e. 15,25,000=15.25 |
|---------|--------------------|------------------------------------------------|----------------|----------------------------|-------------------------|--------------------------------------|
| -       | -                  | -                                              | -              | -                          | -                       | 0.00                                 |
|         |                    |                                                |                |                            |                         | Amount received (Rs.):0.00           |

(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)<br>i.e. 15,25,000=15.25 |
|---------|--------------------|------------------------------------------------|----------------|----------------------------|-------------------------|--------------------------------------|
| -       | -                  | -                                              | -              | -                          | -                       | 0.00                                 |
|         |                    |                                                |                |                            |                         | Amount received (Rs.):0.00           |

(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)<br>i.e. 15,25,000=15.25 |
|---------|--------------------|------------------------------------------------|----------------|----------------------------|-------------------------|--------------------------------------|
| -       | -                  | -                                              | -              | -                          | -                       | 0.00                                 |
|         |                    |                                                |                |                            |                         | Amount received (Rs.):0.00           |

**Total amount (Lacs) received for the past 3 years: 0.00****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)<br>i.e. 15,25,000=15.25 | Amount Utilized(Lacs)<br>i.e. 15,25,000=15.25 | Outcomes of the project |
|--------------|-------------------------------------|-------------------------|--------------------------------------|-----------------------------------------------|-------------------------|
| -            | -                                   | -                       | 0.00                                 | 0.00                                          | -                       |
|              |                                     |                         | Amount received (Rs.): 0.00          |                                               |                         |

(CAYm2)

| Faculty name | Project title/ Support for Activity | Duration of the project | Amount(Lacs)<br>i.e. 15,25,000=15.25 | Amount Utilized(Lacs)<br>i.e. 15,25,000=15.25 | Outcomes of the project |
|--------------|-------------------------------------|-------------------------|--------------------------------------|-----------------------------------------------|-------------------------|
| -            | -                                   | -                       | 0.00                                 | 0.00                                          | -                       |
|              |                                     |                         | Amount received (Rs.): 0.00          |                                               |                         |

(CAYm3)

| Faculty name | Project title/ Support for Activity | Duration of the project | Amount(Lacs)<br>i.e. 15,25,000=15.25 | Amount Utilized(Lacs)<br>i.e. 15,25,000=15.25 | Outcomes of the project |
|--------------|-------------------------------------|-------------------------|--------------------------------------|-----------------------------------------------|-------------------------|
| -            | -                                   | -                       | 0.00                                 | 0.00                                          | -                       |
|              |                                     |                         | Amount received (Rs.): 0.00          |                                               |                         |

Total amount (Lacs) received for the past 3 years : 0.00

## 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      | Computer aided drafting and modeling Lab                                       | 40                                        | Computer with suitable graphic facility of 60 No's                                                           | 30Hrs                                                                    | Mr. Thilak D. K. Mr. Pra    | Instructor Mechanic Mech  | B. E ITI Diploma B.E    |
| 2      | Welding & Sheet metal                                                          | 12                                        | 1. Arc Welding m/c 2. Gas Welding Setup (Oxy-Acetylene) 3. Tool gauge 47 1/2" 4. Surface gauge               | 30 Hrs.                                                                  | Mr. Cheluvraj               | Helper                    | 7th STD                 |
| 3      | Foundry & Forging Lab                                                          | 12                                        | 1. Mould boxes 2. Standard Rammer m/c. 3. Foundry tool 4. Anvils. 5. Swage block. 6.                         | 30 Hrs                                                                   | Mr. Ganganna Mr. Puttar     | Asst. instructor Mechanic | B.Sc. S.S.L.C           |
| 4      | Material testing Lab                                                           | 12                                        | 1. Surface Roughness Tester. 2. Sine Bar and Slip Gauge. 3. Bore Gauge. 4. Thread Gauge. 5.                  | 30 Hrs                                                                   | Mr. Shankar V. V Mr.Puni    | Instructor Mechanic Help  | I.T.I (ME) Diploma (ME) |
| 5      | Metrology and Metallurgy Lab.                                                  | 12                                        | 1. Surface Roughness Tester. 2. Sine Bar and Slip Gauge. 3. Bore Gauge. 4. Thread Gauge. 5.                  | 30 Hrs                                                                   | Mr. Shankar V. V Mr.Puni    | Instructor Mechanic Help  | I.T.I (ME) Diploma (ME) |
| 6      | Fluid Mechanics & Hydraulic Machines Lab. (Shared with Civil Engg. department) | 12                                        | 1. Orificemeter test set up. 2. Venturimeter test set up. 3. Losses in pipe test set up. 4. Centrifugal pump | 30 Hrs                                                                   | Mr. Girisha B.S             | Helper                    | I.T.I (ME)              |

|    |                                      |    |                                                                                                                                                                   |        |                                                                                   |
|----|--------------------------------------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------|
| 7  | Machine shop                         | 12 | 1. Lathes (32 Nos) 2. Horizontal & Vertical milling machine. 3. Universal tool and cutter grinder 4. Planer machine 5. Shaper machine 6. Slotting machine         | 30 Hrs | Mr. H.R. Shivakumar Mr. Asst. Instructor Asst. Inst I.T.I (ME) . I.T.I (ME) I.T.I |
| 8  | Heat transfer Lab                    | 12 | 1. Apparatus for measurement of Thermal Conductivity of Metal Rod. 2. Apparatus for Thermal Conductivity of Insulating slab 3. Apparatus for measurement of heat  | 30 Hrs | Mr. Hareesh D.N Mrs. K. Asst. Instructor Mechanic I.T.I (ME) Diploma (ME)         |
| 9  | Energy conversion Lab.               | 12 | 1. Air or Steam pressure turbine model 1no. 2. Cut section model of 4 stroke petrol engine. 3. Single cylinder 4 stroke diesel engine Asst. Inst. with mechanical | 30 Hrs | Mr. Hareesh D.N Mr.Hai Asst. Instructor Helper I.T.I (ME) S.S.L.C                 |
| 10 | Design Lab                           | 12 | 1. Universal Governor Apparatus. 2. Motorized Gyroscope. 3. Journal Bearing. 4. Polariscope 5. Weibull's fabricator                                               | 30 Hrs | Mr. Shankar V. V Mr. Sid Instructor Instructor I.T.I (ME) I.T.I (ME)              |
| 11 | Computer aided drafting and analysis | 12 | 1. Computers (50 Nos) 2. Ansysis software.                                                                                                                        | 30 Hrs | Mr. N. Dinesh Kumar Mr. Foreman Asst. Instructor Diploma (ME) I.T.I (ME)          |
| 12 | Hydraulics and pneumatics            | 12 | 1. Festo pneumatic kit 2. Compressor 3. Control valves                                                                                                            | 30 Hrs | Mr. N. Dinesh Kumar Mr. Foreman Asst. Instructor Diploma (ME) I.T.I (ME)          |
| 13 | CNC Lab                              | 12 | 1. CNC Lathe 2. CNC Milling 3. CNC turning                                                                                                                        | 30 Hrs | Mr. Girisha B.S Mr.Punith Helper Mechanic I.T.I (ME) Diploma (ME)                 |

D2. Safety Measures in Laboratories

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

| Sr. No | Laboratory Name       | Safety Measures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Sheet metal & welding | Wear Personal Protective Equipment (PPE): Always wear appropriate PPE, such as safety goggles, gloves, and ear protection, when working with tools or machinery. It is also essential to wear appropriate clothing, such as long pants and sturdy shoes, to protect against cuts and burns. Follow Equipment and Tool Safety Guidelines: Always read and follow the safety guidelines provided by the manufacturer for each tool and equipment used. Make sure to use equipment only for its intended purpose and use it correctly. Keep the Workshop Clean and Tidy: A clean and organized workshop is essential for safety. Keep the floor free from clutter and debris and store tools and equipment in their designated areas. It is also important to keep work surfaces clean and dry to prevent slips and falls. Keep Emergency Equipment Handy: Ensure that there is easy access to emergency equipment such as fire extinguishers, first aid kits, and eye wash stations. Make sure that all personnel in the workshop are aware of the location and proper use of this equipment. Never Work Alone: When working in a workshop, it is essential to work with someone else in case of an emergency. It is also important to communicate with your co-worker to prevent accidents from occurring. Be Aware of Your Surroundings: Always be aware of your surroundings and potential hazards. Avoid distractions, such as mobile phones, and be mindful of others working in the workshop. Proper Maintenance and Inspection of Tools and Equipment: Ensure that tools and equipment are well-maintained and inspected regularly to prevent equipment failure, which can cause accidents and injuries. |
| 2      | Foundry and forging   | Proper Ventilation: Proper ventilation is critical to prevent the build-up of harmful gases and fumes in the foundry or forging lab. Ensure that the workspace is well-ventilated and that ventilation systems are functioning correctly. Safe Handling of Hot Materials: When handling hot materials, use appropriate tools and equipment, such as tongs, to avoid burns or other injuries. Do not touch hot materials with bare hands or expose any body parts to heat. Keep Emergency Equipment Handy: Ensure that there is easy access to emergency equipment such as fire extinguishers, first aid kits, and eye wash stations. Make sure that all personnel in the foundry and forging lab are aware of the location and proper use of this equipment. Never Work Alone: When working in a foundry or forging lab, it is essential to work with someone else in case of an emergency. It is also important to communicate with your coworker to prevent accidents from occurring. Proper Storage and Handling of Flammable Materials: Flammable materials such as gas, oil, and alcohol should be stored in designated areas and handled with care to prevent fires and explosions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 3      | Material testing Lab  | Follow Equipment and Tool Safety Guidelines: Always read and follow the safety guidelines provided by the manufacturer for each tool and equipment used. Make sure to use equipment only for its intended purpose and use it correctly. Keep the Workspace Clean and Tidy: A clean and organized workspace is essential for safety. Keep the floor free from clutter and debris, and store tools and equipment in their designated areas. Safe Handling of Materials: When handling materials, use appropriate tools and equipment, such as tongs or gloves, to avoid cuts or other injuries. Use caution when handling sharp or heavy materials.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

|    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4  | Fluid mechanics and machines                               | Proper Operation and Maintenance of Machines: Machines should be operated and maintained according to the manufacturer's instructions to ensure safe use. Make sure to inspect machines regularly for wear or damage and perform maintenance as necessary. Safe Handling of Fluids: When handling fluids, use appropriate tools and equipment, such as gloves or spill containment materials, to avoid spills or other accidents. Use caution when handling hot or pressurized fluids. Follow Equipment and Tool Safety Guidelines: Always read and follow the safety guidelines provided by the manufacturer for each tool and equipment used. Make sure to use equipment only for its intended purpose and use it correctly.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5  | Computer aided drafting and modelling Lab/ CAM and CAE Lab | Ensure Proper Electrical Safety: CAD/CAM and CAE labs rely heavily on computer hardware, making it crucial to ensure proper electrical safety. Electrical equipment should be inspected regularly for damage, and all electrical cords and cables should be in good condition. Ensure that electrical outlets are not overloaded, and that power strips and surge protectors are used correctly. Use Ergonomic Workstations: Proper ergonomics are essential to prevent repetitive strain injuries such as carpal tunnel syndrome. Ensure that workstations are adjustable to accommodate different users and that they are set up correctly. Follow Computer Safety Guidelines: Always follow the manufacturer's guidelines for computer hardware and software used in the lab. Install and maintain antivirus software, and never download or install software without approval from lab management. Keep the Workspace Clean and Tidy: A clean and organized workspace is essential for safety. Keep the floor free from clutter and debris, and store tools and equipment in their designated areas. Ensure Proper Ventilation: Proper ventilation is important to prevent eye strain, headaches, and other health problems associated with prolonged computer use. Ensure that the workspace is well-ventilated and that ventilation systems are functioning correctly. Proper Handling and Storage of Data: Data should be stored in designated areas and handled with care to prevent loss or theft. Follow proper security and backup guidelines for each computer system. Leave the footwear outside the lab. Shut down computers after use. Shut down the power supply. |
| 6  | Machine shop                                               | Wear Appropriate Personal Protective Equipment (PPE): Always wear appropriate PPE, such as safety goggles, gloves, and lab coats, when working in a machine shop lab. Additional PPE, such as hearing protection or face shields, may be required for specific machines or tests. Follow Equipment and Tool Safety Guidelines: Always read and follow the safety guidelines provided by the manufacturer for each tool and equipment used. Make sure to use equipment only for its intended purpose and use it correctly. Keep the Workspace Clean and Tidy: A clean and organized workspace is essential for safety. Keep the floor free from clutter and debris, and store tools and equipment in their designated areas. Safe Handling of Materials: When handling materials, use appropriate tools and equipment, such as gloves or spill containment materials, to avoid spills or other accidents. Use caution when handling sharp or heavy materials. Proper Operation and Maintenance of Machines: Machines should be operated and maintained according to the manufacturer's instructions to ensure safe use. Make sure to inspect machines regularly for wear or damage and perform maintenance as necessary.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 7  | Metrology Lab                                              | Proper Handling and Use of Measuring Equipment: Measuring equipment should be handled and used correctly to ensure accurate readings and to prevent damage to the equipment. Follow the manufacturer's guidelines for each measuring tool and instrument used. Proper Calibration and Maintenance of Measuring Equipment: Measuring equipment should be calibrated and maintained according to the manufacturer's instructions to ensure accurate readings and safe use. Make sure to inspect measuring equipment regularly for wear or damage and perform maintenance as necessary. Leave the footwear outside the lab. Handle gauges and instruments with care. Do not tamper the instrument. Do not run, shout and knock inside the lab. Do not start the experiment without instruction.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 8  | Design Lab                                                 | Proper Handling and Use of Equipment and Materials: Equipment and materials should be handled and used correctly to ensure safe use and to prevent damage to the equipment. Follow the manufacturer's guidelines for each equipment and material used. Safe Handling of Materials: When handling materials, use appropriate tools and equipment, such as gloves or spill containment materials, to avoid spills or other accidents. Use caution when handling sharp or heavy materials. Proper Maintenance of Equipment: Equipment should be maintained according to the manufacturer's instructions to ensure safe use. Make sure to inspect equipment regularly for wear or damage and perform maintenance as necessary.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 9  | Heat transfer and Energy conversion Lab                    | 1. Do not operate the equipment beyond 150 volts. Before switching on the unit makes sure that the Variance is in Zero position. Operate thermocouple selector switch (TSS) gently. Operate the unit at least twice in a week. Fill up the water in small water container and adjust the flow rate before starting the experiment. Change the container water regularly.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 10 | Energy conversion Lab                                      | 2. Do not operate the equipment beyond 150 Volts. Before switching on the unit makes sure that the Variance is in Zero position. Operate the unit at least twice in a week.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

|    |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11 | Hydraulics and pneumatics Lab | Before switching on the unit make sure that the Variance is in Zero position. Operate the unit at least twice in a week. Proper Handling and Use of Equipment and Materials: Equipment and materials should be handled and used correctly to ensure safe use and to prevent damage to the equipment. Follow the manufacturer's guidelines for each equipment and material used. Keep the Workspace Clean and Tidy: A clean and organized workspace is essential for safety. Keep the floor free from clutter and debris, and store tools and equipment in their designated areas. Proper Ventilation: Proper ventilation is critical to prevent the buildup of harmful gases and fumes in the hydraulics and pneumatics lab. Ensure that the workspace is well-ventilated and that ventilation systems are functioning correctly. Safe Handling of Materials: When handling materials, use appropriate tools and equipment, such as gloves or spill containment materials, to avoid spills or other accidents. Use caution when handling hot or pressurized materials. Follow Lockout/Tagout Procedures: Before servicing or maintaining equipment, follow lockout/tagout procedures to ensure the equipment is shut off and locked out to prevent accidental activation. |
| 12 | CNC Lab                       | Proper Training and Authorization: Only trained and authorized personnel should operate CNC machines. Users must understand machine controls, emergency procedures, and programming basics before operation. Use of Personal Protective Equipment (PPE): Always wear safety glasses, protective footwear, and appropriate clothing. Avoid loose garments, jewelry, and tie back long hair to prevent entanglement. Machine Guarding and Safety Devices: Ensure all guards, shields, and interlocks are in place and functioning. Never bypass safety mechanisms or operate machines with open enclosures. Emergency Stop and Safe Operation Practices: Be familiar with emergency stop buttons and keep them accessible. Stop the machine immediately in case of abnormal noise, vibration, or malfunction. Work Area Cleanliness and Maintenance Keep the CNC lab clean and free of oil spills, chips, and clutter.                                                                                                                                                                                                                                                                                                                                                      |

**D3. Project Laboratory/Research Laboratory**

The primary purpose of the project laboratory in our Mechanical Engineering Department is to provide the space and resource needed by students to complete their main project and mini projects work. The laboratory also serves as meeting location for group of students working on team projects. Most of the students are utilized this project laboratory to work on supplemental learning projects to enhance their understanding of class and lab assignment. This project laboratory is utilized by third year fifth and six semester and fourth year, seven and eight semester students and research persons.

| SI NO. | Name of the Facility       | Name of the Equipment's/ Software                                                                                                                                                                                                                                                                                                                                                                                                                                               | Purpose               | Lab In-charge   | Qualification |
|--------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------|---------------|
| 1      | <b>Project Lab</b>         | 1. Welding M/C<br>2. Lathe M/C<br>3. Shaper M/C<br>4. Milling M/C<br>5. Drilling M/C<br>6. Grinding M/C<br>7. Lathe tool dynamometer                                                                                                                                                                                                                                                                                                                                            | UG & Research Project | Dr. Sharath B.N | Ph. D         |
| 2      | <b>Research laboratory</b> | 1. Domestic Microwave Oven<br>2. Ultrasonic probe sonicator<br>3. Tool makers microscope<br>4. Pin-on-disc wear test rig<br>5. Coordinate-measuring machine (CMM)<br>6. Diamond cutter- Low speed saw<br>7. Polishing machine: single disc & triple disc<br>8. Slurry jet erosion test rig<br>9. Electric muffle Furnace<br>10. 3D printer<br>11. Induction Furnace<br>12. Rockwell Hardness Testing M/C<br>13. Surface roughness measuring Device<br>14. Infrared rays heating | UG & Research Project | Dr. Sharath B.N | Ph.D          |

#### Centre of Excellence

|   |                          |                           |                                                           |    |                       |       |
|---|--------------------------|---------------------------|-----------------------------------------------------------|----|-----------------------|-------|
| 1 | <b>DST-FIST Facility</b> | <b>TRAINING SETUP - 1</b> | Proximity sensor, Limit Switch and Encoder Training Setup | UG | Dr. Shivashankara B.S | Ph. D |
|   |                          | <b>TRAINING SETUP -2</b>  | Diffused Beam and through Beam sensors Training Setup     |    |                       |       |
|   |                          | <b>TRAINING SETUP -3</b>  | Level Control Measurement Training Setup with <b>PLC</b>  |    |                       |       |
|   |                          | <b>TRAINING SETUP -4</b>  | Flow and volume control Training Setup                    |    |                       |       |

|                    |                                                                                                                           |
|--------------------|---------------------------------------------------------------------------------------------------------------------------|
| TRAINING SETUP -5  | Temperature control<br>Training Setup                                                                                     |
| TRAINING SETUP -6  | Rotary indexing table with<br>stepper motor and<br>pneumatic pusher<br>Training Setup without<br><b>PLC</b>               |
| TRAINING SETUP -7  | Servo drive Training<br>Setup without <b>PLC</b>                                                                          |
| TRAINING SETUP -8  | Variable Frequency Drive<br>[VFD] Training Setup<br>without <b>PLC</b>                                                    |
| TRAINING SETUP -9  | Batching Plant with Load<br>Cell <b>without PLC</b>                                                                       |
| TRAINING SETUP -10 | X – Y Plotter Training<br>Setup without <b>PLC</b>                                                                        |
| TRAINING SETUP -11 | Multipurpose Automation<br>Training Setup with PLC<br>and scada HMI                                                       |
| TRAINING SETUP -12 | Electroplating Plant<br><b>Without PLC</b>                                                                                |
| TRAINING SETUP -13 | 3 station lift (table top<br>model) with motor,<br>sensors, door limit switch<br>push buttons etc.,<br><b>without PLC</b> |
| TRAINING SETUP -14 | Hydraulic controlled<br>material lift <b>without PLC</b>                                                                  |
| TRAINING SETUP-15  | Pear to Pear Network<br>with PLC, SCADA and<br>Remote I/O with cloud<br>interface                                         |

|   |                                                                           |                                                                                                                                                                                                                                                                             |    |                     |      |
|---|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------|------|
| 2 | <b>MCE-Bosch</b> regional center of competency in automation technologies | <div>1. Hydraulic Trainer kit- 02</div> <div>2. Pneumatic Trainer Kits. 02</div> <div>3. Mechatronics Trainer Kit. 01</div> <div>4. PLC L10 Trainer Kit-03No. 03</div> <div>5. PLC L20 Trainer Kit-01 01</div> <div>6. MLD-01. No. 01</div> <div>7. MTX-CNC-01. No 01</div> | UG | Dr.Shashakingappa L | Ph.D |
|---|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------|------|

Facilities & Utilization Photos



3D Printing Machine



Optical microscope



CMM



Rockwell Hardness Machine



Tool wear dynamometer



Roughness measuring machine



Probe sonic micrometer

**Facilities available at the “Centre for Innovative Teaching, Learning and Research (ITLR)” (DST-FIST)**



Servo drive Training Setup



Level Control Measurement Training Setup with PLC



Variable Frequency Drive [VFD] Training Setup



Rotary indexing table with stepper motor and pneumatic pusher Training Setup



Flow and volume control Training Setup



Peer to Peer network and X-Y Plotter



CNC Turning Operation demonstration



CNC Milling Operation demonstration



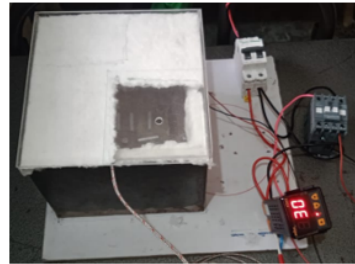
Welding Operation



Aluminium Molten Metal Preparation



Wear test machine



Infrared rays heat setup



Induction furnace



Impact test samples prepared by CNC machine



Tensile test samples prepared by CNC machine



Impact test samples coated by 3D printed samples



Tensile test samples coated by 3D printed samples



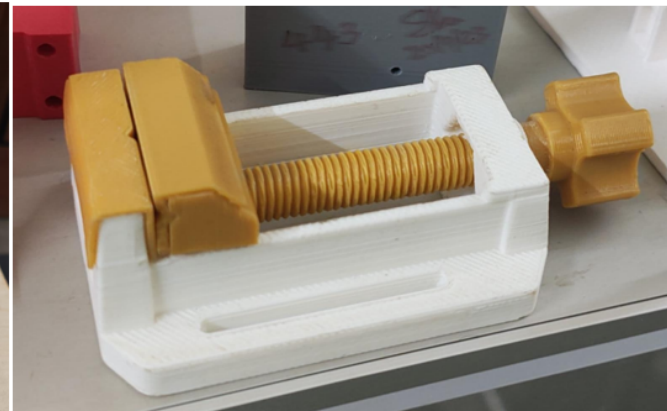
3D printed tensile test samples



3D printed impact test samples



3D printed compression & hardness  
test samples



Prepared in Skill development lab



#### Utilization of Project Lab

Details of projects carried out by UG students in last three years are listed below.

| Year      | Project title                                                                                                                                                        | No of students | Utilization                                                                            |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------------------------------------------|
| 2024-2025 | Exploiting mechanical properties of PLA reinforced BaTiO <sub>3</sub> and CoFe <sub>2</sub> O <sub>4</sub> composites through 3D printing for advanced applications. | 4              | 3 D printed machine<br>Surface roughness machine<br>Leg wise                           |
|           | Studies on turning inconel 718 by using cryo treated inserts                                                                                                         | 4              | CNC Machine<br>Grinding machine                                                        |
|           | Effect Of ceramic particulates on Aluminium based composites for high temperature                                                                                    | 4              | Lathe<br>Grinding machine<br>Wear test machine<br>Buffing machine                      |
|           | Investigation on tribological properties of 3D printed graphene reinforced acrylonitrile butadiene styre (ABS) composites                                            | 4              | Wear test machine<br>Surface roughness machine                                         |
|           | Age hardening of Aluminum based composite material using Infrared heating                                                                                            | 4              | Infrared heating device<br>Grinding machine<br>Wear test machine<br>Optical microscope |
|           | Investigation on thermal conductivity & electric properties of 3D printed abs graphite                                                                               | 4              | 3 D printed machine<br>Surface roughness machine<br>Leg wise                           |

|  |                                                                                                                                                                        |   |                                                                                           |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------------|
|  | Evaluation of Dry Sliding Wear Behaviour of Ceramic reinforced Aluminium-7029 Metal Matrix Composites                                                                  | 4 | Lathe<br>Grinding machine<br>Wear test machine<br>Buffing machine                         |
|  | Design and fabrication of military robot                                                                                                                               | 4 | Welding<br>Portable drilling and Grinding machine                                         |
|  | Semi-automated electric power tiller with sprayer                                                                                                                      | 4 | Portable drilling and Grinding machine                                                    |
|  | Gamma irradiation effects on mechanical properties of jute fiber reinforced epoxy composites"                                                                          | 4 | Hand layup method setup                                                                   |
|  | Experimental studies on machining inconel 718 by using pongamia oil as a coolant                                                                                       | 4 | CNC Machine<br>Grinding machine<br>Surface roughness machine                              |
|  | Investigating Mechanical properties of PLA reinforced BaTiO <sub>3</sub> and CoFe <sub>2</sub> O <sub>4</sub> composites through 3D printing for advanced applications | 4 | Universal testing machine                                                                 |
|  | Experimental investigation on slurry erosion of hybrid composite                                                                                                       | 4 | Slurry erosion test rig                                                                   |
|  | Mechanical Properties of Hybrid Fibers                                                                                                                                 |   | Hand layup method setup<br>Universal testing machine                                      |
|  | 2023-2024 Evaluation of wear behaviour of fiber reinforced polymer composites with ceramics                                                                            | 4 | CNC Machine<br>Grinding machine<br>Surface roughness machine<br>Universal testing machine |
|  | Design and fabrication of automatic tyre inflation system                                                                                                              | 4 | Lathe, Grinding machine<br>Welding<br>Portable drilling<br>Grinding machine               |
|  | Tribological study on Pongamia and Neem oil with additives                                                                                                             | 4 | Wear test machine<br>Optical microscope<br>Surface roughness machine                      |

|           |                                                                                                                                                               |   |                                                                                                |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------|
|           | Fabrication of multipurpose mopping machine                                                                                                                   | 4 | Welding, Soldering<br>Portable drilling and grinding machine                                   |
|           | Characterization of press tool to achieve target dimension in insert manufacturing                                                                            | 4 | Engine Lathe and Tool makers microscope, grinding machine                                      |
|           | Machinability studies on Inconel 718 by using cryotreated inserts to perform milling operation                                                                | 4 | CNC Machine<br>Grinding machine<br>Surface roughness machine                                   |
|           | Design and fabrication of edible cup making machine                                                                                                           | 4 | Engine Lathe and Tool makers microscope, Grinding machine<br>CNC Machine                       |
|           | Design and fabrication of fully automatic concrete brick making machine                                                                                       | 4 | Engine Lathe and Tool makers microscope, grinding machine.                                     |
|           | Experimental Investigation of dry sliding wear behaviour of ceramic hybrid metal matrix composites                                                            | 4 | Wear test machine<br>Optical microscope<br>Surface roughness machine                           |
|           | Exploring Mechanical and Tribological Behaviour of Aramid Fiber- based Phenolic Composites with Gr/Al Fillers for Potential Automotive Brake Pad Applications | 4 | Grinding machine<br>Wear test machine<br>Optical microscope                                    |
|           | Design and development of thermal conductivity measuring devices for various solid metals                                                                     | 4 | Thermal conductivity device                                                                    |
|           | Design and Development of Mechanical seed cum ferti drill                                                                                                     | 4 | Engine Lathe and Tool makers microscope, Grinding machine<br>CNC Machine                       |
| 2022-2023 | 1. Study on slurry erosion resistance of surface modified SS410                                                                                               | 4 | Slurry erosion test rig<br>Optical microscope<br>Surface roughness machine<br>Grinding machine |
|           | 2. Design and development of gyro automated wheelchair                                                                                                        | 4 | Grinding machine<br>Portable drilling<br>turning lathe                                         |

|                                                                                                                                      |   |                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------------------------------------------------|
| 3. Mechanical property evaluation of egg shell powder filled sisal / glass fiber reinforced hybrid composites                        | 4 | Hand lay up<br>UTM                                                                                                            |
| 4. Investigation on tribological properties of 3D printed graphene reinforced PLA through response surface methodology               | 4 | 3D printed machines<br>Wear test machine<br>Surface roughness machine<br>Optical microscope                                   |
| 5. Design and development of modifiable 2 to 6 seater convertible smart electric scooter                                             | 4 | Welding<br>Portable drilling and grinding machine                                                                             |
| 6. Development of Al/Graphite/ZrO2 alloy subjected to equal channel angular Extrusion                                                | 4 | Lathe machine, grinding machine<br>Equi-angular channel                                                                       |
| 7. Fabrication and Testing of Al6061 based Hybrid Metal Matrix Composite                                                             | 4 | Lathe machine, grinding machine                                                                                               |
| 8. Feasibility study on development of aluminium - SiC - B4C metal matrix hybrid composites through microwave stir casting technique | 4 | Microwave oven<br>Optical microscope                                                                                          |
| 9. Investigation on mechanical properties of egg shell filled pineapple leaf/carbon/epoxy based woven fabric reinforced composites   | 4 | Hand layup                                                                                                                    |
| 10 Evaluation of tribological behavior of LM-26 aluminum composite reinforced with chromium oxide                                    | 4 | Lathe machine, grinding machine<br>Wear test machine<br>Surface roughness machine<br>Optical microscope                       |
| 11. Design and fabrication of single screw extruder for recycling the PET bottles                                                    | 4 | Lathe machine,<br>Grinding machine<br>Welding machine                                                                         |
| 12. Design and fabrication of automated solar weed cutter and sprayer                                                                | 4 | Lathe machine,<br>Grinding machine<br>Welding machine                                                                         |
| 13. Investigation of dry sliding wear behavior of Age hardened Aluminium 2618                                                        | 4 | Induction furnace<br>Wear test machine<br>Surface roughness machine<br>Optical microscope<br>Lathe machine, grinding machine. |

|                                                                   |   |                                  |
|-------------------------------------------------------------------|---|----------------------------------|
| 14. Design and development of forest and special operations rover | 4 | Lathe machine, grinding machine. |
|-------------------------------------------------------------------|---|----------------------------------|



SAE work space & Event



Project Sanctioned from KSCST

| Name of Faculty & Students | Proposal Title | Start Date | Project Cost<br>(INR in lakhs) |
|----------------------------|----------------|------------|--------------------------------|
|----------------------------|----------------|------------|--------------------------------|

|                                                                                                                                                                           |                                                                                                                                                              |           |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|
| Mr. H S VIVEK RANGE<br>GOWDA<br><br>Mr. MUHAMMED AFNAAN<br>UR RAHMAAN Ms.<br>AMRUTHA N M<br><br>Ms. POORNIMA R<br><br><b>Dr. EZHIL VANNAN S</b><br><br><b>Dr. MADHU P</b> | Experimental investigation of cylindrical heat pipe Thermal performance using hybrid nanofluids for Advanced cooling applications                            | 2024-2025 | 0.045 |
| Mr. ABHISHEK S. J.<br><br>Mr. YASHWANTH P. D.<br><br>Mr. NISCHAY N. K.<br><br>Ms. SHANMUKHI H. D<br><br><b>Dr. MADHU P.</b><br><br><b>Dr. YASHAS GOWDA T. G</b>           | Exploring mechanical and tribological behaviour of aramid fiber-based phenolic composites with gr/al fillers for potential automotive brake pad applications | 2023-2024 | 0.07  |
| Mr. DEEKSHITH R<br><br>Mr. ANAND PUJAR<br><br>Mr. BHARATH V S<br><br>Mr. DEVANNA RAMDURG<br><br><b>Dr. MADHU P</b><br><br><b>Dr. LAXMANA NAIK L</b>                       | Irradiation effect on mechanical properties of flax fabric reinforced polymer composites for spacecraft application                                          | 2022-2023 | 0.08  |

**Table: Publications based on the Research facilities available in Department.**

| Title of paper                                                                                                                            | Name of the author/s                                                                                                                                            | Name of journal                                                                                  | Year of publication              |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------|
| <b>Materials Testing Lab (Universal Testing Machine, Hardness Machine, Optical Microscope, Pin on Disc tribometer, Polishing Machine)</b> |                                                                                                                                                                 |                                                                                                  |                                  |
| Wear <u>behaviour</u> of <u>aluminium</u> -based hybrid composites processed by equalchannel angular pressing                             | <b>Sharath B N</b><br><b>Madhu P</b><br><b>Verma A</b>                                                                                                          | Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology | 2024<br><b>SCIE</b><br><b>Q2</b> |
| Gamma radiation-induced degradation of mechanical properties in Carbon/Kevlar hybrid epoxy composites for aerospace applications          | <b>Sharath, B. N.</b><br><b>Yashas Gowda TG</b><br><b>Hemaraia BC</b><br><b>P. Madhu.</b>                                                                       | Journal of Polymer Research                                                                      | 2024<br><b>SCIE</b><br><b>Q2</b> |
| On enhancing the high-temperature wear <u>behaviour</u> of Al2090-based hybrid composites using tertiary ceramic particles                | <b>Sharath B.N</b><br><b>Vinyas Mahesh,</b><br><b>Vishwas Mahesh,</b><br><b>Subhaschandra</b><br><b>Kattimani,</b><br><b>Dineshkumar</b><br><b>Harursampath</b> | Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications       | 2024<br><b>SCIE</b><br><b>Q2</b> |

|  |                                                                                                                                                                                         |                                                                                                                                                    |                                                 |                                  |  |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------|--|
|  | Effect of microwave hybrid heating on high temperature dry sliding wear behavior of Al <sub>2</sub> O <sub>3</sub> reinforced WC-Co HVOF coating. Weld World (2024).                    | <b>Pradeep DG</b><br><b>Nithin HS</b><br><b>Sharath BN</b><br><b>Madhu KS</b>                                                                      | Welding in the world                            | 2024<br><b>SCIE</b><br><b>Q1</b> |  |
|  | Characterizing the effects of SiC and Al <sub>2</sub> O <sub>3</sub> on the mechanical properties of Al6082 hybrid metal matrix composites: An experimental and neural network approach | <b>Masood AA, Ali A</b><br><b>Madhu P</b><br><b>Gowda TY</b><br><b>Jeevan TP</b><br><b>Sharath BN</b>                                              | Advances in Production Engineering & Management | 2024<br><b>SCIE</b><br><b>Q2</b> |  |
|  | Enhancing Wear Resistance, Mechanical Properties of Composite Materials through Sisal and Glass Fiber Reinforcement with Epoxy Resin and Graphite Filler.                               | <b>Devendrappa, S.K.,</b><br><b>Madhu P</b><br><b>Sharath B N</b>                                                                                  | Journal of the Indian Chemical Society.         | 2024<br><b>SCIE</b><br><b>Q2</b> |  |
|  | Fabrication of raw and chemically treated biodegradable Luffa <del>agryptica</del> fruit fiber-based hybrid epoxy composite: a mechanical and morphological investigation               | <b>Sharath, B.N., Yashas</b><br><b>Gowda, T.G., Madhu, P.,</b><br><b>Pradeep Kumar, C.B.,</b><br><b>Jain, N., Verma, A.,</b><br><b>Sanjay, M.R</b> | Biomass Conversion and Biorefinery              | 2024<br><b>SCIE</b><br><b>Q2</b> |  |

|                                                                                                                                                                     |                                                                                                                                    |                                                                                                           |                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| Fabrication of raw and chemically treated biodegradable Luffa <u>egyptica</u> fruit fiber-based hybrid epoxycomposite: a mechanical and morphological investigation | Sharath, B.N., Yashas Gowda, T.G., Madhu, P., Pradeep Kumar, C.B., Jain, N., Verma, A., Sanjay, M.R                                | BiomassConversion and Biorefinery                                                                         | 2024<br><b>SCIE</b><br><b>Q2</b>                   |
| Mechanical Characterization and Water Absorption Behavior of Waste Coconut Leaf Stalk Fiber Reinforced Hybrid Polymer Composite: Impact of Chemical Treatment.      | Nagaraju SB, <u>Puttegowda M</u> , <u>Giriappa YG</u> , <u>Rawat NK</u> , <u>Verma A</u> , <u>Rangappa SM</u> , <u>Siengchin S</u> | Applied Science and Engineering Progress                                                                  | 2024<br><b>SCIE</b><br><b>Q2</b>                   |
| Investigation on the wear characteristics of 3D printed graphene-reinforced PLA composites                                                                          | <u>Rachajiah B</u> , <u>Puttaswamy JT</u> , Nagaraju SB, Vedavathi DH                                                              | Discover Materials                                                                                        | 2024<br><b>Scopus</b><br><b>Index</b><br><b>Q1</b> |
| Evaluation of dry sliding wear behavior of thermally sprayed and microwave post-processed TiO2 reinforced tungsten carbide composite coating                        | Pradeep DG, Nithin HS, Sharath BN, Madhu KS                                                                                        | Welding in the World                                                                                      | 2023<br><b>SCIE</b><br><b>Q1</b>                   |
| Artificial neural networks for predicting mechanical properties of Al2219-B4C-Gr composites with multi reinforcements                                               | Sharath B N Sathyanarayana, K., Somashekara, M.K., Pradeep, D.G., <u>Puttegowda, M.</u> and Verma, A.                              | Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science | 2023<br><b>SCIE</b><br><b>Q2</b>                   |
| Wear <u>behaviour</u> of hybrid (boron carbide-graphite) aluminium matrix composites under high temperature                                                         | Sharath B N Somashekara MK, <u>Govindaswamy PD</u> , <u>Puttegowda M</u> , Shankar PB, Sathyanarayana K                            | Journal of Engineering and Applied Science                                                                | 2023<br><b>Scopus</b><br><b>Index</b><br><b>Q2</b> |
| Experimental and artificial neuralnetwork-based slurry erosion behavior evaluation of cast iron.                                                                    | Karthik S, Sharath BN, Madhu P, Madhu KS, Prem Kumar BG, Verma A                                                                   | International Journal on Interactive Design and Manufacturing ( <u>IJIDeM</u> )                           | 2023<br><b>Scopus</b><br><b>Index</b><br><b>Q2</b> |
| Mechanical Characterization of B4C-Gr Al2618 Based Composites Synthesized by Stir Casting Method.                                                                   | Sharath BN, Somashekara MK, <u>Govindaswamy PD</u> , <u>Puttegowda M</u> , <u>Giriashankar PB</u> , Sathyanarayana K.              | Applied Science and Engineering Progress                                                                  | 2023<br><b>Scopus</b><br><b>Index</b><br><b>Q2</b> |
| Predictive Analysis of Slurry Erosion <u>Behaviour</u> in Aluminium-Based Hybrid Matrix Composites: Experimental and Machine Learning Approach.                     | Sharath BN, Karthik S, Madhu P, Madhu KS, Pradeep DG.                                                                              | Journal of Bio-and Tribo-Corrosion                                                                        | 2023<br><b>Scopus</b><br><b>Index</b><br><b>Q2</b> |

|                                                                                                                                                              |                                                                                                              |                                                                         |                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------|
| Effects of tertiary ceramic additives on the micro hardness and wear characteristics of Al2618+ Si3N4- B4C-Gr hybrid composites for automotive applications. | Sharath BN, Madhu KS, Pradeep DG, Madhu P, Premkumar BG, Karthik S                                           | Journal of Alloys and Metallurgical Systems                             | 2023<br>Scopus<br>Index<br>Q1 |
| Conjectured hybrid power with artificial intelligence and single-axis solar tracking wind turbine.                                                           | Sharath BN, Madhu KS, Pradeep DG, Madhu P, Premkumar BG, Karthik S.                                          | International Journal of Energy and Water Resources                     | 2023<br>Scopus<br>Index<br>Q3 |
| Effect of B4C/Gr on Hardness and Wear Behavior of Al2618 Based Hybrid Composites through Taguchi and Artificial Neural Network Analysis.                     | Ballupete Nagaraju S, Kodigarahalli Somashekara M, Puttegowda M, Manjulaiah H, Kini CR,                      | Catalysts.                                                              | 2023<br>SCIE<br>Q2            |
| Mechanical and thermal properties of flax/carbon/kevlar based epoxy hybrid composites                                                                        | Gowda, Yashas T. G.; Vinod, A.; Madhu, P.; Rangappa, Sanjay Mavinkere; Siengchin, Suchart; Jawaidd, Mohammad | POLYMER COMPOSITES                                                      | 2022<br>SCIE<br>Q1            |
| Effect of wood filler on the mechanical and thermal behavior of polypropylene/short glass/short carbon fiber-reinforced hybrid composites                    | Divya, H., V; Jeevan, T. P.; Ashrith, H. S.; Rudresh, B. M.                                                  | JOURNAL OF THE BRAZILIAN SOCIETY OF MECHANICAL SCIENCES AND ENGINEERING | 2022<br>SCIE<br>Q2            |
| Areca/synthetic fibers reinforced based epoxy hybrid composites for semi-structural applications                                                             | Yashas Gowda, T. G.; Vinod, A.; Madhu, P.; Sanjay, M. R.; Siengchin, Suchart; Jawaidd, Mohammad              | POLYMER COMPOSITES                                                      | 2022<br>SCIE<br>Q1            |
| Experimental and numerical approach to predict slurry erosion in jet erosion test rig                                                                        | Karthik, S.; Amarendra, H. J.; Rokhade, Kiran Kumar; Prathap, M. S.                                          | INTERNATIONAL JOURNAL OF REFRACTORY METALS & HARD MATERIALS             | 2022<br>SCIE<br>Q1            |

|                                                                                                                                                                           |                                                                                                                                                                                                                                                                                       |                                                     |                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-------------------------------|
| Influence of stacking sequence on flax/ <del>kevlar</del> hybrid epoxy composites: Mechanical and morphological studies                                                   | Mukesh, Sathvik Kangokar; <del>Bettagowda</del> , Nuthan; <del>Praveenkumara</del> , Jagadeesh; <del>Girijappa</del> , Yashas Gowda Thyavihalli; <del>Puttegowda</del> , Madhu; <del>Rangappa</del> , Sanjay Mavinkere; <del>Siengchin</del> , Suchart; <del>Gorbatvuk</del> , Sergey | POLYMER COMPOSITES                                  | 2022<br><del>SCIE</del><br>Q1 |
| Development of Self-lubricating Nickel Based Composite Clad using Microwave Heating in Improving Resistance to Wear at Elevated Temperatures                              | Suresh, G.; Ramesh, M. R.; Srinath, M. S.                                                                                                                                                                                                                                             | METALS AND MATERIALS INTERNATIONAL                  | 2022<br><del>SCIE</del><br>Q1 |
| Microwave-assisted synthesis of poly (acrylamide-co-2-hydroxyethyl methacrylate)/chitosan semi-IPN <del>ZnO</del> nanocomposite membranes for food packaging applications | Patil, <del>Mallikarijunagouda</del> B.; Rajamani, <del>Shwetarani</del> B.; <del>Mathad</del> , S. N.; Patil, Arun Y.; Hussain, Mahmoud A.; <del>Alorfi</del> , Hajar Saeed; Khan, Anish; Asiri, Abdullah M.; Khan, Imran; <del>Puttegowda</del> , Madhu                             | JOURNAL OF MATERIALS RESEARCH AND TECHNOLOGY- JMR&T | 2022<br><del>SCIE</del><br>Q1 |
| Waste coconut leaf sheath as reinforcement composite material with phenol-formaldehyde matrix                                                                             | Bharath, K. N.; Madhu, P.; <del>Rangappa</del> , Sanjay Mavinkere; <del>Basavarajappa</del> , S.; <del>Siengchin</del> , Suchart; Alexey, Karfidov; <del>Gorbatvuk</del> , Sergey                                                                                                     | POLYMER COMPOSITES                                  | 2022<br><del>SCIE</del><br>Q1 |
| Synthesis and Characterization of Microwave-Assisted Copolymer Membranes of Poly(vinyl alcohol)-g-starch-methacrylate and Their Evaluation for Gas Transport Properties   | Patil, <del>Mallikarijunagouda</del> ; <del>Mathad</del> , Shridhar N.; Patil, Arun Y.; Arshad, Muhammad Nadeem; <del>Alorfi</del> , Hajar Saeed; <del>Puttegowda</del> , Madhu; Asiri, Abdullah M.; Khan, Anish; <del>Azum</del> , Naved                                             | POLYMERS                                            | 2022<br><del>SCIE</del><br>Q1 |
| Comparative evaluation of areca/carbon/basalt fiber reinforced epoxy/bio epoxy based hybrid composites                                                                    | Yashas Gowda, T. G.; Madhu, P.; Kushvaha, Vinod; <del>Rangappa</del> , Sanjay Mavinkere; <del>Siengchin</del> , Suchart                                                                                                                                                               | POLYMER COMPOSITES                                  | 2022<br><del>SCIE</del><br>Q1 |
| Comparative analysis of <del>CoCrAlY</del> coatings at high-temperature oxidation behavior using different reinforcement composition profiles                             | Nithin, H. S.; <del>Nishchitha</del> , K. M.; Pradeep, D. G.; Durga, C. Prasad; <del>Mathapati</del> , Mahantayya                                                                                                                                                                     | WELDING IN THE WORLD                                | 2022<br><del>SCIE</del><br>Q1 |

**Research internship:**

Investigated the mechanical properties of 3D printed polymer composites

Mr. Navaneet D J      4MC21ME042

Mr. Gokul C          4MC21ME025

**Review Article:** Critical review on additive manufacturing based biomedical and biosensors application [SCIE, Q2]

**Book Chapter:** Materials and Manufacturing Techniques in Fiber Composites (Accepted)



Samples Prepared through 3D printer



### INTERNSHIP CERTIFICATE

This is to certify that **Mr. Gokul C**, bearing USN: 4MC21ME025, a student of Mechanical Engineering, has successfully completed a research internship at the Research Center, Department of Mechanical Engineering, Malnad College of Engineering, Hassan.

The internship was carried out from 10/02/2025 to 25/05/2025 under the guidance of **Dr. Sharath B.N**, Associate Professor, Department of Mechanical Engineering, on the topic "**Investigating the Mechanical Properties of 3D Printed Polymer Composites**"

During this period, **Mr. Gokul C** demonstrated excellent dedication and active involvement in the research work.

Date: 26.05.2025  
Place: MCE, Hassan

  
**Dr. Sharath B.N**  
Associate Professor

  
**Dr. Ezhumalai S**  
Professor & Head

  
**Dr. S. Pradeep**  
Director

  
**Dr. A. J. Krishnaiah**  
Principal



### **MALNAD COLLEGE OF ENGINEERING**

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245317  
Fax : 08172-245683



### INTERNSHIP CERTIFICATE

This is to certify that **Mr. Navaneet D.J.**, bearing USN: **4MC21ME042**, a student of Mechanical Engineering, has successfully completed a research internship at the Research Center, Department of Mechanical Engineering, Malnad College of Engineering, Hassan.

The internship was carried out from **10/02/2025** to **25/05/2025** under the guidance of **Dr. Sharath B.N.**, Associate Professor, Department of Mechanical Engineering, on the topic "**Investigating the Mechanical Properties of 3D Printed Polymer Composites**"

During this period, **Mr. Navaneet D.J.** demonstrated excellent dedication and active involvement in the research work.

Date: 26.05.2025

Place: MCE, Hassan

  
**Dr. Sharath B.N.**  
Associate Professor

  
**Dr. Ezhi Vannan S.**  
Professor & Head

  
**Dr. S. Pradeep**  
Director

  
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245317  
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**Students Publications/Book chapters**

| Sl. No | Publications                                                                                                                                                                                                                                                                                                      | Project/Internship                                  |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| 1.     | Raghavendra Rao R, Sharath BN, Pradeep S, Hareesha M, <b>Navaneet D J</b> . Critical review on additive manufacturing based biomedical and biosensors application. Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine. 2025 Aug;239(8):721-35. <b>[SCIE] [Q2]</b> | <b>Internship</b><br><b>Mentor-</b> Dr. Sharath B.N |
| 2.     | <b>Mahesh MB, Sathish MB, Rangaswamy M, Jamadar NS, Puttegowda M, Nagaraju SB.</b> Advancements in 3D Printed Hemp-PLA Composites: A Sustainable Approach for Additive Manufacturing. Next Research. 2025 Dec 2:101168                                                                                            | <b>Project</b><br><b>Mentor-</b> Madhu P            |

|   | Book Chapters                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 1 | Sharath BN, Rao R, Hareesha M, <b>Rajesh M</b> , Shashanka R. Other Advanced Applications and the Future of High Entropy Alloys. In Handbook of High Entropy Alloys 2025 Nov 3 (pp. 421-434). CRC Press.<br><a href="https://doi.org/10.1201/9781003664093">https://doi.org/10.1201/9781003664093</a>                                                                                                                                                                            |  |
| 2 | <b>Smruthi R, Vinay DV, Vinay HR, Basavarajappa SP</b> , Gowda TY, Sharath BN, Jeevan TP, Priya HC, <b>Kalappa P</b> . Eco-friendly fiber and polymers for production of composites and <b>biocomposites</b> for the sustainable environment. In Eco-Friendly Fiber Reinforced Polymer Composite Materials 2026 Jan 1 (pp. 155-198). Woodhead Publishing.<br><a href="https://doi.org/10.1016/B978-0-443-32796-4.00006-1">https://doi.org/10.1016/B978-0-443-32796-4.00006-1</a> |  |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 3. | Sharath B.N, Madhu P, Pradeep DG, <b>Thanush HG, Kumar KM, Manoj S</b> , Verma A. Unveiling the Potential of Age Hardened Aluminum Alloys: Strengthening Solutions for Engineering Challenges. In Hybrid Composite Materials: Experimental and Theoretical Analysis 2024 May 19 (pp. 349-369). Singapore: Springer Nature Singapore.<br><a href="https://doi.org/10.1007/978-981-97-2104-7_15">https://doi.org/10.1007/978-981-97-2104-7_15</a> |  |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

#### Patents

| Faculty                                                                                                                                                                                                                                    | Faculty & Students                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dual patent: <b>Indian design patent</b><br><b>Application No.202441053537 A</b><br>Publication Date : 02/08/2024<br>Design: <b>Eco-friendly venturi meter: chemically treated coir fiber reinforced bio-PLA composite via 3D printing</b> | Patent: <b>Indian design patent</b><br>Design number: <b>436922-001</b><br>Grant date: 10/11/2024<br>Design: <b>Auto floor cleaning and mopping device</b> |

## 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));<br>Percentage=((NS1*0.8)+(NS2*0.2))/RF |
|----------------|-------------------------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 2023-24(CAYm2) | 960                                       | 48                                   | 25                                                                                                                  | 54                                                          | 64                                                                                                                               |
| 2024-25(CAYm1) | 1020                                      | 51                                   | 34                                                                                                                  | 48                                                          | 72                                                                                                                               |
| 2025-26(CAY)   | 1140                                      | 57                                   | 37                                                                                                                  | 64                                                          | 74                                                                                                                               |

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

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

| Items                   | Budgeted in 2025-26 | Actual Expenses in 2025-26 till | Budgeted in 2024-25 | Actual Expenses in 2024-25 till | Budgeted in 2023-24 | Actual Expenses in 2023-24 till | Budgeted in 2022-23 | Actual Expenses in 2022-23 till |
|-------------------------|---------------------|---------------------------------|---------------------|---------------------------------|---------------------|---------------------------------|---------------------|---------------------------------|
| Infrastructure Built-Up | 200.00              | 111.63                          | 200.00              | 143.57                          | 150.00              | 125.60                          | 0                   | 41.07                           |
| Library                 | 30.00               | 42.54                           | 30.00               | 37.82                           | 30.00               | 33.42                           | 28.00               | 28.47                           |

|                                          |                |                |                |                |                |                |                |                |
|------------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Laboratory equipment                     | 175.00         | 17.18          | 175.00         | 119.30         | 165.00         | 248.52         | 98.00          | 169.50         |
| Teaching and non-teaching staff salary   | 3960.49        | 3857.84        | 3598.01        | 3416.89        | 3537.96        | 3202.99        | 3455.45        | 3394.70        |
| Outreach Programs                        | 2.00           | 1.19           | 3.00           | 2.67           | 3.00           | 1.19           | 2.00           | 1.72           |
| R&D                                      | 0              | 0              | 3.00           | 5.08           | 2.00           | 3.80           | 1.00           | 0              |
| Training, Placement and Industry linkage | 5.00           | 8.99           | 5.00           | 7.94           | 5.00           | 9.25           | 3.00           | 15.42          |
| SDGs                                     | 50.00          | 42.75          | 50.00          | 75.81          | 40.00          | 43.10          | 25.00          | 15.02          |
| Entrepreneurship                         | 0              | 0              | 5.00           | 0.86           | 5.00           | 0.74           | 5.00           | 9.38           |
| Others, Specify                          | 900.00         | 618.36         | 884.00         | 685.15         | 570.00         | 849.24         | 593.00         | 458.11         |
| <b>Total</b>                             | <b>5322.49</b> | <b>4700.48</b> | <b>4953.01</b> | <b>4495.09</b> | <b>4507.96</b> | <b>4517.85</b> | <b>4210.45</b> | <b>4133.39</b> |

**E3. Budget Allocation, Utilization, and Public Accounting at Program Specific Level**

Table No. E3.1: Budget and actual expenditure incurred at program level.

| Items                                            | Budgeted in 2025-26 | Actual Expenses in 2025-26 till | Budgeted in 2024-25 | Actual Expenses in 2024-25 till | Budgeted in 2023-24 | Actual Expenses in 2023-24 till | Budgeted in 2022-23 | Actual Expenses in 2022-23 till |
|--------------------------------------------------|---------------------|---------------------------------|---------------------|---------------------------------|---------------------|---------------------------------|---------------------|---------------------------------|
| Laboratory equipment                             | 9.37                | 2.42                            | 9.91                | 1.49                            | 8.38                | 0                               | 7.02                | 6.16                            |
| Software                                         | 12.49               | 0                               | 13.21               | 9.10                            | 14.66               | 22.01                           | 6.74                | 9.46                            |
| SDGs                                             | 6.25                | 5.34                            | 6.6                 | 10.01                           | 5.59                | 6.02                            | 4.21                | 2.11                            |
| Support for faculty development                  | 3.12                | 1.52                            | 3.96                | 0.42                            | 4.19                | 0.74                            | 4.21                | 0.38                            |
| R & D                                            | 1.12                | 0                               | 1.19                | 0.67                            | 1.12                | 0.53                            | 1.12                | 0                               |
| Industrial Training, Industry expert, Internship | 6.87                | 1.12                            | 10.43               | 1.05                            | 5.59                | 1.29                            | 4.91                | 2.16                            |
| Miscellaneous Expenses*                          | 118.79              | 77.24                           | 107.25              | 90.49                           | 74.99               | 118.59                          | 77.75               | 64.29                           |
| <b>Total</b>                                     | <b>158.01</b>       | <b>87.64</b>                    | <b>152.55</b>       | <b>113.23</b>                   | <b>114.52</b>       | <b>149.18</b>                   | <b>105.96</b>       | <b>84.56</b>                    |