



(DEEMED TO BE UNIVERSITY)



**CATEGORY 1
UNIVERSITY**
BY MHRD, Govt. of India

**KL ACCREDITED BY
NAAC WITH A++
GRADE**

**nirf
2024**

NATIONAL
INSTITUTIONAL
RANKING
FRAMEWORK

**RANKED 22
AMONG ALL
UNIVERSITIES**

**45 YEARS OF
EDUCATIONAL
LEADERSHIP**

DEPARTMENT OF MECHANICAL ENGINEERING



FABRICATION (FAB) RESEARCH CENTER



FABRICATION (FAB) RESEARCH CENTER

About Research Center:

The Fabrication (FAB) Research Lab is a premier facility specializing in modern fabrication techniques and advanced manufacturing processes. Equipped with state-of-the-art tools such as CNC routers, 3D printers, laser cutters, and milling machines, the lab facilitates rapid prototyping and precision manufacturing. Research areas focus on additive manufacturing, sustainable materials, and innovative production methodologies. The lab's projects include developing lightweight materials for aerospace applications, energy-efficient consumer products, and eco-friendly packaging solutions. Faculty expertise spans material science, product design, and manufacturing engineering, ensuring impactful contributions to industrial advancements. Collaborative efforts with industry partners allow the lab to address real-world challenges and create market-ready solutions. Workshops and training programs enable students to gain hands-on experience with cutting-edge fabrication tools and techniques. The lab's mission is to promote sustainable and efficient manufacturing practices while fostering innovation in design and production. Publications and patents underscore its leadership in advanced manufacturing research.

Mission:

The lab aims to explore and develop the cutting-edge fabrication techniques, materials, and technologies, fostering innovation in fields like digital fabrication, additive manufacturing (3D printing), robotics, and advanced prototyping.

Vision:

The vision of the Fabrication Research Lab is to advance innovative manufacturing techniques and material sciences, fostering cutting-edge research and interdisciplinary collaboration. It aims to empower creators with next-generation tools to solve real-world



Objectives:

1. Innovation in Fabrication Technologies: Develop and explore new fabrication techniques, tools, and processes.
2. Prototyping and Product Development: Provide facilities and expertise for rapid prototyping and testing of products, designs, and systems.
3. Research in Materials Science: Investigate new materials and their applications in manufacturing and design.
4. Interdisciplinary Collaboration: Foster collaboration between researchers, engineers, designers, and other stakeholders from different fields.
5. Digital Manufacturing: Advance the use of digital tools (such as CAD, 3D printing, CNC, laser cutting) for manufacturing processes.

Research Areas of Focus:

- Sustainable Manufacturing
- Prototyping and Custom Fabrication
- Welding and Joining Technologies
- Automation and Robotics in Fabrication

FACULTY MEMBERS



Dr. SEERAM SRINIVASA RAO
PROFESSOR
Research Area: Robotics and
Mechatronics



Dr. BURAGADDA KIRAN KUMAR
ASSOCIATE PROFESSOR
Research Area: Manufacturing

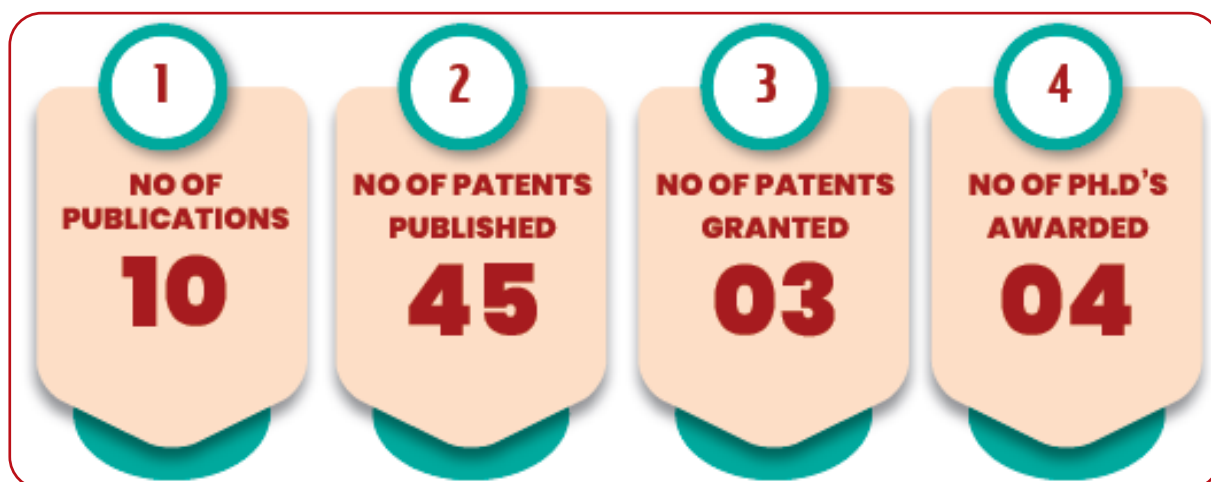


**Dr. KANCHU VENKATA DURGA
RAJESH**
ASSOCIATE PROFESSOR
Research Area: Manufacturing



Dr. A V SIVA RAM PRASAD
ASSOCIATE PROFESSOR
Research Area: Manufacturing

MAJOR ACHIEVEMENTS



LIST OF MAJOR EQUIPMENT/TOOLS

SI.NO	Name of the Equipment	Make
1	CNC PLASMA CUTTER	INTECUT-S
2	CNC SLANT BED LATHE	BHAVYA
3	CNC ROUTER 1325	BHAVYA
4	SURFACE GRINDER	BHAVYA
5	CNC MILLING MACHINE	BHAVYA
6	VERTICAL TURRET MILLING MACHINE	BHAVYA

LIST OF MAJOR EQUIPMENT/TOOLS

CNC PLASMA CUTTER



Specifications:

- Cutting Area: X-axis 1500mm, Y-axis 3000mm, Z-axis 150mm.
- Cutting Speed: Up to 8000 mm/min.
- Positioning Accuracy: ± 0.2 mm.
- Cutting Thickness: Mild Steel up to 25 mm.
- Control System: Start controller with USB interface.
- Power Supply: Hypertherm Powermax 65/85/105.
- Software: Fastcam professional software for nesting and programming.

Specifications:

- Swing over bed: 260mm
- Max Swing over cross slide: 140mm
- Width of bed: 220mm
- Max. Length of work piece: 300mm
- Max. Cutting length: 205mm
- Max. Turning Diameter: 260mm
- Traverse: X-Axis - 165mm, Z-Axis - 260mm

CNC SLANT BED LATHE



CNC ROUTER 1325



Specifications:

- "X-Y-Z Axis Movement: 1300 x 2500 x 200mm
- Table Size: 1440 x 3040mm
- Idling Speed: 35m/min
- Max Cutting Speed: 25m/min
- Working Voltage: $3\phi/380V/50Hz$
- Spindle Speed: 0-18000 RPM
- Computer Interface: USB Cable & Cable Guide"

Specifications:

- Table Size: 750 x 250 mm
- Max. Grinding Length: 540 mm
- Max. Grinding Width: 250 mm
- Max. Height from Table to Spindle Center: 580 mm
- Spindle Motor Power: 2.2 kW (3 HP)
- Max. Table Load: 250 kg
- Grinding Wheel Size: 200 x 20 x 31.75 mm

CNC SLANT BED LATHE



LIST OF MAJOR EQUIPMENT/TOOLS

CNC MILLING MACHINE



Specifications:

- X-Y-Z - Axis travel: 430 x 280 x 400mm
- Table Size: 800mm x 240mm.
- Max loading weight on worktable: 60kg
- Distance between spindle nose & table: 60-460mm
- Distance between spindle centre & column: 297mm
- Control System: Siemens
- Spindle taper/tool holder: ISP30 /

Specifications:

- Table Size: 1270mm x 254mm (50" x 10").
- X-Axis Travel: 900mm (35.4").
- Y-Axis Travel: 400mm (15.7").
- Z-Axis Travel: 450mm (17.7").
- Spindle Speed: Variable, ranging from 60 to 4200 RPM.
- Spindle Taper: R8 or NT30.
- Motor Power: 3 HP.
- Spindle taper/tool holder: ISP30 / BT30

VERTICAL TURRET MILLING MACHINE



Specifications:

- Laser Power: 80 - 400W CO2 Laser Tube.
- Working Area: 1300mm x 2500mm.
- Positioning Accuracy: ± 0.01 mm.
- Maximum Cutting Speed: 0 - 75,000 mm/min.
- Power supply: AC 220V, 50Hz
- Cooling System: Water cooling with protection system.

VINYL CUTTER



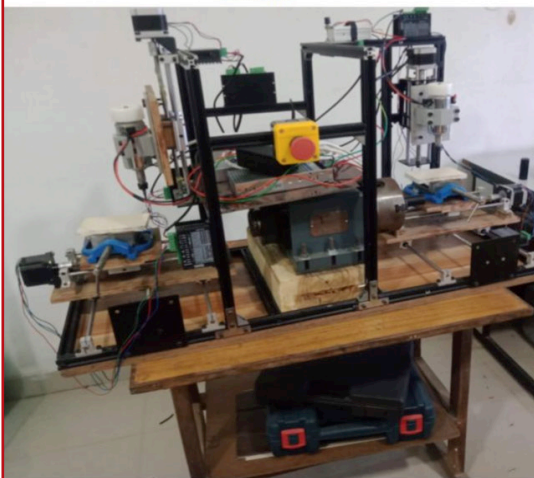
RESEARCH OUTCOME



E-CAR



6-SEATER E-BIKE



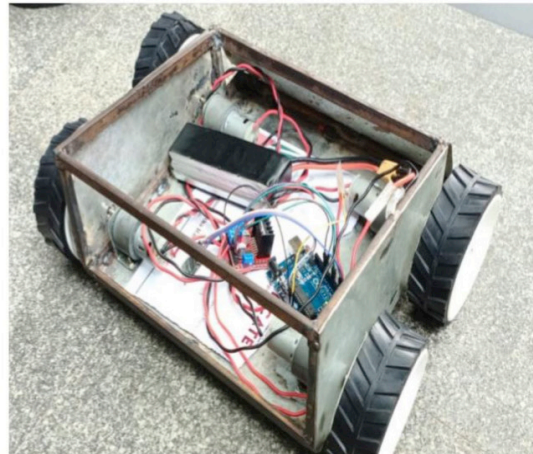
TABLETOP MULTIPURPOSE CNC



LAB CRANE



HYDRAULIC JOCKEY



IoT CONTROLLED ROBOT

RESEARCH OUTCOME



GO KART VEHICLE



PORTABLE CNC



UVC GERMICIDAL DEVICE



BARRIER GATE

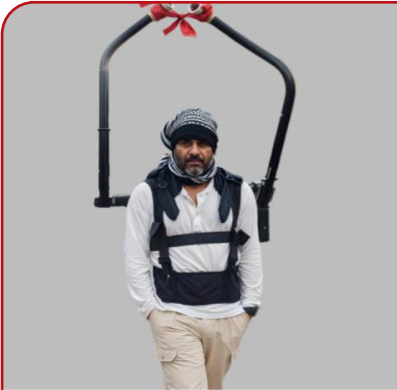


**RIG FOR INSTALLATION AND
UNINSTALLATION OF WINDMILL**



OXYGEN ADJUSTABLE CONTROLLER GAS BURNER

RESEARCH OUTCOME



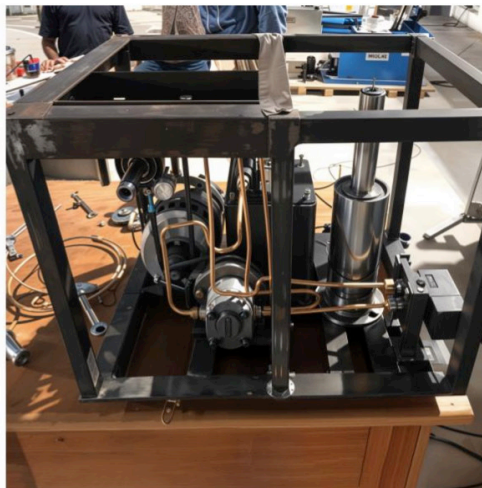
EXOSKELETON



FACE MASK



VIRUS ATTENUATION DEVICE



HYDRAULIC COLD PRESS



BIOMETRIC BOX



ANTI-VIRAL IRRADIATION UNIT



**WIRED & WIRELESS CLASS D AUDIO
AMPLIFIER SYSTEM**

PUBLICATIONS

Ph.D Publications:

- Tamiloli, N., Venkatesan, J., Murali, G., Kodali, S. P., Sampath Kumar, T., & Arunkumar, M. P. (2019). Optimization of end milling on Al-SiC-fly ash metal matrix composite using TOPSIS and fuzzy logic. SN Applied Sciences, 1(12), Article 1786.
- Khot, R. S., Venkateswara Rao, T., Girish, H. N., & Puttaswamy, M. (2020). Parameter forecasting of laser welding on strength, deformation and failure load of transformed induced plasticity (TRIP) steel using experimental and machine learning approach. Journal of Seybold Report. 1533-9211.

M.Tech Publications:

- Venkata Reddy, S., Sai Rakesh, V., Naveen, D., Varun, M., & Prakash, S. (2020). Design of a combination tool. International Journal of Innovative Technology and Exploring Engineering (IJITEE). 2278-3075.
- Dhanasekar, S., Ganesan, A. T., Rani, T. L., Vinjamuri, V. K., Nageswara Rao, M., Shankar, E., Dharamvir, Kumar, P. S., & Misganaw Golie, W. (2022). A comprehensive study of ceramic matrix composites for space applications. Advances in Materials Science and Engineering. 1687-8434.

B.Tech Publications:

- Karuppusamy, U., Dakshinamurthy, D., & Ibrahim, R. B. S. (2022). Investigation of machinability and geometry characteristics of abrasive waterjet circular cutting process on Ti-6Al-4V alloy. Surface Review and Letters, 29(4).
- Kasi V Rao, P., Sai Kumar Putsala, K., Muthupandi, M., & Mojeswararao, D. (2022). Numerical analysis on space frame chassis of a formula student race car. Materials Today: Proceedings. 2214-7853.
- Kammuluri, B. (2021). Navigating complexities: Challenges in the manufacture and machining of hybrid aluminium metal matrix composites. Asiatic Society of Mumbai, 0972-0766.
- Ram Prasad, A. V. S., Ramji, K., & Kolli, M. (2021). Machinability studies of lead induced Ti-6Al-4V alloy using Taguchi technique on WEDM process. Materials Today: Proceedings. 2214-7853.
- Jeevan Raju, B., Rama Kotaiah, K., & Jakeer Hussain, S. (2021). Design and optimized analysis of high-speed precise machine tool spindles. Turkish Journal of Computer and Mathematics Education, 12(10), 1309-4653.
- Gajavalli, V. P. G. N., & Nadendla, S. (2021). Fabrication of variable speed lamina cutting machine. Advances in Intelligent Systems and Computing. 2194-5357.

PATENTS AWARDED AND GRANTED

S.No.	Name of the Faculty/Student author of the patent	Patent Number	Date of Award	Patent Awarding Agency
1	Dr.A.SRINATH Dr. G.YEDUKONDALU	396804	13/5/2022	IP India
2	Dr.K.V NARASIMHA RAO TUMMALA PRUDHVI PADIGALA SAI TARUN KRISHNA KUMAR VAGICHARLA GURU VENKATA SAI KOPPULA KALYAN CHAKRAVARTHI	390757	28/2/2022	IP India
3	KOLLURI SRINIVASA CHALAPATHI	365869	30/4/2021	IP India

PATENTS PUBLISHED

S.No	Name of the Faculty/Student author of the patent	Patent Number	Date of Award	Patent Awarding Agency
1	1. G.Yedukondalu 2.S.S.N Manikanta Kumar 3.A.Srinath	316432-001	21/6/2019	IP India
2	1. Kamarajugadda Someswara Rao 2. Dr. P. Jmaleswara Kumar	201841016069	1/11/2019	IP India
3	1.A.Eswara Kumar 2.D V A Ramasastry 3.P.Phani Prasanthi 4.B.V.Dhermendra	316953-001	19/7/2019	IP India
4	1.S.Srinivasa Rao 2.G.vamsi Krishna 3.B.V.Neerav 4.G.satya Sai 5.P.Sriharsha	316896-001	26/7/2019	IP India
5	1. K. V. Narasimha Rao 2. N. Karteek 3. A. Eswara Kumar	315373-001	16/8/2019	IP India
6	1. A. Eswara Kumar 2. N. Karteek 3. K. V. Narasimha Rao	315375-001	1/11/2019	IP India

PATENTS PUBLISHED

S.No	Name of the Faculty/Student author of the patent	Patent Number	Date of Award	Patent Awarding Agency
7	1.S.Srinivas Rao 2.M.M.V.N.B Sai Sunil 3.N.Sai Praneeth 4.G.Kushal Reddy 5.V L K Teja	305691	29/11/2019	IP India
8	1.Karteek Navuri 2.Beulah Mani Paleti 3.B.Satya Krishna 4.Anna Eswara Kumar	316255-001	17/1/2020	IP India
9	1.Dr.S.S.Rao 2.Samanthapudi Meghana	324816-001	31/1/2020	IP India
10	1.Dr.S.S.Rao 2.Puppala Raja Raghu Vamsi Krishna	324817-001	14/2/2020	IP India
11	1. Anna Eswara Kumar 2. B. Kiran Kumar 3.R J Kishore 4.V Uma Manikanta 5.K.Giri Sainath Reddy	326581-001	6/3/2020	IP India
12	1.A.Eswara Kumar 2.T.Maneesh 3.Y Vamsi krishna 4.B.V.Dhrmendra	315376-001	13/3/2020	IP India
13	1.Anna Eswara Kumar 2.B.Kiran Kumar 3.B V Dharmendra 4. D V A Ramasastry	315820-001	13/3/2020	IP India
14	1.Anna Eswara Kumar 2.P.Pruthvi Teja 3.B.Naresh Reddy 4.B.Kiran Kumar	327066-001	8/5/2020	IP India
15	B.Kiran Kumar	327814-001	5/6/2020	IP India
16	1.Anna Eswara Kumar 2.K.Siva Kishore babu 3.T.Eswara Rao 4.J.Leela Kishan	327905-001	12/6/2020	IP India
17	Dr. K L Narayana	202041053985	1/1/2021	IP India
18	1.S.Srinivasa Rao 2.M.M.V.N.B.Sai Sunil	201941030563	5/2/2021	IP India
19	Anna Eswara Kumar	202141016929	16/4/2021	IP India
20	1.A Esawra Kumar 2.Shyam Prasad Kodali 3.V.Uma Manikanta 4.A.Lakshmi Sai Vineeth	311728	2/7/2020	IP India

PATENTS PUBLISHED

S.No	Name of the Faculty/Student author of the patent	Patent Number	Date of Award	Patent Awarding Agency
21	1.Anna Eswara Kumar 2.A.Chandra Mouli 3. B V Dharmendra 4.A.Tulasi	315818-001	7/8/2020	IP India
22	1.H.Jeevan rao 2.Anna Eswara Kumar 3.T.Srinivasan 4.B V Dharmendra	331441-001	4/9/2020	IP India
23	Anna Eswara Kumar B. Nageswara Rao	330964-001	11/9/2020	IP India
24	1.Anna Eswara Kumar 2.P,Pruthvi Teja 3.T.Srinivasan 4.G.Deepak Kumar	323437-001	18/9/2020	IP India
25	1.Anna Eswara Kumar 2.T.Srinivasan 3.T.Eswara Rao	322245-001	25/9/2020	IP India
26	1. G.Yedukondalu 2.K.Shiva keesavulu	315142-001	1/10/2020	IP India
27	1.K.V.Ramana 2.I.Rohith 3.M.Guru Gopinath 4.T.Sunil Kumar 5.K.Sarvan Kumar	318601-001	9/10/2020	IP India
28	G.Yedukondalu	318493-001	9/10/2020	IP India
29	1.G.Deepak Kumar 2.P.N.Sashank 3.P.M. Vardhan 4.K.Tapan 5.S.Md.Sarfaraaz 6.Anna Eswara Kumar	323843-001	16/10/2020	IP India
30	1.D V A Rama sastry 2.Anna Eswara Kumar 3.K V Ramana	315561-001	16/10/2020	IP India
31	1.Anna Eswara Kumar 2.P.Pruthvi Teja 3.B.Raghava Rao 4.P.Phani Prasanthi	327065-001	30/10/2020	IP India
32	1.Anna Eswara Kumar 2.B V Dharmendra 3.B.Kiran Kumar 4.J.Lee- la Kishan	327761-001	30/10/2020	IP India

PATENTS PUBLISHED

S.No	Name of the Faculty/Student author of the patent	Patent Number	Date of Award	Patent Awarding Agency
33	Tv. Pranay Sisir Dr. Y. Kalyan Chakravarthy Dr. A. Srinath	327901-001	26/3/2021	IP India
34	Srinivasa Rao Seeram	328746-001	18/6/2021	IP India
35	Srinivasa Rao Seeram	328809-001	25/6/2021	IP India
36	Srinivasa Rao Seeram	328810-001	25/6/2021	IP India
37	Srinivasa Rao Seeram	328910-001	25/6/2021	IP India
38	Karimulla Syed	329303-001	2/7/2021	IP India
39	Kasi V Rao Pothamsetty	343094-001	2/7/2021	IP India
40	Tiruvidula Eswara Rao	329644-001	2/7/2021	IP India
41	1.G.Yedukondalu 2.Pasupuleti Nithin 3.Mohammed Muzamil Hasan Khan 4.Sreeramagiri Anirudh 5.Rayala Ravi Kiran	328747-001	14/7/2021	IP India
42	1.Dr.A.Srinath 2.Anna Eswara Kumar 3.P.S.N.Venkat	329543-001	16/7/2021	IP India
43	Srinivasa Rao Seeram	328952-001	16/7/2021	IP India
44	Sireesha - Koneru	222230	20/8/2021	IP India
45	Nageswara Rao Medikundu	347220-001	15/10/2021	IP India

PH.D'S AWARDED

S.No	Name of the PhD Research Scholar	Name of the Research Supervisor	Year of Registration	Year of completion and Award of PhD
1	Tanya Buddi	Dr.B Nageswara Rao	2014	2019
2	P Suresh Babu	Dr. K.L. Narayana	2013	2020
3	Ratna Deepika Manikonda	Dr. K. V. Ramana	2014	2022
4	D. Pratibha	Dr. G. Diwakar	2016	2023

PROPOSED PRODUCTS TO BE FABRICATED



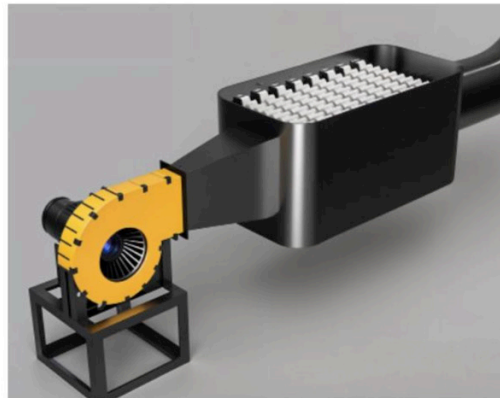
ELECTRIC AMPHIBIOUS VEHICLE MODELING



ELECTRIC CAPSULE VEHICLE MODELING



SLIP ROLLER MACHINE



TURBINE BLOWER



**BATTER DROPPER FOR DIFFERENT SHAPES
MODELING**

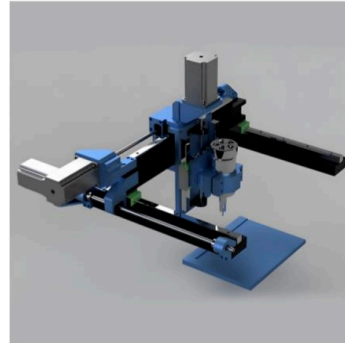


ROBOTIC ARM FOR CLASSROOM

PROPOSED PRODUCTS TO BE FABRICATED



IOT SMART CAMPUS DEVICE



TABLETOP GANTRY MOTION CNC MILL



**ELECTRIC BIKE LIGHT VEHICLE
MODELING**



ROBOT GRIPPER MODELING



BREATH ANALYSER



**UNIDIRECTIONAL COOLING AIR VENT
MODELING**



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