Mech'Časopis

Edition 9
July 2023

Mech'Časopis

CONTENTS

About the Department of Mechanical Engineering

The Department of Mechanical Engineering was started in the year 2005 offering the Bachelor's Degree under Anna University. The Department has 13 faculty members, who are highly qualified in different areas of specialization and dedicated their profession for the students. Amongst that, 6 faculty members hold the Doctorate Degree and 4 faculty members were recognized as supervisors for guiding Ph.D.

The Department is nourished with the modern equipment and computing facilities with the latest version of software viz., ANSYS, SOLIDWORKS, Femap Nastran, NX CAD CAM CAE, MASTERCAM and AutoDesk Inventor. Value added courses are provided for the students. Our department is an Anna University recognized Research Centre.

About Mech'Časopis

The name Mech'Časopis is taken from the Croatian language; Časopis (Pronounced as Chasopis) means Newsletter. This newsletter brings the outline of the students and faculty achievements with the activities of the department.

Mechanical Engineering

Vision

To make Department of Mechanical Engineering the unique of its kind in the field of Research and Development activities in the prominent field of Mechanical Engineering in this part of the world

Mission

To impart highly Innovative and Technical Knowledge in the field of Mechanical Engineering to the urban and unreachable rural student folks, through "Total Quality Education".

Program Educational Objectives

PEO1 - Graduates of the Programme will excel in Technical Knowledge and Apply Innovative Skills in the field of Mechanical Engineering.
PEO2 - Graduates will contribute to Technological Development and Research Activities through "Total Quality Education".
PEO3 - Graduate of the Programme will accomplish Leadership Qualities and Social Responsibilities through "Life Long Learning".

Program Specific Outcomes

PSO1 - Graduates will be able to create and analyse the Research and Development activities related to design and manufacturing.
PSO2 - Graduates will be able to design, develop need based products in Mechanical Engineering and allied Industries.

Events Organized

S. No.	Date of Event	Name of the Event
1	02.07.22	Awareness about importance of Engineering Education
2	16.07.22	Scope of Coding in Mechanical Engineering
3	16.07.22	Industry Expectations
4	19.07.22	Wire Arc Additive Manufacturing
5	20.07.22	Angel Investment/VC Fudging Opportunity For Early-Stage Entrepreneurs
6	26.07.22	How to face the interview for Core/IT jobs
7	27.07.22	How to prepare for Tier 1 Core companies
8	03.08.22	Business Model Canvas
9	12.08.22	Applications of Computer Vision in Mechanical Engineering
10	16.08.22 to 17.08.22	Advancements in Alternate Filament Fabrication for 3D Printing

Events Organized

Events Organized

S. No.	Date of Event	Name of the Event
11	23.08.22	Reverse Engineering Techniques using 3D Scanner
12	22.09.22	Brake Systems in Indian Railways & Employment Opportunities
13	22.09.22	Fusion 360 Workshop for India Design Week 2023
14	26.09.22 & 27.09.22	Fusion Design Challenge
15	15.10.22	Benefits of becoming ISHRAE Student Member
16	29.10.22	Opportunities for Mechanical Engineers in Industries
17	10.01.23	Scope of HVAC in Industries
18	23.01.23	Opportunities in heavy lift equipment
19	23.01.23	Finite Element Analysis and Simulation
20	03.02.23	Design Thinking and its role in Business Organizations

Events Organized

S. No.	Date of Event	Name of the Event
21	08.02.23	Career opportunity for student in SAE India
22	10.02.23	Advances in Heat and Mass Transfer Operations
23	15.02.23 to 16.02.23	Challenges and Opportunities in Electric Vehicles
24	27.02.23	ENXENERIO'23
25	14.03.23	Quality Standards
26	11.07.23 & 12.07.23	Cycle Design Challenge
27	11.07.23, 13.07.23 & 14.07.23	Internet of Things
28	07.07.23 to 22.07.23	Additive Manufacturing

Scholar of Eminence

Dr. K.Murugananthan
Assistant Professor,
Mechanical Engineering,
Kamaraj College of Engineering
and Technology

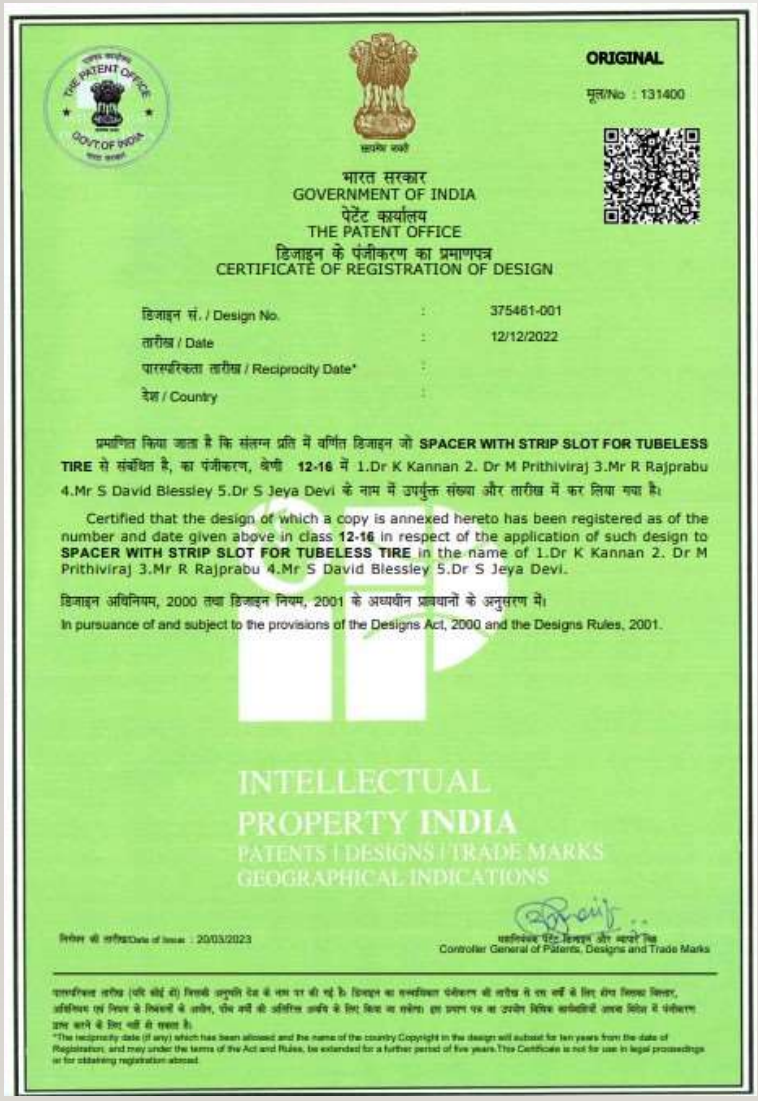
Dr. P.Senthamarai Kannan,
Assistant Professor,
Mechanical Engineering,
Kamaraj College of Engineering
and Technology

Achievements

2 of our faculty members are recognized as top 2% scientists world wide by Elsevier BV

5 of our faculty members are listed in world scientist list released by AD scientific Index 2022

Achievements



ORIGINAL

मूल/No : 131400

भारत सरकार
GOVERNMENT OF INDIA
पेटेंट कार्यालय
THE PATENT OFFICE
डिजाइन के पंजीकरण का प्रमाणपत्र
CERTIFICATE OF REGISTRATION OF DESIGN

डिजाइन सं. / Design No.	:	375461-001
तारीख / Date	:	12/12/2022
पारस्परिकता तारीख / Reciprocity Date*	:	
देश / Country	:	

प्रमाणित किया जाता है कि संलग्न प्रति में वर्णित डिजाइन जो **SPACER WITH STRIP SLOT FOR TUBELESS TIRE** से संबंधित है, का पंजीकरण, श्रेणी **12-16** में 1.Dr K Kannan 2. Dr M Prithiviraj 3.Mr R Rajprabu 4.Mr S David Blessley 5.Dr S Jeya Devi के नाम में उपर्युक्त संख्या और तारीख में कर लिया गया है।

Certified that the design of which a copy is annexed hereto has been registered as of the number and date given above in class **12-16** in respect of the application of such design to **SPACER WITH STRIP SLOT FOR TUBELESS TIRE** in the name of 1.Dr K Kannan 2. Dr M Prithiviraj 3.Mr R Rajprabu 4.Mr S David Blessley 5.Dr S Jeya Devi.

डिजाइन अधिनियम, 2000 तथा डिजाइन नियम, 2001 के अध्यधीन प्रावधानों के अनुसरण में।
In pursuance of and subject to the provisions of the Designs Act, 2000 and the Designs Rules, 2001.

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निर्गम की तारीख/Date of Issue : 20/03/2023

नियंत्रक महानियंत्रक पेटेंट, डिजाइन और व्यापार चिह्न
Controller General of Patents, Designs and Trade Marks

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A design patent titled "SPACER WITH STRIP SLOT FOR TUBELESS" TIRE was granted to Dr.M Prithiviraj AP/ Mechanical Engineering

Achievements

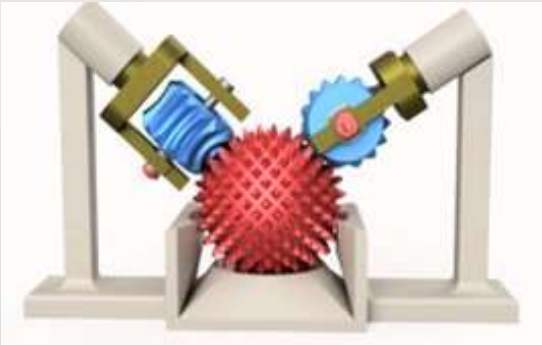
Dr. B.Balavairavan, Assistant Prof/Mech received Guideship from Anna University, Chennai

Dr.B.Balavairavan , Assistant Prof/Mech was recognized by Anna University, Chennai for publishing his PhD article in Q1 Journal

Er.R.Sakthivel Murugan, AP/ Mechanical Engineering has successfully completed the NPTEL course "Introduction to Machine Learning" in Elite category

Mr.D.Palani Kumar AP/ Mechanical Engineering awarded as Top Performing Mentor for Computer Integration Manufacturing course by NPTEL

Achievements



•**Received Rs.7,500/-** from Foundation for **Tamilnadu State Council for Science and Technology, Chennai** under **Students Projects Scheme (2022 - 2023)** for the project titled **"ENERGY CONSERVATION IN INDUSTRIES BY END EFFECTOR ACTIVE BALL JOINT MECHANISM**

•**Students - R. Praveen raj, K. B. Vignesh and C. Aravindan.**
•**Guide – Mr.N.R.Madhan, AP/ Mech. Engg.**

Achievements

- Mr. S.Kirubakaran of II Year Mechanical Engineering won First prize in Photography event organized by National Engineering College (Autonomous), Kovilpatti on 14.10.22.
- Mr. M.Jegatheesh, Mr. K.Gokul Raj, Mr. V.Karan, Mr. S.Ramachandran and Mr. V.Chandru of II Year Mechanical Engineering won Best Team Award in the event Dirt Rash organized by Sri Ramakrishna Engineering College, Coimbatore on 19.10.22.
- Mr. G. Rathina siva malayappan of IV Year Mechanical Engineering received Rs.1,49,000/- as Merit Scholarship from Dinamalar & KingMakers IAS Academy on 23.01.2023.

Achievements

- Mr. S.Kiran of II Year Mechanical Engineering won First prize in Paper presentation Contest organized by PSR Engineering College, Sivakasi on 27.01.23. (Title - Design thinking specialised in prototyping)
- Mr. J.Jeeva of III Year Mechanical Engineering won second prize in the event Combinatorials Organized by NIT, Trichy on 27.01.23.
- Mr. H.G.Sabaris of III Year Mechanical Engineering won third prize in the event Combinatorials Organized by NIT, Trichy on 27.01.23.
- Mr. J. Madhav Venkatesh of II Year Mechanical Engineering won Second prize in the event WHAT IF Organized by NIT, Trichy.

Achievements

- Mr. M.Jegatheesh, Mr. K.Gokul Raj, Mr. V.Karan, Mr. A.Kaliraj, Mr. S.Kishore and Mr. K.Sivabalan of II Year Mechanical Engineering won Best Team Award in the event National level mini bike racing challenge organized by Sri Ramakrishna Engineering College, Coimbatore.

Achievements

•Mr. H.G.Sabarish, Mr. Thangaraj, Mr. Mareeswaran and Mr. Manoj Kumar of III Year Mechanical Engineering Participated in MECH TECH Talk, Cad Modelling, Machinist events in state level Symposium (GenNext2022) organized by Velammal Engineering College, Madurai on October 14, 2022.

•Mr.E.GokulaKrishnan of III year Mechanical Engineering secured Third place in AU Zonal Match Tennis organized by M.Kumarasamy College of Engineering on 27.10.22.

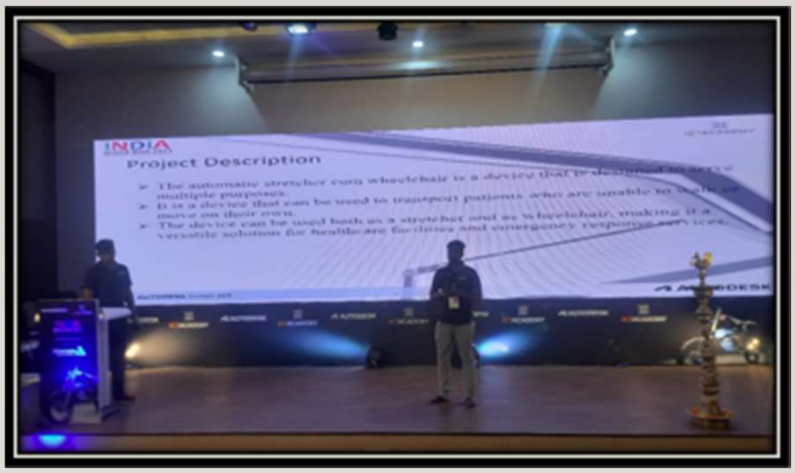
Achievements

- Mr. A.Akash, Mr. M.DA.Shyam and Mr. H.G.Sabaris of III Year Mechanical Engineering won second prize in "Level – I Autodesk Fusion 360 Mega Challenge (Madurai Division)" organized by AU-TNSDC.
- Mr. A.Akash, Mr. M.DA.Shyam and Mr. H.G.Sabaris of III Year Mechanical Engineering won second prize in "Level – II Autodesk Fusion 360 Mega Challenge (Madurai Division)" organized by AU-TNSDC.
- Mr. A.Akash, Mr. M.DA.Shyam and Mr. H.G.Sabaris of III Year Mechanical Engineering won second prize in "Level – III Autodesk Fusion 360 Mega Challenge (Madurai Division)" organized by AU-TNSDC.
- Mr. T.Thangaraj, Mr. C.Praveen and Mr. P.Silamparasan of III Year Mechanical Engineering won second prize in "Level – III Autodesk Fusion 360 Mega Challenge (Chennai Division)" organized by AU-TNSDC.
- Mr. A.Akash and Mr. M.DA.Shyam of III Year Mechanical Engineering won second prize in the event Quality Quiz'23 organized by Anna University, Chennai.

Achievements

•Our III Mech Students, Thangaraj & Praveen participated in the Finals of India Design Week Challenge 2023- National Level Design Challenge held at Shri Sairam Institutions, Chennai on 25&26 April 2023.

•Out of 90 teams in the finals from various state, our students team bagged one among top 15 teams and gave Presentation for the final round of finals.



Achievements

Mini TECHNOVISION 2K23
INTRA COLLEGE PROJECT COMPETITION

Achievements

Mini TECHNOVISION 2K23
INTRA COLLEGE PROJECT COMPETITION

Achievements

Mr.K.Jaideep Kumar & Mr.V.Shyamganesh of III Year Mechanical Engineering has successfully completed the NPTEL course "Computer Integration Manufacturing" in Elite category


Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

V SHYAM GANESH

for successfully completing the course

Computer Integrated Manufacturing

with a consolidated score of 75 %

Online Assignments	21.88/25	Proctored Exam	53.5/75

Total number of candidates certified in this course: 1261

Prof. B. V. Ratish Kumar
Chairman, Centre for Continuing Education
IIT Kanpur

Jan-Apr 2023
(12 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

Roll No: NPTEL23ME13534930246

To validate the certificate

No. of credits recommended: 3 or 4


Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

JAIDEEP KUMAR K

for successfully completing the course

Computer Integrated Manufacturing

with a consolidated score of 75 %

Online Assignments	23.44/25	Proctored Exam	52/75

Total number of candidates certified in this course: 1261

Prof. B. V. Ratish Kumar
Chairman, Centre for Continuing Education
IIT Kanpur

Jan-Apr 2023
(12 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

Roll No: NPTEL23ME13544110508

To validate the certificate

No. of credits recommended: 3 or 4

Student's Corner - Technical Article

ENERGY CONSERVATION IN INDUSTRIES BY END EFFECTOR ACTIVE BALL JOINT MECHANISM

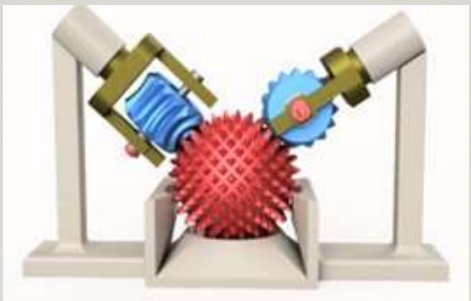
Team Members

R. Praveen raj, K. B. Vignesh and C. Aravindan

Project Supervisor – Mr.N.R.Madhan

ABSTRACT

The main objective of our project is to design an active sphere mechanism in between two driveshafts and robotic arm. Active joint is a mechanism in which it is enhanced by interactions of spherical gears. Three degree of rotational sphere joint with a simple and compact mechanism, which can realize a rotation around an any direction rotational axis smoothly and arbitrarily when it is on rotating. Then the sphere joint is developed with good dynamics and lower friction and experimental verification on the proposed mechanism is performed. The effectiveness of the mechanism principle is outlined by some experimental results.



Design and fabrication of footwear garbage reinforcement fly ash bricks/paver block

Team Members

P.SILAMPARASAN. 20UME033
C.PRAVEEN. 20UME032
L.VIGNESH. 20UME011

Project Supervisor – Dr.K.Murugananthan

ABSTRACT

Foot Wear Waste and their accumulation is a global environmental concern, as 35 crore of waste foot wear are generated annually in the world. In our project foot wear waste are incorporated in paver block and fly ash production. The produced foot wear garbage reinforced paver block and fly ash bricks are tested mechanically .The results showed that 20% reduction in strength when compare to ordinary paver block however the strength is laid in the range of standard values.

Technical Article

Industry 4.0 – An Overview

Industry 4.0, also known as the Fourth Industrial Revolution, is a term used to describe the ongoing transformation of various industries through the integration of advanced digital technologies. It builds upon the foundations laid by the previous industrial revolutions and seeks to create "smart factories" or "smart industries" that are more efficient, productive, and interconnected.

Key technologies driving Industry 4.0 include:

Internet of Things (IoT): IoT enables physical devices and machines to connect and communicate with each other through the internet, facilitating data exchange and automation.

Big Data and Analytics: With the increasing amount of data generated by connected devices, big data analytics is used to process and derive valuable insights, aiding in decision-making and process optimization.

Artificial Intelligence (AI) and Machine Learning: AI and machine learning are utilized to create intelligent systems that can learn from data, adapt, and make decisions without human intervention, improving efficiency and accuracy.

Robotics and Automation: Advanced robots and automated systems play a crucial role in Industry 4.0 by performing repetitive tasks, enhancing precision, and reducing human error.

Additive Manufacturing (3D Printing): 3D printing allows the creation of complex and customized objects, reducing waste and speeding up the prototyping and production processes.

Augmented Reality (AR) and Virtual Reality (VR): AR and VR technologies are applied to provide enhanced visualization, remote training, and maintenance support.

Cybersecurity: As the level of connectivity increases, ensuring the security of data and systems becomes vital to protect against cyber threats and attacks.

The main objectives of Industry 4.0 include:

- Increased Efficiency: By leveraging data-driven insights and automation, processes can be streamlined, leading to higher productivity and reduced resource wastage.

- Enhanced Flexibility: Smart factories can quickly adapt to changing market demands and customize products to individual customer needs.

- Improved Quality: Automation and data analytics can help maintain consistent and higher-quality products.

- Cost Reduction: Optimizing processes, reducing downtime, and preventing costly errors can result in overall cost savings.

- Sustainability: Industry 4.0 technologies offer the potential for more sustainable practices by minimizing waste and energy consumption.

Industry 4.0 has a profound impact on various sectors, including manufacturing, healthcare, logistics, agriculture, and transportation, among others. However, the widespread implementation of Industry 4.0 technologies also raises concerns about data privacy, job displacement, and the need for reskilling the workforce to meet the demands of this digital era.

Mr.A.Kumaran,

Subject Matter Expert,

TATA Technologies

Opportunities in MEP

Saravanakumar P
Founder & CEO

MEP stands for Mechanical, Electrical, and Plumbing. It refers to the specialized engineering disciplines involved in designing, constructing, and maintaining the mechanical, electrical, and plumbing systems of buildings and infrastructure. There are numerous opportunities in the MEP field, and it remains an essential aspect of the construction industry. Here are some of the key opportunities in MEP:

- Design and Engineering: MEP engineers play a crucial role in the design phase of construction projects. They work on creating efficient and sustainable systems for heating, ventilation, air conditioning (HVAC), electrical power distribution, lighting, plumbing, and fire protection. These professionals use computer-aided design (CAD) software and other simulation tools to optimize system performance.

- Construction and Installation: During the construction phase, there is a need for skilled professionals to install MEP systems based on the designs. This involves working with contractors, project managers, and other stakeholders to ensure that the installations are carried out correctly and within the project timeline.
- Maintenance and Operations: After the construction is complete, there is an ongoing need for maintenance and operation of MEP systems in various buildings and infrastructure. Facilities management companies and building owners hire MEP technicians and engineers to ensure that the systems are running efficiently, perform regular inspections, and handle repairs and upgrades when necessary.
- Energy Efficiency and Sustainability: The increasing focus on sustainable construction has opened up opportunities for MEP engineers to design energy-efficient and environmentally friendly systems. Implementing green technologies, renewable energy sources, and energy-saving measures has become a key aspect of MEP projects.
- Building Information Modeling (BIM): BIM technology has transformed the way construction projects are executed. MEP professionals who are proficient in BIM software can collaborate more effectively with architects, structural engineers, and other stakeholders, leading to better-coordinated designs and reduced project risks.

- Specialization in Niche Areas: Within the MEP field, there are numerous niche areas that professionals can specialize in, such as fire protection, data centers, healthcare facilities, sustainable design, industrial plants, and more. Specializing in a particular field can lead to increased demand and higher pay.
- Research and Development: There is a continuous demand for innovation in the MEP industry. Research and development opportunities exist for engineers and scientists to explore new materials, technologies, and methodologies to improve the efficiency and performance of MEP systems.
- Consulting and Project Management: Experienced MEP professionals can transition into consulting roles, providing expert advice to clients and other engineering firms. Project management roles are also available for those with a strong background in MEP and excellent organizational and leadership skills.
- The MEP field is diverse and ever-evolving, providing a wide range of opportunities for individuals interested in engineering, design, construction, sustainability, and innovation. As the demand for energy-efficient and sustainable buildings grows, so will the opportunities for MEP professionals to make a positive impact on the construction industry.

Editorial Team

Roll No.	Name	Year
20UME004	RAJA SRINIVAS.M	IV-MECH
21UME015	KANNAN.M	III-MECH
21UME016	KIRUBAKARAN.S	III-MECH
21UME039	ANAND.G	III-MECH

Editorial Team

Editor – Mr.B.K.Parrthipan
parrthipanmech@kamarajengg.edu.in

Co Editor – Mr. RAJAGURU.C
20UME045 – IV Year MECH