Edition IV, Volume I, 2020-21

Mechanical Engineering E-Magazine (LBRCE)

(TIER-I)

MECH PULSE

(JUL-SEP 2020)

DEPARTMENT OF MECHANICAL ENGINEERING

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(Autonomous)

Accredited by NAAC & NBA (CSE, IT, ECE, EEE & ME) under Tier - I

Approved by AICTE and Permanently Affiliated to JNTUK, Kakinada

MESSAGE FROM HEAD OF THE DEPARTMENT

I am very happy to inform you that the department of mechanical engineering is bringing **MECH PULSE-an e-magazine** its edition IV and volume I. The department of mechanical engineering is Accredited by **National Board of Accreditation (NBA) under Tier-I** and is started in the year 1998 with an intake of 60 students. At present the department is offering B.Tech Mechanical Engineering with an intake of 120 students and M.Tech – Thermal Engineering with an intake of 18 students. The department has thirteen state of art laboratories worth of 2.8 crores, with advanced computing facilities, software and research equipment. Advanced **Research Laboratories** in the area of **Cognitive Science, Material Testing, Tribology and Thermal Engineering** are available. Sophisticated **ANSYS Skill Development Centre** with 110 users of ANSYS 18.1 and **Dassult 3D Experience centre** (in association with APSSDC) is available. The department has 37 faculty members with 9 Doctoral degrees. Fourteen faculty are actively pursuing for their Ph.D in various universities and nine research scholars are working for their doctoral under the department faculty. The department faculty constantly upgrade their knowledge in the area of their domain by attending various Faculty Development Programs, workshops, seminars etc. The faculty are actively engaged in their research work and are active in publishing papers in journals and conferences.

VISION OF THE DEPARTMENT

- To impart knowledge in Mechanical Engineering with global perspectives for the graduates to serve the society and industry.

MISSION OF THE DEPARTMENT

- To enable the graduates technically sound with the state- of- the –art curriculum and innovative teaching methods
- To provide training programs that bridge the gap between academia and industry
- To create a conducive environment and facilities to improve overall personality development of the graduates
- To make the graduates aware of role and responsibilities of an engineer in society.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To build a professional career and pursue higher studies with sound knowledge in Mathematics, Science and Mechanical Engineering.
PEO2: To inculcate strong ethical values and leadership qualities for graduates to become successful in multidisciplinary activities.
PEO3: To develop inquisitiveness towards good communication and lifelong learning.

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:
Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: To apply the principles of thermal sciences to design and develop various thermal systems.
PSO2: To apply the principles of manufacturing technology, scientific management towards improvement of quality and optimization of engineering systems in the design, analysis and manufacturability of products.
PSO3: To apply the basic principles of mechanical engineering design for evaluation of performance of various systems relating to transmission of motion and power, conservation of energy and other process equipment.

ONGOING RESEARCH PROJECTS

S.No.	Name of the Faculty	Title of the Project	Funding Agency	Amount Sanctioned	Sanctioned Year
1.	Dr.K.Appa Rao	Experimental Investigation on Homogeneous Charge Compression Ignition Engine	UGC	1, 55,000	2018
2.	Dr.N.Sunil Naik	Evaluation of engine parameters affecting the performance of enzymatic transesterification process using test fuel blends	DST/SERB/EEQ	22,81,000	2019
3.	Dr.P.Vijay Kumar	Prerana scheme	AICTE	4,80,000	2019
4.	Dr.K.Murahari	Frontier of 3D Printing Technology & its Industrial Applications (Sponsored FDP)	AICTE	4,77,833	2020

CONFERENCES ATTEDED BY THE FACULTY

- A.Dhanunjay Kumar, "Improvement of Weld Joint Strength By Applying Random Vibrations Along With External Magnetic Field" in International Congress on Advances in Mechanical Sciences at Vardaman college of Engineering, Hyderabad during 27.08.2020 to 28.08.2020.
- J.Subba Reddy, Social Science & Management Welfare Association a national conference SSMWA 2020 in Radiant Group of Institution, Jabalpur on 01.08.2020.
- J.Subba Reddy, Embracing Change and Tranformation through Innovation & Creativity an International conference in JIT, Nagpur on 16.08.2020.

JOURNALS PUBLISHED BY THE FACULTY

Mr.A.Nageswara Rao,
Sr.Assistant Professor
nagesh803@gmail.com

Title of the Paper: Safe Design and Anlaysis of Motorcycle Helmet

Name of the Journal: Journal of Green Engineering (JGE)

Co-Authors:B.Chaitanya

Publication on: July 2020

ISSN No (print):1904-4720

ISSN No (Online): 2245-4586

Doi:

Abstract: As per Government of India (Ministry of Road Transport and Highways Transport Research Wing), Road accidents deaths is almost 1.5 lakh people annually in India.India contributing for nearly 11% of the road accident deaths in the globe. In Motorcycles accidents 29% of kills can be credited for non-wearing of helmets. Helmet is very essential safety tool for motorcyclists. The new stringent policies and traffic rules in India, it is compulsory to wear the helmet for safety while riding two wheeler for driver and pillion driver also.For offering better safety for the rider, helmets are designed with light weight plastic exterior material, protective polystyrene layer and urethane padding for comfort are added. The weight and comfort level are significant factors for wearing helmet. This paper presents the design of helmet with Indian standards with parametric modeling technique using CATIA software. A popular technique Finite Element Analysis (FEA) was used for the analysis to motorcycle helmet.Performed different analysis by using ANSYS software for the proposed helmet model to get better results for the design. Firstly structural analysis is performed to find deformation and stresses imposed in the helmet. Secondly Impact test is conducted to find the failure analysis for the helmet hit with concrete wall with high velocity. Finally Computational Fluid Dynamic (CFD) analysis is performed by using FLUENT version in ANSYS software to finding airflow of helmet.

JOURNALS PUBLISHED BY THE FACULTY

Mr.A.Dhanunjay Kumar,

Assistant Professor

dhanaammisetti@gmail.com

Title of the Paper: Optimization of Productivity of Seats Using Time Study and Assembly Line Balancing

Name of the Journal: International Journal of Mechanical and Production Engineering Research and Development

Co-Authors:

Publication on: July 2020

ISSN (print No):2249-6890

ISSN (Online No) :2249-8001

Doi:

Abstract: Line balancing is a production strategy that can be used to optimize the workstations or assembly line throughout. It helps to reduce the production time, reduce labor and maximizing output at lowest cost. This article represents case study problem in a company to develop the existing layout based on takt time and also to improve the labor productivity and machine utilization. In this work time study has conducted in order to calculate task time of every operation in the existing plant layout. The objective of this study is to balance the production line and also to improve the performance of the existing layout. The data used for this research work is collected from the company. The outcome of the research shows 12.84% improvement in production line efficiency after line balancing. Hence this study recommends that the company should adopt the proposed layout and replacing the existing layout with a new one for getting higher productivit.

JOURNALS PUBLISHED BY THE FACULTY

Dr.V.Dhana Raju,
Assoc. Professor
dhanaraju1984@gmail.com

Title of the Paper: Enhancement in combustion, performance, and emission characteristics of a diesel engine fueled with Ce-ZnO nanoparticle additive added soybean biodiesel blends

Name of the Journal: energies

Co-Authors:

Publication on: September 2020

ISSN No: 1996-1073

Doi:

Abstract: This study considered the impacts of diesel–soybean biodiesel blends mixed with 3% cerium coated zinc oxide (Ce-ZnO) nanoparticles on the performance, emission, and combustion characteristics of a single cylinder diesel engine. The fuel blends were prepared using 25% soybean biodiesel in diesel (SBME25). Ce-ZnO nanoparticle additives were blended with SBME25 at 25, 50, and 75 ppm using the ultrasonication process with a surfactant (Span 80) at 2 vol.% to enhance the stability of the blend. A variable compression ratio engine operated at a 19.5:1 compression ratio (CR) using these blends resulted in an improvement in overall engine characteristics. With 50 ppm Ce-ZnO nanoparticle additive in SBME25 (SBME25Ce-ZnO50), the brake thermal efficiency (BTE) and heat release rate (HRR) increased by 20.66% and 18.1%, respectively; brake specific fuel consumption (BSFC) by 21.81%; and the CO, smoke, and hydrocarbon (HC) decreased by 30%, 18.7%, and 21.5%, respectively, compared to SBME25 fuel operation. However, the oxides of nitrogen slightly rose for all the nanoparticle added blends. As such, 50 ppm of Ce-ZnO nanoparticle in the blend is a potent choice for the enhancement of engine performance, combustion, and emission characteristics.

JOURNALS PUBLISHED BY THE FACULTY

Dr.V.Dhana Raju,
Assoc. Professor
dhanaraju1984@gmail.com

Title of the Paper: Combined influence of compression ratio and EGR on diverse characteristics of a research diesel engine fueled with waste mango seed biodiesel blend

Name of the Journal: Energy sources part A

Co-Authors:S Rami Reddy

Publication on: August 2020

ISSN No:1556-7036

Doi: *https://doi.org/10.1080/15567036.2020.1811809*

Abstract:.Currently world is encountering crisis such as diminution of fossil fuel resources and global warming due to engine emissions. Changing the operating parameters of the engine is one of feasible technique to enhance the engine performance. The present experimental work is mainly focuses on the influence of changing compression ratio along with different EGR rates for the research diesel engine fueled with 20% mango seed methyl ester (MSME 20).Transesterification process was used to reduce the viscosity of mango seed methyl ester. As per ASTM standards, the fuel properties of MSME and MSME20 were evaluated and compared with diesel. Initially, the compression ratio was varied at three levels such as 18:1, 20:1, and 22:1 for the diesel engine powered with 20% mango seed biodiesel blend and compared with diesel. Based on experimentation, it was found that MSME20 blend with compression ratio of 22:1 was shown enhanced brake thermal efficiency by 7.4% and also reduction in engine emissions such as carbon monoxide, hydrocarbon and smoke opacity by 33.3%, 40%, and 7.1% were found at full load respectively when compared to MSME20 with compression ratio of 18:1. However, there was considerable increment in NO_X emissions. In order to mitigate the NO_X emissions, the engine is further operated with different EGR rates (5% and 10%) at compression ratio of 22:1. The test results evident that addition of 5% of EGR to the engine running at compression ratio 22:1 reduced the NO_X emission levels by 40.5% over standard conditions without much penalty in engine performance

JOURNALS PUBLISHED BY THE FACULTY

Dr.P.Vijay Kumar,
Professor
pioel2013@gmail.com

Title of the Paper: Study on performance of solar stills integrated with thermal energy storage and solar flat plate collector
Name of the Journal: Gedrag&Orgaganisatie Review

Co-Authors:

Publication on: Sep 2020

ISSN No:0921-5077

Doi: https://www.doi.org/10.37896/GOR33.03/484

Abstract: Society needs a low-cost device to convert saltwater into drinking water. A solar still coupled to a solar collector and thermal energy storage is investigated. Solar still is designed with a double-sloped basin. The objective is to study the effect of combined flat plate solar collector andthermal energy storage with solar stills. The experiment is carried out for different water depthsat 10, 20, and 30 mm in the basin. Flat plate collector is used as the preheater, and paraffin waxis used to provide heat energy during lean solar light. The productivity of water at a smallerdepth is observed higher. The productivity is increased to 22%, and the peak yield is increasedby 15% with the flat plate collector and energy storage. Such a small-scale solar stills are most beneficial to poor people.

JOURNALS PUBLISHED BY THE FACULTY

Mr.S. Rami Reddy,

Assistant Professor

ramireddy.mec@gmail.com

Title of the Paper: Experimental evaluation of diesel engine powered with waste mango seed biodiesel at different injection timings and EGR rates

Name of the Journal: Fuel (Elseveir)

Co-Authors:V.Dhana Raju

Publication on: 04.09.2020

ISSN No:0016-2361

Doi:

Abstract: Stringent emission norms and renewable energy policies of governments are creating necessity to adopt renewable energy sources for diesel engine applications. Changing the operating parameters of the engine is one of feasible technique to enhance the engine performance. The present experimental work is mainly focuses on the influence of changing injection timing along with different EGR rates for the research diesel engine fuelled with 20% mango seed methyl ester (MSME 20). Initially, the fuel injection timing varied at three levels such as retarded injection timing (19° bTDC), standard injection timing (23° bTDC) and advanced injection timing (25° bTDC) for the diesel engine powered with 20% mango seed biodiesel blend and compared with diesel. Based on experimentation, it was found that MSME20 blend at advanced injection timing resulted in higher BTE by 4.54% and also drastic reduction in engine exhaust emissions like carbon monoxide, hydrocarbon and smoke emissions by 32.43%, 29.26% and 15.38% when compared with MSME 20 (23° bTDC) blend at full load conditions. However, there was considerable increment in NO_X emissions. In order to mitigate the NO_X emissions, the engine is further operated with different EGR rates (5% and 10%) at advanced fuel injection timing. Addition of 5% EGR concentration to advanced injection timing (25° bTDC) was significantly reduced NO_X emissions by 43.38% without much compromise in engine performance.

JOURNALS PUBLISHED BY THE FACULTY

Mr.S. Rami Reddy,
Assistant Professor
ramireddy.mec@gmail.com

Title of the Paper: Assessment of diethyl ether as fuel additive on the diverse characteristics of diesel engine powered with waste mango seed biodiesel blend

Name of the Journal: International Journal of Ambient Energy (Taylor& Francis)

Co-Authors:V.Dhana Raju

Publication on: 17.09.2020

ISSN No (print):0143-0750

ISSN No (online);2162-8246

Doi:

Abstract:.The present research work primarily focuses on the extraction of mango seed biodiesel from the waste mango seeds through transesterification process. Preliminary tests were conducted with diesel and different blends of mango seed biodiesel such as MSME10, MSME20, MSME30 and MSME40 at standard operation conditions of Kirloskar diesel engine. It was found MSME20 have shown better performance parameters. Further, diethyl ether was added to MSME20 at three levels like 5%, 10% and 15% on volume basis. Test results revealed that 5% addition of DEE to MSME20 has shown 3.96% enhancement in brake thermal efficiency at full load. Further, it was found for MSME20 DEE 5%, the exhaust emissions such as CO, HC and smoke were decreased significantly by 11.2%, 10.41% and 9.58%, respectively, when compared to the MSME20 at full load. Hence, the use of MSME20 DEE 5% biodiesel blend could encourage achieving the promising results from the diesel engine

STUDENTS PROJECT

Title of the Project: MODELLING AND EXPERIMENTAL ANALYSIS ON SOLAR ASSISTED THERMOELECTRIC REFRIGERATION SYSTEM

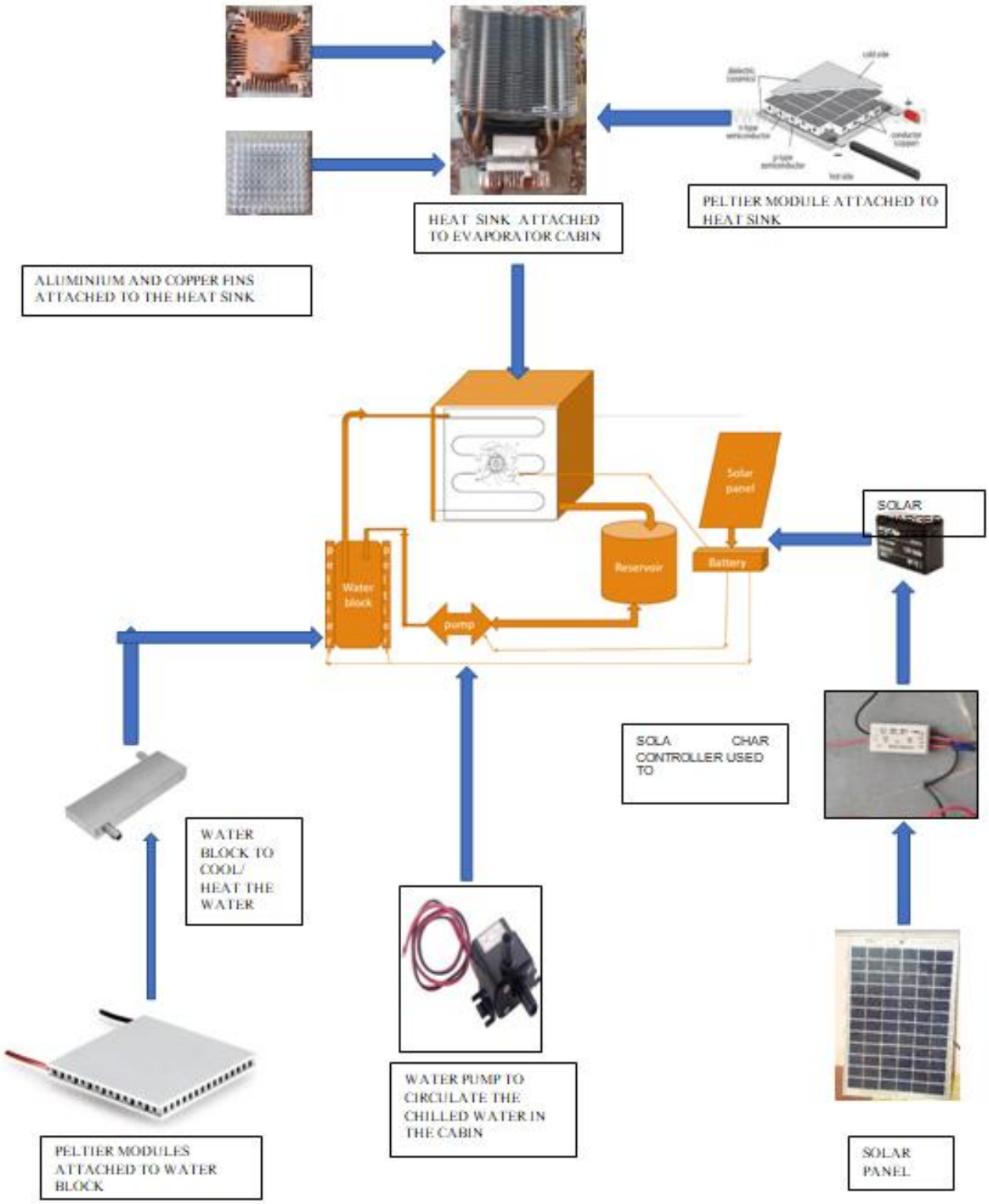
Project Members:
16761A0323
16761A0355
17765A0307

Project Supervisor: **DR. P. RAVINDRA KUMAR**

Abstract:

Refrigeration system based on electricity causes global warming and climate change. This system creates problems like energy crisis and degradation of the environment and cause of depletion of the ozone layer. Global warming is the slow increase in the average temperature of the earth's atmosphere because an increased amount of the energy (heat) striking the earth from the sun is being trapped in the atmosphere and not radiated out into space. This is due to continuous usage of refrigerants that causes the fluorinated gases were created as replacements for ozone depleting refrigerants but have proved to be both extremely long lasting and extremely warming GHGs. Hence, we need to have an alternative system which can perform the same work but with less damage done to the environment.

This proposed system uses the solar energy and Peltier devices to produce the cooling effect. But the COP of this system is less. Hence to increase the COP of the system the heat dissipation on the hot side of the Peltier module should be efficient so that much lower temperature can be achieved. In this project work water is used as the refrigerant and the water is mixed with ethylene glycol and both the values are compared. It is found that for the peltier module, the maximum temperature and minimum temperature obtained with water cooling are 75.2^{o}C and 13^{o}C and with air cooling the maximum and minimum temperature obtained are 70.3^{o}C and 16.6^{o}C. Hence, we concluded that water cooling is more efficient than air cooling.


HEAT SINK ATTACHED TO EVAPORATOR CABIN
PELTIER MODULE ATTACHED TO HEAT SINK
ALUMINIUM AND COPPER FINS ATTACHED TO THE HEAT SINK
Solar panel
Reservoir
Battery
Water block
pump
SOLAR
SOLA CHAR CONTROLLER USED TO
WATER BLOCK TO COOL/ HEAT THE WATER
WATER PUMP TO CIRCULATE THE CHILLED WATER IN THE CABIN
PELTIER MODULES ATTACHED TO WATER BLOCK
SOLAR PANEL

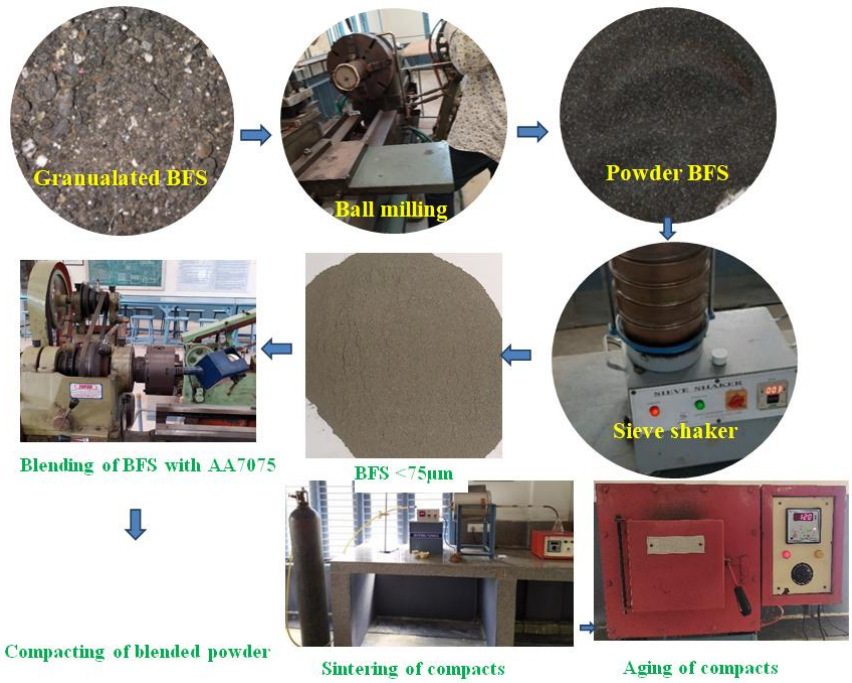
STUDENTS PROJECT

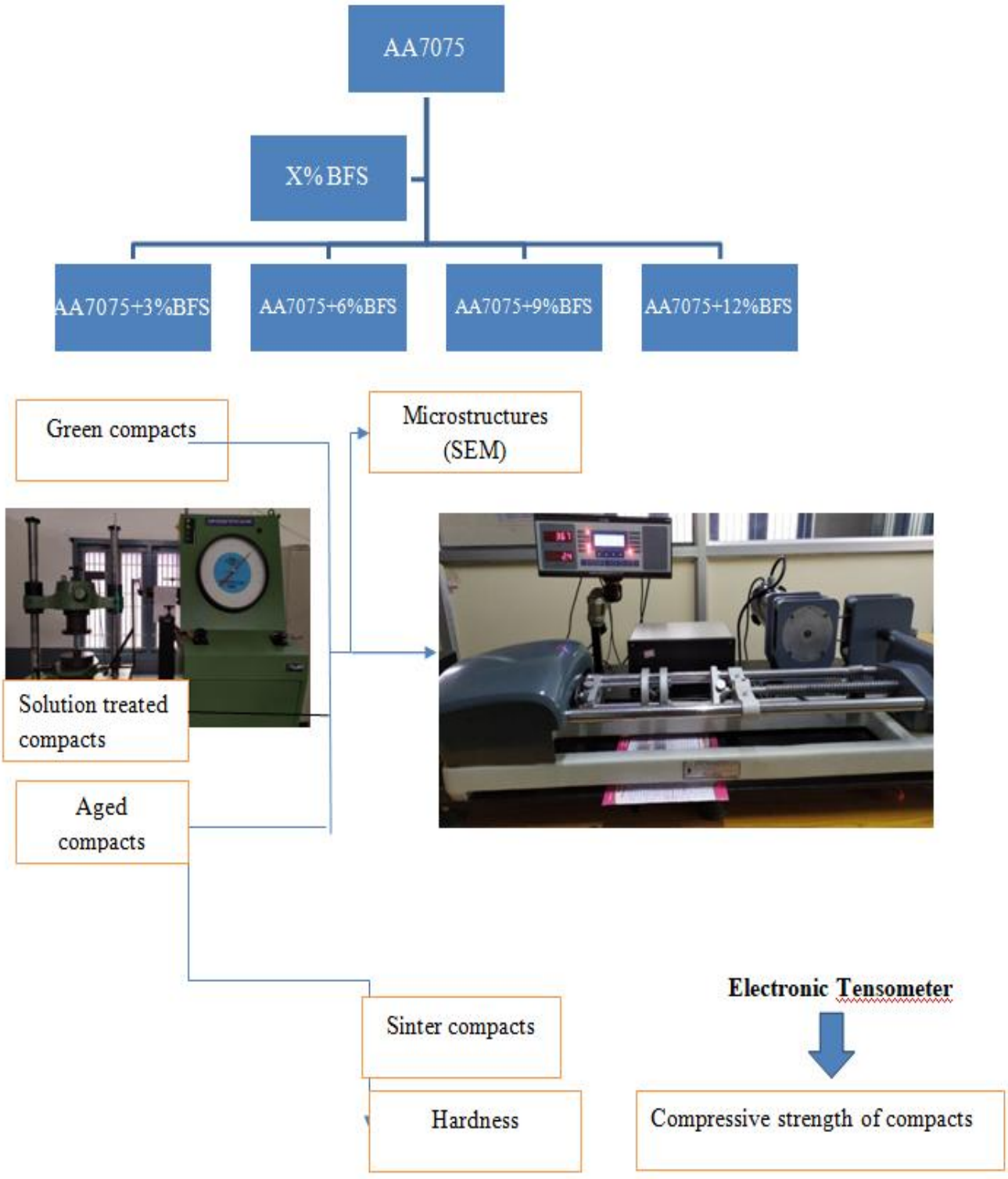
Title of the Project: MICROSTRUCTURE AND MECHANICAL PROPERTIES OF AA7075 REINFORCED WITH BLAST FURNACE SLAG

Project Members:
17765A0312
16761A0345
16761A0342
16761A0327

Project Supervisor: DR. S. PICHI REDDY

Abstract: Aluminium is the most commonly used material in automotive, aerospace, structural and defence applications due to its low density, good corrosion, thermal and electrical conductivity. It is a softer material compared to steel with good ductility and low strength. To improve the strength and other properties of aluminium some of the alloying elements are added. The major alloying elements are Cu, Mn, Mg, Si and Zn. The wrought heat treatable aluminium alloys are strengthened by heat treatment. Among the wrought heat treatable aluminium alloys 7XXX series has high strength and finds applications in aerospace and automotive. Out of these series AA7075 has great strength. Even these are high strength alloys, thermally unstable at high temperatures. Thus composites can be made to make the material thermally stable and improves strength also. The mostly used reinforcement materials are ceramics. The many Iron industries leave blast furnace slag as scrap which is not useful for Iron production and processing.
In the present work, we are going to study the microstructure and mechanical properties of AA7075 reinforced with Blast Furnace Slag processed by powder metallurgy technique by varying the percentage of reinforcement material and further aging will improve the strength of




AA7075
X%BFS
AA7075+3%BFS
AA7075+6%BFS
AA7075+9%BFS
AA7075+12%BFS
Green compacts
Microstructures (SEM)
Solution treated compacts
Aged compacts
Sinter compacts
Hardness
Electronic Tensometer
Compressive strength of compacts

STUDENTS PROJECT

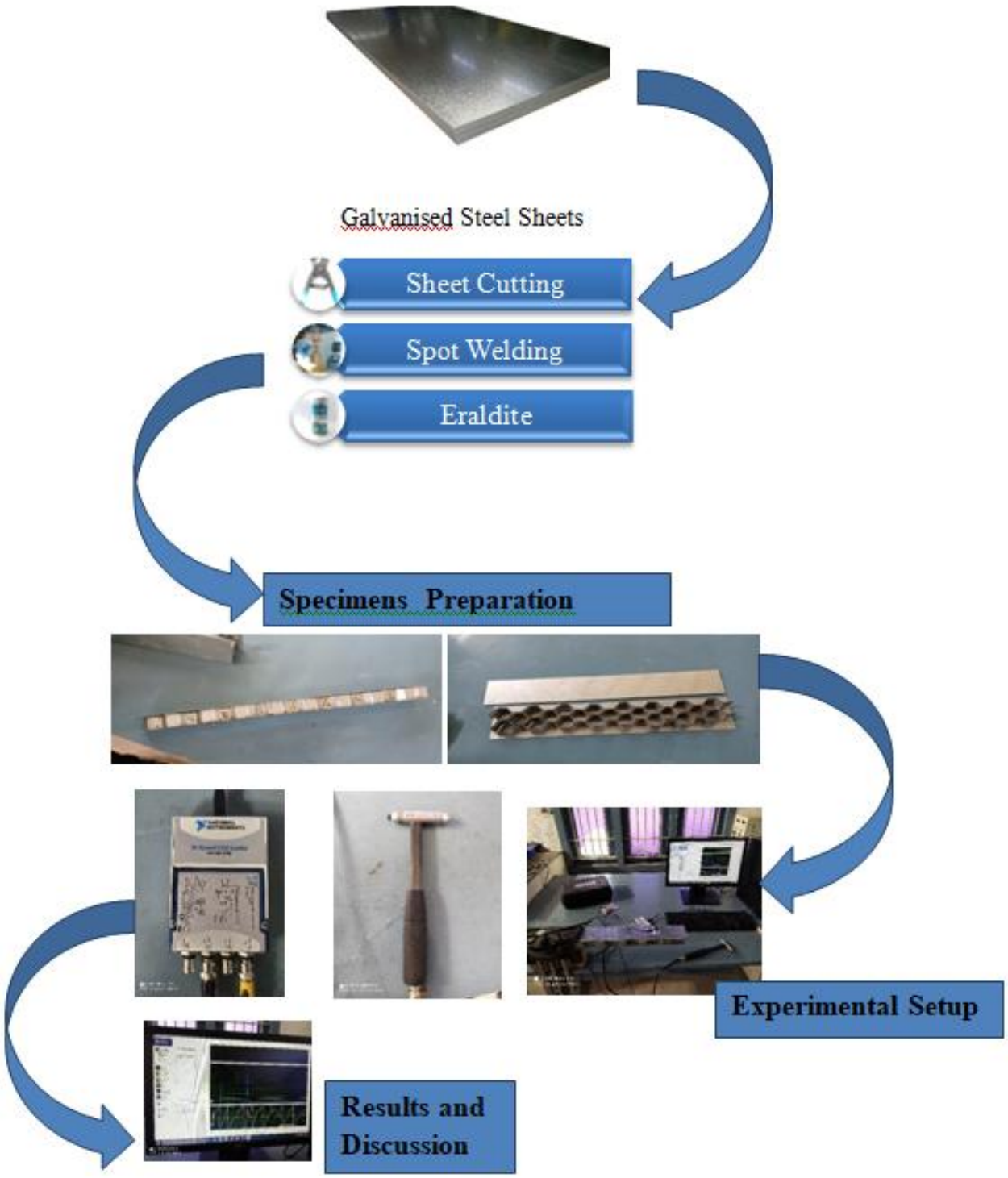
Title of the Project: **MODAL ANALYSIS ON HONEYCOMB SANDWICH CANTILEVER BEAM**

Project Members:
16761A0308
16761A0325
17765A0304
16761A0349

Project Supervisor: **MR. K. V. VISWANADH**

Abstract: In this project the free vibration analysis of sandwich structures of honeycomb hybrid structure was proposed theoretically, experimentally and numerically. The natural frequencies and mode shapes of various sandwich structures are to be determined for different configurations of cores under Fixed Free end boundary conditions (Cantilever Beam). The impacts of face sheet thickness, the core material thickness, cell size, cell angle and orientation of the cell on the vibration characteristics were to be inspected. The numerical studies were performed using ANSYS programming and were compared with the experimental results.

Keywords: Sandwich, Cantilever, Modal Analysis, Cell Size, Foil Thickness, Ansys Friction Stir Welding, AA6082 T6, Optimization,Process Parameters, Response Surface Methodology


Galvanised Steel Sheets
Sheet Cutting
Spot Welding
Eraldite
Specimens Preparation
Experimental Setup
Results and Discussion

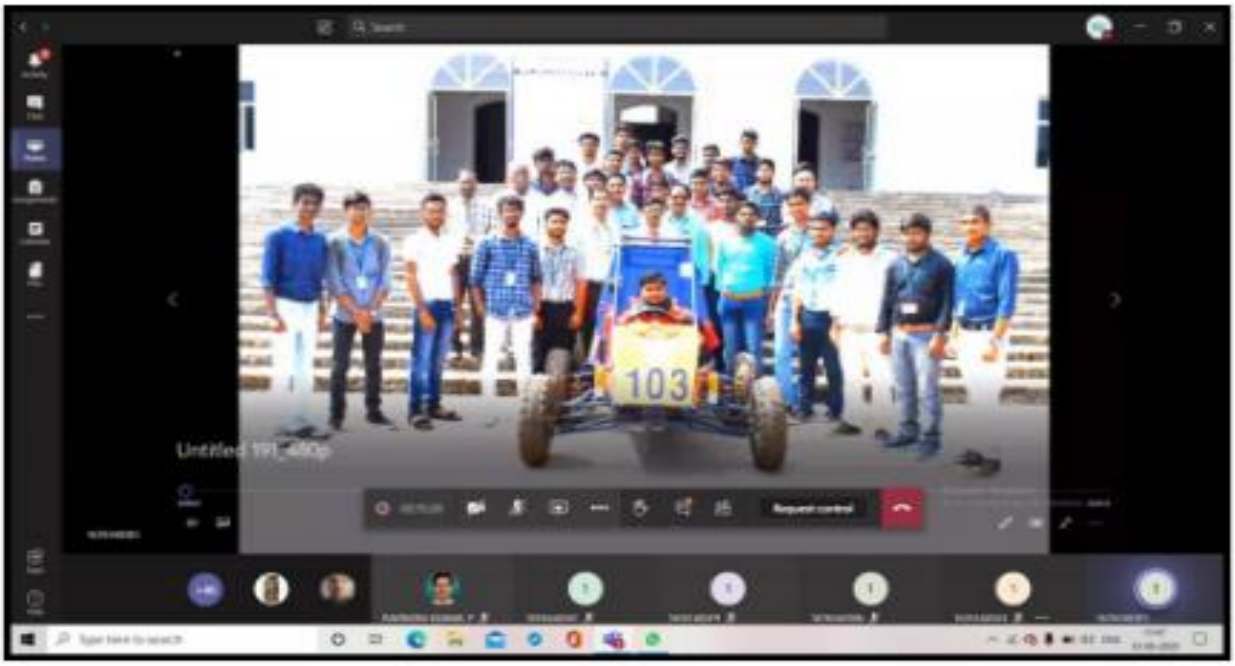
EVENTS ORGANIZED BY THE DEPARTMENT

ONLINE STUDENT WORKSHOPS

Design and Fabrication of All Terrain Vehicle Model

- The Dept. of Mechanical Engineering, organized a student workshop on **"**Design And Fabrication of All Terrain Vehicle Model**"** through online from 12/08/2020 to 14/08/2020 by various faculty from reputed institutions. Dr.P.Ravindra Kumar, J.Subba Reddy, K.Lakshmi Prasad coordinated the event.

Presentation by Dr.P.Ravindra Kumar



All terrain vehicle model

PROSPECTS OF BIOFUELS AS AN ALTERNATIVE TO FOSSIL FUELS FOR FUTURE AUTOMOBILES

- The Dept. of Mechanical Engineering, organized a student workshop on "Prospects of Biofuels as an Alternative to Fossil Fuels for Future Automobiles" through online from 10/08/2020 to 11/08/2020 by various faculty from reputed institutions. Dr.V.Dhana Raju, Dr.N.Sunil Naik, D.Mallikharjuna Rao coordinated the event.

Addressed by resource person Dr.D.Vinay Kumar

WEBINARS

- The Dept. of Mechanical Engineering, organized a online webinar on "Opportunities for Mechanical Engineers in HVAC & R Domain" on 09/09/2020 by Dr.R.V.S.S. Prasad, Business Head, Pavani Engineers. Dr.P.Vijay Kumar coordinated the event.

Addressed by Principal Dr.K.Appa Rao

Presentation by Dr.R.V.S.S.Prasad

SUMMARY OF COLLOQUIMS ORGANIZED

S. No	Name of The Faculty	Topic	Date
1.	Dr.S.Pichi Reddy	Simulating Conventional and Additive Manufacturing Processes	12.07.2020
2.	Dr.P.V.Chandra Sekhar Rao	Advancements in Design of Machine Elements	19.07.2020
3.	Dr.P.Vijay Kumar	Performance of a VCR system with PCM thermal storage	10.08.2020
4.	S.Srinivasa Reddy	Introduction to machining in industrial applications	17.08.2020
5.	Dr.P.Ravindra Kumar	Experimental performance analysis & optimization of solar heat pipe at various angles of inclination	23.09.2020
6.	J.Subba Reddy	Multi variable optimization of EDM parameters of Al7075 using resonse surface methodology	28.09.2020

FDP's/STTP's/STC's/WORKSHOP's ATTENDED BY FACULTY

1. Dr.P.Ravindra Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Engineering Thermodynamics" organized by Arasu Engineering College, Tamilnadu from 20.07.2020 to 24.07.2020.

2. Dr.K.Dilip Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Technological Advancements In Mechanical Engineering, TAME 2020" organized by Balaji Institute of Technology & Science from 29.06.2020 to 03.07.2020.

3. Dr.K.Dilip Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Effective Research Writing Using Latex" organized by Department of Mechanical Engineering, in association with Spoken Tutorial, IIT Bombay from 22.07.2020 to 27.07.2020.

4. J.Subba Reddy, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent Advances in Heat Transfer and its Applications" organized by B.M.S. College of Engineering, Bengaluru from 13.07.2020 to 17.07.2020.

5. B.Chaitanya, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent Trends in Management" organized by GATES Institute of Technology, Anantapur during 13.7.2020 to 19.7.2020.

6. B.Chaitanya, Dept. of Mechanical Engineering has participated in a faculty development program on "Research Innovations in Mechanical Engineering" organized by SASI Institute of Technology and Engineering, Tadepalligudem during 13.7.2020 to 17.7.2020.

7. Dr.V.Dhana Raju, Dept. of Mechanical Engineering has participated in a faculty development program on "Writing and publishing quality research papers in quality top tier journals" organized by NRMD Sinhgad School of Engineering, Warje during 19.7.2020 & 20.7.2020.

8. Dr.V.Dhana Raju, Dept. of Mechanical Engineering has participated in a faculty development program on "4- Day International E-Workshop on Vedic Mathematics" organized by Andhra Mahila Sabha Arts & Science College for Women, OU Campus, Hyderabad during 13.7.2020 to 16.7.2020.

9. Dr.V.Dhana Raju, Dept. of Mechanical Engineering has participated in a faculty development program on "Effective design and delivery curriculum of in outcome based education" during 06.7.2020 to 10.7.2020.

10. B.Sudheer Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent research developments in Materials Engineering and Mechanical Design" organized by Vishnu Institute of Technology, Bhimavaram during 21.07.2020 to 25.07.2020.

11. Ch.Siva Sankara Babu, Dept. of Mechanical Engineering has participated in a faculty development program on "Advanced Materials and Manufacturing" organized by Kakatiya Institute of Technology and science, Warangal during 29.06.2020 to 03.07.2020.

12. Ch.Siva Sankara Babu, Dept. of Mechanical Engineering has participated in a faculty development program on "Effective Design and Delivery of Curriculum in Outcome Based education" organized by JHULELAL Institute of Technology, Nagpur during 06.07.2020 to 10.07.2020.

13. K.V.Viswanadh, Dept. of Mechanical Engineering has participated in a faculty development program on "Advanced Materials and Manufacturing" organized by Kakatiya Institute of Technology and science, Warangal during 29.06.2020 to 03.07.2020.

14. A.Naresh Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Research Innovations in Mechanical Engineering" organized by SASI Institute of Technology and Engineering, Tadepalligudem 13.7.2020 to 17.7.2020.

15. A.Naresh Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Optimization techniques for Mechanical Engineers" organized by Vignan Institute of technology and science, Hyderabad 27.07.2020 to 01.08.2020.

16. A.Nageswararao, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent Trends in Management" organized by GATES Institute of Technology, Anantapur during 13.7.2020 to 19.7.2020.

17. A.Nageswararao, Dept. of Mechanical Engineering has participated in a faculty development program on "Research Innovations in Mechanical Engineering" organized by SASI Institute of Technology and Engineering, Tadepalligudem during 13.7.2020 to 17.7.2020.

18. K.Lakshmi Prasad, Dept. of Mechanical Engineering has participated in a faculty development program on "Effective Design and Delivery of Curriculum in Outcome Based education" organized by JHULELAL Institute of Technology, Nagpur during 06.07.2020 to 10.07.2020.

19. K.Lakshmi Prasad, Dept. of Mechanical Engineering has participated in a faculty development program on "Research Innovations in Mechanical Engineering" organized by SASI Institute of Technology and Engineering, Tadepalligudem during 13.7.2020 to 17.7.2020.

20. R.Praveen Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Five day FDP on CATIA V5 Chassis design" organized by APSSDC during 20.07.2020 to 24.07.2020.

21. R.Praveen Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Six Day FDP on Optimization techniques for mechanical engineers" organized by MJIT, Hyderabad during 27.07.2020 to 01.08.2020.

22. B.Kamala Priya, Dept. of Mechanical Engineering has participated in a faculty development program on "Product Design and Drafting by CATIA" organized by APSSDC during 13.07.2020 to 24.07.2020.

23. B.Kamala Priya, Dept. of Mechanical Engineering has participated in a faculty development program on "Five day FDP on CATIA V5 Chassis design" organized by APSSDC during 20.07.2020 to 24.07.2020.

24. B.Kamala Priya, Dept. of Mechanical Engineering has participated in a faculty development program on "Advancements in Mechanical Engineering" organized by Gates Institute of Technology, Anantapur during 04.07.2020 to 10.07.2020.

25. A.Dhanunjay Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Artificial Intelligence and Deep learning" organized by APSSDC during 01-07-2020 to 28-07-2020.

26. Dr.P.Ravindra Kumar, Dept. of Mechanical Engineering has participated in a short term training program on "Recent Trends in Hybrid Electric Vehicle Technologies" organized by Maharaj Vijayaram Gajapathiraj College of Engineering, Vizianagaram during 06-07-2020 to 11-07-2020.

27. Dr.P.Ravindra Kumar, Dept. of Mechanical Engineering has participated in a short term training program on "Research Paper Writing" organized by REST Society for Research International, India during 13-07-2020 to 18-07-2020.

28. Dr.P.Ravindra Kumar, Dept. of Mechanical Engineering has participated in a workshop on "Capacity Building Workshop on Outcome based Education and NBA Accreditation process" organized by REST Society for Research International, India during 13-7-2020 to 18-7-2020.

29. S.Srinivasa Reddy, Dept. of Mechanical Engineering has participated in a workshop on "Yoga - A Science of Breath and Meditation for Subtle Energy Channeling" organized by Datta Kriya Yoga International Center, Impact Foundation Mysore & Hyderabad during 6-7-20 to 10-7-20.
30. S.Srinivasa Reddy, Dept. of Mechanical Engineering has participated in a workshop on "DevOps" organized by Kakatiya Institute of Technology & Science, Warangal during 12-07-2020 to 13-7-2020.

31. S.Srinivasa Reddy (jr), Dept. of Mechanical Engineering has participated in a workshop on "Yoga - A Science of Breath and Meditation for Subtle Energy Channeling" organized by Datta Kriya Yoga International Center, Impact Foundation Mysore & Hyderabad during 6-7-20 to 10-7-20.

32. S.Srinivasa Reddy (jr), Dept. of Mechanical Engineering has participated in a workshop on "Yoga - A Science of Breath and Meditation for Subtle Energy Channeling" organized by Datta Kriya Yoga International Center, Impact Foundation Mysore & Hyderabad during 6-7-20 to 10-7-20.

33. B.Udaya Lakshmi, Dept. of Mechanical Engineering has participated in a workshop on "Futuristic trends in Research of Mechanical Engineering" organized by shri vishnu engineering college for women, Bhimavaram during 29-06-2020 to 04-07-2020.

34. Dr.S.Pichi Reddy, Dept. of Mechanical Engineering has participated in a faculty development program on "Blended Learning and Flipped Class Room" organized by SVNIT , Surat from 10.8.2020 to 14.8.2020.

35. Dr.P.Vijay Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent Developments in Mechanical Engineering" organized by PVP Siddhartha Institute of Technology, Vijayawada from 10.08.2020 to 14.08.2020.

36. Dr.K.Dilip Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent Developments in Mechanical Engineering" organized by PVP Siddhartha Institute of Technology, Vijayawada from 10.08.2020 to 14.08.2020.

37. J.Subba Reddy, Dept. of Mechanical Engineering has participated in a faculty development program on "Advanced Optimization Techniques for Research Problem Solving" organized by Mahatma Gandhi Institute of Technology, Hyderabad from 04.08.2020 to 08.08.2020.

38. Dr.V.Dhana Raju, Dept. of Mechanical Engineering has participated in a faculty development program on "Green Energy for sustainable Development" organized by Khandre Institute of Technology, Bhalki from 10.08.2020 to 14.08.2020.

39. B.Sudheer Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Catia V5 Chasis Design" organized by APSSDC, Tadepalli, Guntur from 20.07.2020 to 24.07.2020.

40. Ch.Siva Sankara Babu, Dept. of Mechanical Engineering has participated in a faculty development program on "Optimization Techniques for Mechanical Engineers" organized by Vignan Institute of Technology & Science, Hyderabad from 27.7.2020 to 1.8.2020.

41. K.V.Viswanadh, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent Developments in Mechanical Engineering" organized by PVP Siddhartha Institute of Technology, Vijayawada from 10.08.2020 to 14.08.2020.

42. K.V.Viswanadh, Dept. of Mechanical Engineering has participated in a faculty development program on "Mathematics and its applications" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram from 03.08.2020 to 07.08.2020.

43. A.Naresh Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent Developments in Mechanical Engineering" organized by PVP Siddhartha Institute of Technology, Vijayawada from 10.08.2020 to 14.08.2020.

44. A.Naresh Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "An Academic perspecrive on Research (Best research practices, Project proposal writing, Funding schemes and IPR)" organized by SRKR Engg College, Bhimavaram from 03.08.2020 to 07.08.2020.

45. K.Narayana, Dept. of Mechanical Engineering has participated in a faculty development program on "Mathematics and its applications" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram from 03.08.2020 to 07.08.2020.

46. K.Lakshmi Prasad, Dept. of Mechanical Engineering has participated in a faculty development program on "Optimization Techniques for Mechanical Engineers" organized by Vignan Institute of Technology & Science, Hyderabad from 27.7.2020 to 1.8.2020.

47. K.Lakshmi Prasad, Dept. of Mechanical Engineering has participated in a faculty development program on "An Academic perspecrive on Research (Best research practices, Project proposal writing, Funding schemes and IPR)" organized by SRKR Engg College, Bhimavaram from 03.08.2020 to 07.08.2020.

48. V.Sankararao, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent Developments in Mechanical Engineering" organized by PVP Siddhartha Institute of Technology, Vijayawada from 10.08.2020 to 14.08.2020.

49. R.Praveen Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Modern characterization techniques for scientific and engineering Application" organized by Kakatiya Institute of Technology and Science, Warangal from 04.08.2020 to 08.08.2020.

50. R.Praveen Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent Developments in Mechanical Engineering" organized by PVP Siddhartha Institute of Technology, Vijayawada from 10.08.2020 to 14.08.2020.

51. B.Kamala Priya, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent Developments in Mechanical Engineering" organized by PVP Siddhartha Institute of Technology, Vijayawada from 10.08.2020 to 14.08.2020.

52. S.Snigdha, Dept. of Mechanical Engineering has participated in a faculty development program on "Recent Developments in Mechanical Engineering" organized by PVP Siddhartha Institute of Technology, Vijayawada from 10.08.2020 to 14.08.2020.

53. Dr.P.Vijay Kumar, Dept. of Mechanical Engineering has participated in a short term training program on "Fuel Cell Technologies for Hybrid and Electric Vehicles (FCTHV)" organized by Maharaj Vijayaram Gajapathi Raj College of Engineering, Vizianagaram from 17.08.2020 to 22.08.2020.

54. Dr.P.Ravindra Kumar, Dept. of Mechanical Engineering has participated in a short term training program on "Fuel Cell Technologies for Hybrid and Electric Vehicles (FCTHV)" organized by Maharaj Vijayaram Gajapathi Raj College of Engineering, Vizianagaram from 17.08.2020 to 22.08.2020.

55. Dr.P.Ravindra Kumar, Dept. of Mechanical Engineering has participated in a short term training program on "Computational Fluid Flow and Heat Transfer" organized by Gayatri Vidya Parishad College of Engineering, Visakhapatnam from 24-08-2020 to 29-08-2020.

56. Dr.K.Dilip Kumar, Dept. of Mechanical Engineering has participated in a short term training program on "Fuel Cell Technologies for Hybrid and Electric Vehicles (FCTHV)" organized by Maharaj Vijayaram Gajapathi Raj College of Engineering, Vizianagaram from 17.08.2020 to 22.08.2020.

57. V.Sankararao, Dept. of Mechanical Engineering has participated in a short term training program on "Effective Tools and Techniques in Qualitative Research" organized by NIT Jalandhar, Punjab from 10.08.2020 to 14.08.2020.

58. B.Kamala Priya, Dept. of Mechanical Engineering has participated in a short term training program on "Failure and damage mechanics of High performance Engineering materials-Phase II" organized by Anil Neerukonda Institute of Technology & Sciences, Visakhapatnam from 10.08.2020 to 15.08.2020.

59. The following are the list of faculty participated in online workshop on "Blended learning (you tube platform)" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram on 13.08.2020.

S.No.	Name of the faculty	Designation
1.	Dr.P.Vijay Kumar	Professor
2.	S.Srinivasa Reddy	Associate Professor
3.	J.Subba Reddy	Associate Professor
4.	Dr.V.Dhana Raju	Associate Professor
5.	S.Srinivasa Reddy (Jr)	Sr.Assistant Professor
6.	B.Sudheer Kumar	Sr.Assistant Professor
7.	Ch.Siva Sankara Babu	Sr.Assistant Professor
8.	S.Rami Reddy	Sr.Assistant Professor
9.	K.Narayana	Sr.Assistant Professor
10.	K.Lakshmi Prasad	Assistant Professor
11.	V.Sankararao	Assistant Professor
12.	B.Udaya Lakshmi	Assistant Professor
13.	D.Mallikharjuna Rao	Assistant Professor
14.	B.Kamala Priya	Assistant Professor
15.	S.Snigdha	Assistant Professor

60. The following are the list of faculty participated in online workshop on "Prospects of Bio fuels as an Alternative to Fossil Fuels for Future Automobiles" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram from 10.08.2020 to 11.08.2020.

S.No.	Name of the faculty	Designation
1.	S.Rami Reddy	Assistant Professor
2.	V.Sankararao	Assistant Professor
3.	B.Kamala Priya	Assistant Professor
4.	S.Snigdha	Assistant Professor

61. A.Nageswara Rao, Dept. of Mechanical Engineering has participated in a online workshop on"MCDM (Multi-Criteria Decision Making) Applications" organized by Vignan's Foundation for Science, Technology & Research from 28.08.2020 to 29.08.2020.

62. Dr.S.Pichi Reddy, Dept. of Mechanical Engineering has participated in a faculty development program on "3D printing and design" organized by Bharati Vidyapeeth College of Engineering from 14.09.2020 to 18.09.2020.

63. J.Subba Reddy, Dept. of Mechanical Engineering has participated in a faculty development program on "Research Scholors' week - Engineering (RSW - 2020)" organized by NIT Kurukshetra, Haryana from 17.09.2020 to 22.09.2020.

64. B.Sudheer Kumar, Dept. of Mechanical Engineering has participated in a faculty development program on "Researches in Surface Engineering for Reliable Tribology" organized by Girijananda Chowdhury Institute of Management and Technology, Guwahathi from 01.09.2020 to 05.09.2020.

65. Ch.Siva Sankara Babu, Dept. of Mechanical Engineering has participated in a faculty development program on "Researches in Surface Engineering for Reliable Tribology" organized by Girijananda Chowdhury Institute of Management and Technology, Guwahathi from 01.09.2020 to 05.09.2020.
66. B.Udaya Lakshmi, Dept. of Mechanical Engineering has participated in a faculty development program on "Researches in Surface Engineering for Reliable Tribology" organized by Girijananda Chowdhury Institute of Management and Technology, Guwahathi from 01.09.2020 to 05.09.2020.
67. Dr.P.Ravindra Kumar, Dept. of Mechanical Engineering has participated in a short term training program on "Computational Fluid Flow and Heat Transfer" organized by Gayatri Vidya Parishad College of Engineering, Visakhapatnam from 21.09.2020 to 26.09.2020.

68. B.Sudheer Kumar, Dept. of Mechanical Engineering has participated in a short term training program on "Recent Advances in Tribology and Surface Engineering" organized by Saintgits College of Engineering (Autonomous), Kottayam, Kerala from 14.09.2020 to 19.09.2020.

69. Ch.Siva Sankara Babu, Dept. of Mechanical Engineering has participated in a short term training program on "Recent Advances in Tribology and Surface Engineering" organized by Saintgits College of Engineering (Autonomous), Kottayam, Kerala from 14.9.2020 to 19.09.2020.

FACULTY ACHIEVEMENTS
PATENTS PUBLISHED

Name of the Faculty	Patent number	Title of the Patent	Agency	Status	Date of Sanction
J.Subba Reddy	2020101619	Low Energy Communicator Between External Programmer And Implantable Medical Devices Using BLE Technology	The Commissioner of Patents, IP Australia	Published	26.8.2020
	202041040589 A	Surface Engineered Corrosion Free And Antibacterial Bio-Implants	Intellectual Property India	Published	25.9.2020
	202041038431	Multi Stage Sheet Bulk Metal Deformation Process Using Digital Image System	Intellectual Property India	Published	11.9.2020

ACTED AS RESOURCE PERSON OR EXTERNAL EXAMINER

- Dr.P.Ravindra Kumar, Dept. of Mechanical Engineering acted as external examiner for Project Work – B.Tech VIII Sem in Swarnandhra College of Engineering and Technology, Narasapuram on 24.07.2020.
- Dr.K.Murahari, Dept. of Mechanical Engineering acted as resource person for faculty development program on “Advanced Materials and Manufacturing” in Kakatiya Institute of Technology and Sciences, Warangal on 02.07.2020.
- Dr.P.Ravindra Kumar, Dept. of Mechanical Engineering acted as resource person for “Three Day Online Student Workshop on Design and Fabrication of All Terrain Vehicle Model” in Lakireddy Bali Reddy College of Engineering, Mylavaram on 13.08.2020.
- J.Subba Reddy, Dept. of Mechanical Engineering acted as resource person for “Three Day Online Student Workshop on Design and Fabrication of All Terrain Vehicle Model” in Lakireddy Bali Reddy College of Engineering, Mylavaram on 13.08.2020.

COURSERA ONLINE CERTIFICATIONS

- The following are the details of faculty completed the coursera online courses.

S.No.	Name of the Faculty	Name of the Course	Institute/Organization
1.	J.Subba Reddy	Verb Tenses and Passives	University of California, Irvine
		Perfect Tenses and Modals	University of California, Irvine
		Academic Literacy	Masxow Institute of Physics and Technology
		COVID-19 Contact Tracing	Johns Hopkins University
		Mind Control - Managing Your Mental Health During COVID-19	University of Toronto
		Techical Support Fundamentals	Google
		Make Your Pick-Ups Look Cool in Unity (Intro to Animation – I)	Coursera in association with Project Network
		Calculating Descriptive Statistics in R	
		Agile Projects - Creating User Stories with Value in Taiga	
		Create Agile Projects- - Develop Product Wireframe Prototypes in Miro	
		Create Your First Multithreaded Application in Java	
2.	Dr.N.Sunil Naik	Understanding Research Methods	University of London
3.	A.Naresh Kumar	Grammar and Punctuation	University of California
4.	K.Lakshmi Prasad	Grammar and Punctuation	University of California
5.	B.Kamala Priya	COVID-19 Contact Tracing	Johns Hopkins University
6.	V.Venkatrami Reddy	Mechanics of Materials I: Fundamentals of Stress & Strain and Axial Loading	Georgia Institute of Technology
7.	K.Karthik	Mechanics of Materials I: Fundamentals of Stress & Strain and Axial Loading	Georgia Institute of Technology

OTHER ONLINE COURSES

- The following faculty are completed the MOOCS and blended learning online courses.

S.No.	Name of the Faculty	Name of the Course	Institute/Organization
1.	Dr.P.Ravindra Kumar	E- learning Online Course on Fundamentals of Electric Vehicles	Imperial Society of Innovative Engineers, India
2.	J.Subba Reddy	Introduction to Technology - Enabled Learning	Commonwealth of Learning and Athabasca University
3.	A.Nageswara Rao	Introduction to Technology - Enabled Learning	Commonwealth of Learning and Athabasca University
4.	A.Dhanunjay Kumar	Introduction to Technology - Enabled Learning	Commonwealth of Learning and Athabasca University
5.	S.Snigdha	Introduction to Technology - Enabled Learning	Commonwealth of Learning and Athabasca University
6.	Dr.P.Ravindra Kumar	Blended Learning Practice	Athabasca University, Commonwealth of Learning
7.	J.Subba Reddy	Blended Learning Practice	Athabasca University, Commonwealth of Learning
8.	Dr.V.Dhana Raju	Blended Learning Practice	Athabasca University, Commonwealth of Learning
9.	S.Snigdha	Blended Learning Practice	Athabasca University, Commonwealth of Learning

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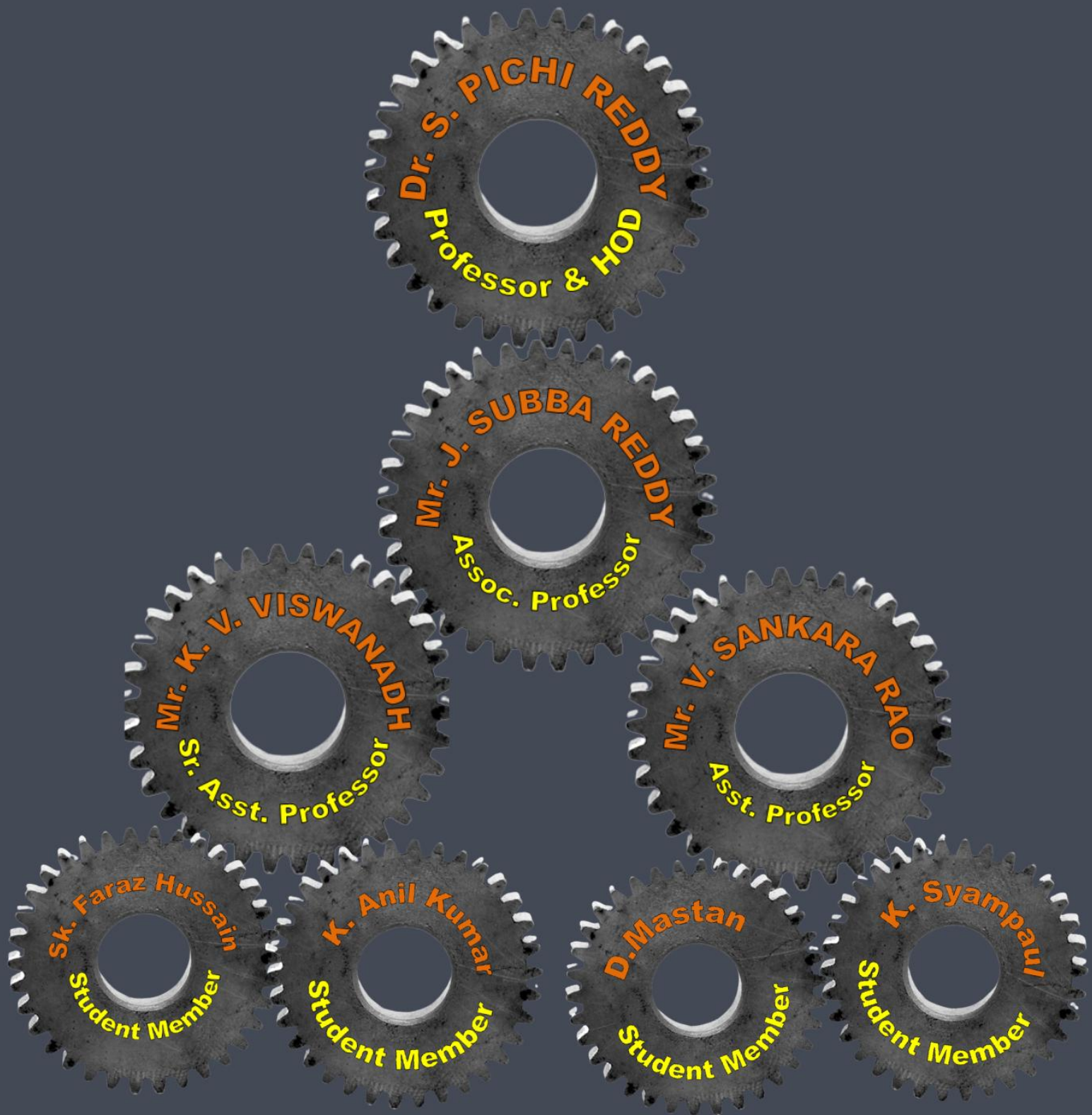
The department expresses sincere thanks to all faculty, technical staff and students for contribution towards the technical magazine- mech pulse.

Editorial Board



DEPARTMENT OF MECHANICAL ENGINEERING
LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(Autonomous)
Accredited by NAAC & NBA under Tier - I
Approved by AICTE and Permanently Affiliated to JNTUK, Kakinada