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Mechanical Engineering E-Magazine (LBRCE)

(TIER-I)

MECH PULSE

(APR-JUN 2021)

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 IV. 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 34 faculty members with 9 Doctoral degrees. Thirteen 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.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
2.	Dr.P.Vijay Kumar	Prerana scheme	AICTE	4,80,000	2019
3.	Dr.K.Murahari	Frontier of 3D Printing Technology & its Industrial Applications (Sponsored FDP)	AICTE	4,77,833	2020

CONFERENCES ATTENDED BY THE FACULTY

- **J.Subba Reddy,** Dr.A.V.S.S.K.S. Gupta, "Numerical Simulation for prediction of temperature distribution in Electro Discharge Machining of Al 7075 alloy" in International e-Conference on Developments in Chemical, Biological and Environmental Sciences (DCBES-2021) at GITAM School of Science, Hyderabad & GITAM Institute of Science, Visakhapatnam from 28.06.2021 to 30.06.2021.

PUBLICATIONS BY THE FACULTY

Dr.V. Dhana Raju,

Assoc. Professor

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Title of the Paper: Development of empirical correlations for density and viscosity estimation of ternary biodiesel blends

Name of the Journal: Renewable Energy

Publication on: Dec 2021

ISSN No: 0960-1481

Doi: https://doi.org/10.1016/j.renene.2021.07.121

Abstract: This study aims to investigate the density and viscosity of ternary biodiesel blends. Fuel density and viscosity play an important role in the fuel injection system, flame propagation, and combustion process in compression ignition engine. The density and viscosity of biodiesel are higher than high-speed diesel which is an implication in the commercialization of biodiesel. In the present study, palm oil has been used for the production of biodiesel through the ultrasound-assisted transesterification process. Three different types of fuel additives including butanol, dimethyl carbonate, and plastic oil have been used for the preparation of nine ternary biodiesel blends. The density and viscosity of individual fuels and ternary biodiesel were measured experimentally in a temperature range of 281.51 K–348.15 K. For the prediction of density and viscosity of ternary biodiesel blends, four density and viscosity models were developed. The prediction accuracy of these developed models was assessed by a statistical tool absolute percentage error (APE). Newly proposed exponential regression models predicted well compared to experimental data for density and viscosity values with high regression coefficient 0.9995 and 0.9841 and lower mean absolute percentage of error 0.012 % and –0.516 % at (348.15 K) temperature respectively. These correlations are significant for the automobile industry in developing fuel pipeline and transport equipment where additives would be present in diesel-biodiesel fuel blends.

PUBLICATIONS BY THE FACULTY

Mr.V. Venkatrami Reddy,

Asst. Professor

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Title of the Paper: Modeling and Manufacturing of Progressive Die for Mechanical Press Operations

Co-Authors: S. Srinivasa Reddy

Name of the Journal: Turkish Journal of Computer and Mathematics Education (Vol.12, No.3)

Publication on: 05-04-2021

ISSN No: 1309-4653

Doi:

Abstract: A progressive die is a type of die in which multiple operations performed in a single stroke, which was mostly used in sheet metal operations. The working process of sheet metal is widely used in all manufacturing industries such as mechanical, defense and automotive etc. The key advantage of metal working process involves enhancement of production rate and cost reduction. This paper is aimed to develop a multi-functional die which can perform simultaneously both punching and blanking operations in one stroke. The present work is mainly focused on modeling and manufacturing of the die components, where PRO-E was used for modelling and FANUC controlled CNC machine was used to execute and prepared part program.

PUBLICATIONS BY THE FACULTY

Mr. Ch. Siva Sankara Babu,

Sr. Asst. Professor

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Title of the Paper: Modal testing and evaluation of cracks on cantilever beam using mode shape curvatures and natural frequencies

Name of the Journal: Structures (Elsevier)

Publication on: April 2021

ISSN No: 2352-0124

Doi: https://doi.org/10.1016/j.istruc.2021.03.049

Abstract: This paper presented the process of implementing and developing a novel damage detection approach on beam like-structure using modal parameters. In Theoretical Modal Testing (TMT), the mode shapes, mode shape curvatures and natural frequencies were extracted by formulating differential equations of motion of un-cracked and cracked beams. In Experimental Modal Testing (EMT), the transient excitation method of modal testing is performed by using an impact hammer test. EMT involves an extraction of natural frequencies through frequency response functions at various surface cracks on the beam in a virtual instrumentation environment. Cantilever beams of Aluminum 6061 is considered for analysis with crack position at the interval of 50 mm from fixed end to free end at varying crack depths 20%, 40% and 60% of the beam total depth. The modal data from experimental modal testing was validated with theoretical modal testing data. It was observed that there was a minor change in lower modes; major change in natural frequencies for higher modes with the variation of damage location/depths. To overcome the difficulty in crack detection of structures based on mode shapes and frequencies individually, both the parameters mentioned are collectively used in this work as Frequency-Modeshape Based Damage Detection Technique (FMBDD) to evaluate the crack location as well as crack depth easily and accurately.

PUBLICATIONS BY THE FACULTY

Mr. J.Subba Reddy,

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Title of the Paper: Multi Response Optimization of Electro Discharge Machining of Ti-4V-6Al Alloy Using Taguchi Based Grey Relational Analysis

Name of the Journal: Design Engineering (Toronto)

Publication on: March 2021

ISSN No: 0011-9342

Doi:

Abstract: In this paper, Taguchi Methodology with Grey Rational Analysis (GRA) is proposed to investigate multi response optimization of performance characteristics of Electro Discharge Machining (EDM) on Ti-4V-6Al alloy. This alloy is used for mold making, defense, bio medical, aerospace, nuclear, marine applications, especially in environments where corrosion have impact. All experiments are planned based on Taguchi's Orthogonal Array (OA) with five input machining variables such as diameter of the tool (D), current (I), pulse-on time (Ton), voltage (V), and Duty Factor (DF). Performance measures like MetalRemoval Rate (MRR), Tool Wear Rate (TWR) and Surface Roughness (SR) are considered in this investigation. For the required outcome, the diameter of the tool, peak current, duty factor are the influential variables in order followed voltage and pulse-on time.Multiple regression models are developed to predict the required performance measures. A confirmation test is conducted to check the validity of the multi regression model obtained by Grey Relational Analysis approach and avowed that there is little error with significant improvement with the proposed approach.

PUBLICATIONS BY THE FACULTY

Mr. K. Lakshmi Prasad,

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Title of the Paper: Simulation of PV And WECS Using CUK and Sepic Converter

Name of the Journal: IEEE Xplore

Publication on: 26, May 2021

ISSN No: 978-1-6654-4834-5

Doi: 10.1109/ICICCS51141.2021.9432225

Abstract: In this article, the author proposes a hybrid solar- and wind-powered DC converter which utilizes DC-DC converters in both conversions. To take past peak output and future power into consideration, P.O. is an essential solar algorithm. WECS does not need a windmill in order to work Using PMSG eliminates the need for a transmission and reduces overall cost. That goes for solar as well. Both CUK and SEIC capacitors may be used to charge batteries, operate circuit breakers, and filter. This unit is well suited for switching and direct current (DC) applications.

PUBLICATIONS BY THE FACULTY

Dr. S. Pichi Reddy,

Professor

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Title of the Paper: Parametric optimisation of Tribological Characteristics of Novel Al7010/B4C/BN Hybrid Metal Matrix Nanocomposites Using Taguchi Technique

Name of the Journal: Australian Journal of Mechanical Engineering

Publication on: 16, June 2021

ISSN No: 1448-4846

Doi: https://doi.org/10.1080/14484846.2021.1938940

Abstract: In this present experimental investigation, Al7010/B4C/BN hybrid metal matrix nanocomposites with equal weight percent of B4C and BN in steps of 0.5 from 0 to 2.5 are prepared using ultrasonic-assisted stir casting technique. Tribological characteristics of the prepared composites at room temperature are evaluated using pin-on-disc apparatus. Taguchi technique is used to study the influence of process variables on tribological behaviour of nanocomposites. The experiments were conducted based on the orthogonal array L18 through Taguchi technique and evaluated for the optimum process variables using Analysis of Variance (ANOVA). The experimental outcomes reported that the wear rate is mostly affected by composition (78.79) followed by applied load (19.68), sliding speed (0.55) and least is sliding distance (0.02). Coefficient of friction is influenced by composition (60.14) followed by sliding speed (29.34), sliding distance (6.47) and applied load (3.38). The confidence interval was predicted for a confidence level of 95%. Finally, the confirmation test is conducted to check the predictive values with the experimental results. The worn surface of the composite resulted from conformation test is studied using Scanning Electron Microscope (SEM).

PUBLICATIONS BY THE FACULTY

Dr. K. Dilip Kumar,

Professor

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Title of the Paper: Characterisation of zinc oxide nanoparticles–herbal synthesised coated with Ocimum tenuiflorum

Name of the Journal: Advances in Materials and Processing Technologies

Publication on: 11 June 2021

ISSN No: 2374-068X

Doi: https://doi.org/10.1080/2374068X.2021.1934642

Abstract: Various applications of nanoparticles stimulates the need for synthesising them. But, the conventional methods are usually hazardous and energy consuming. This lead to focus on "green synthesis "of nano particles that was a efficient and eco friendly approach. Biological reduction agents are being explored worldwide to minimise the effects of toxic chemicals used in nanoparticles fabrication. The present study states a green approach for the synthesis of zinc oxide nano particles via complex formation with plant extracts of ocimum tenuiflorum (black Tulasi). Leaf extract was used as the biological reduction agent for synthesising zinc oxide nano particles from zinc sulphate. The resultant nanopowder was characterised using various analytical techniques, such as X-ray diffraction, SEM, XRF, particle size analyser, The size range of nano particles obtained upon synthesis at optimum conditions was 50–63 nm as reported by TEM. X-ray diffraction studies confirmed the crystalline nature of the nanoparticles indicating particle size within the range provided by electron microscopy data. Due to the large rate of toxic chemicals and extreme environment employed in the physical and chemical production of these NPs, green methods employing the use of plants, fungus, bacteria and algae have been adopted. This review is a comprehensive study of the synthesis and characterisation methods used for the green synthesis of ZnO NPs using different biological sources.

PUBLICATIONS BY THE FACULTY

Mr. A. Nageswara Rao,

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Title of the Paper: Design and Analysis of Seed Sowing Mechanism for Agriculture ROBOT

Name of the Journal: International Journal of Modern Agriculture

Co-Authors:

Publication on: June 2021

ISSN No: 2305-7246

Doi:

Abstract: Agriculture is the primary source of income for nearly 70% of Indians. As a result, India's agricultural system should be advanced in order to reduce farmers' efforts. Crop sowing, weeding, cutting, pesticide spraying, and other operations are all conducted in the agriculture sector. Primary and significant operation is seed sowing in agriculture field. Seed sowing work was repetitive task, which required more human effort. Hence the scope of developing machinery to reduce the efforts of farmers is very necessary. Present study is an attempt to make the design and development of Agriculture Robot for seed sowing application. Agriculture Robot consists of seed sowing mechanism and robot. A four blade rotor van is key component in seed sowing mechanism, with the help of motor rotor drive shaft. Rotor van blade is design and perform analysis with different materials to get deflections and stresses. Entire model is made by computer aided design then develop the model. Seed sowing mechanism and robot is interface properly. As it moves down the aisle, the robot uses its keen sensors to level itself with the slots. When the robot reaches the trough, it send signal to activates motor with a rotor. The distance travelled by the robot is calculated using data from the wheel encoder. This knowledge is help to trigger the seed sowing mechanism, allowing the crop's inter-seeding travel to be reduced. Proposed seed sowing agriculture robot will useful to farmers to solve agriculture problems.

PUBLICATIONS BY THE FACULTY

Dr.V. Dhana Raju,

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Title of the Paper: Impact of Injection timings and exhaust gas recirculation rates on the characteristics of diesel engine operated with neat tamarind biodiesel

Name of the Journal: Energy Sources, Part A: Recovery, Utilization, and Environmental Effects

Publication on: April 2021

ISSN No: 1556-7230

Doi: https://doi.org/10.1080/15567036.2021.1924314

Abstract: The extensive usage of petroleum products in the power sector, industries, and transportation may lead to the depletion of fossil resources. Also, the most important human challenges of the 21st century are global warming and climate changes due to increased pollution levels. Nowadays, the need for new energy sources is one of the foremost problems of all countries in the world. The current experimental work is primarily focusing on the exploration of neat tamarind seed methyl ester (TSME) as a sustainable energy source for diesel engines. All the physicochemical properties were determined experimentally with concern to ASTM standards and compared with diesel fuel. Initially, tests were performed on a diesel engine with diesel and neat tamarind biodiesel in standard operating conditions 23º CA bTDC. Later, the injection timing was varied like 19º CA bTDC and 27º CA bTDC for the neat tamarind biofuel. A test result found with TSME biofuel that enhancement in brake thermal efficiency (BTE) by 4.07% was achieved with the retardation of engine injection timing when compared to standard injection timing. Also, it was found that drastic reduction of exhaust emissions by 9.7%of CO, 15.8% of HC and 6% of SO have resulted in the retarded injection timing of TSME when compared to standard conditions of TSME at full load. However, the oxides of nitrogen emissions were increased. To control the oxides of nitrogen emissions, exhaust gas recirculation (EGR) at two levels such as 10% and 20% were used when the engine was operated at retarded injection timing (IT) with TSME. It was found that TSME with 10% EGR inferred a drastic reduction of nitrogen oxide emissions by 30% and 37.7% over diesel and TSME, respectively, at full load.

JOURNALS PUBLISHED BY THE FACULTY

Dr. K. Murahari,

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Title of the Paper: Multi-objective optimization of AAJM process parameters for cutting of B4C/Gr particles reinforced Al 7075 composites using RSM-TOPSIS approach

Name of the Journal: SN Applied Sciences

Co-Authors:

Publication on: 27, June 2021

ISSN No: 2523-3971

Doi:

Abstract: The present study deals with the machining of hybrid Al 7075/B4C/Gr composite using Abrasive Aqua Jet Machining. The effects of selected input factors, i.e., water jet pressure (WJP), stand-off distance (SOD), and traverse speed (TS) on the performance characteristics, namely taper angle (TA), surface roughness (Ra), and the material removal rate (MRR) are investigated. The experimental runs and test strategies are formulated using the Response Surface Methodology-Central Composite Design approach. Analysis of Variance (ANOVA) was used to examine the effect of input factors and their interactions with performance characteristics. MRR, Ra, and TA optimum condition and mathematical equations were also developed. Further, the multi-optimization method "Technique for Order of Preference by Similarity to Ideal Solution" is considered to find out the best combinations of input factors for optimized output factors on the hybrid composite. The ANOVA results confirm that among the input factors, WJP and SOD are the most significant factors, and the percentage distribution of input factors are found to be jet pressure (55.21%), stand-off distance (23.36%), and traverse speed (2.56%). The multi-objective optimum conditions of the input factors are WJP (A1) 210 bar, SOD (B1), and TS (C3) 30 mm/min, that produce optimal values of the considered responses, i.e., MRR up to 4.8703 mm3/min, Ra up to 3.57 μm and TA up to 0.189°. The TA has improved by 49.6% through the multi-objective optimum results when compared with single parameter optimized results.

PUBLICATIONS BY THE FACULTY

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Title of the Paper: Design and Analysis of Seed Sowing Mechanism for Agriculture ROBOT

Name of the Journal: International Journal of Modern Agriculture

Co-Authors:

Publication on: June 2021

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Doi:

Abstract: Agriculture is the primary source of income for nearly 70% of Indians. As a result, India's agricultural system should be advanced in order to reduce farmers' efforts. Crop sowing, weeding, cutting, pesticide spraying, and other operations are all conducted in the agriculture sector. Primary and significant operation is seed sowing in agriculture field. Seed sowing work was repetitive task, which required more human effort. Hence the scope of developing machinery to reduce the efforts of farmers is very necessary. Present study is an attempt to make the design and development of Agriculture Robot for seed sowing application. Agriculture Robot consists of seed sowing mechanism and robot. A four blade rotor van is key component in seed sowing mechanism, with the help of motor rotor drive shaft. Rotor van blade is design and perform analysis with different materials to get deflections and stresses. Entire model is made by computer aided design then develop the model. Seed sowing mechanism and robot is interface properly. As it moves down the aisle, the robot uses its keen sensors to level itself with the slots. When the robot reaches the trough, it send signal to activates motor with a rotor. The distance travelled by the robot is calculated using data from the wheel encoder. This knowledge is help to trigger the seed sowing mechanism, allowing the crop's inter-seeding travel to be reduced. Proposed seed sowing agriculture robot will useful to farmers to solve agriculture problems.

PUBLICATIONS BY THE FACULTY

Mr. V. Sankara Rao,

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Title of the Paper: Fabrication and Modal Analysis of Composite Leaf Spring

Name of the Journal: International Journal of Disaster Recovery and Business Continuity

Co-Authors: K. V. Viswanadh, B. Sudheer Kumar

Publication on: June 2021

ISSN No: 2005-4289

Doi:

Abstract: In automobiles, a leaf spring is a straightforward kind of suspension spring usually utilized in vehicles. This kind of spring is regularly built of at least one level, flimsy, adaptable steel strips that are combined so as to fill in as a solitary unit. That steel piece of a leaf spring is bend into a circular segment and appended at each conclusion to the underside of a vehicle to help position and bolster the pivot, and furthermore to retain the stun. Diminishing weight while expanding or keeping up quality of item is getting the chance to be exceptionally significant research issue in the cutting edge world. Right now portray plan and examination of leaf spring utilizing composites with combination of graphite fibers, carbon fibers and fabric sheets. The plan parameters are chosen and dissected with the target of limiting load of the composite leaf spring. Leaf spring will be displayed utilizing CATIA (V5) and investigation is conveyed utilizing ANSYS 18.1. Transverse natural frequencies of steel leaf spring and composite leaf spring were estimated experimentally and correlated with Ansys values.The composite spring proved to have better behavior than steel leaf spring.

PUBLICATIONS BY THE FACULTY

Ms. S.Snigdha,
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Title of the Paper: Modeling & Testing of 3D -Printer Specimens by Universal Testing Machine

Name of the Journal: Design Engineering

Co-Authors:

Publication on: June 2021

ISSN No: 0011-9342

Doi:

Abstract: The materials utilized in this exploration were polylactic corrosive (PLA) and Acrylonitrile butadiene styrene (ABS) which was utilized to deliver tests in a creality ender-3 professional 3D-printer. The example calculations followed details illustrated in ASTM for the Type VI malleable examples and ASTM for the bowing examples (ASTM International 2004; ASTM International 2011). These examples and select measurements for examples types are appeared in underneath figure. Pliable Specimen type were printed at a thickness of 7mm (0.275 in) and Bending examples were printed at a thickness of 4mm (0.157). The tractable and twisting examples were first made in Quite a while sent out in stereolithography (STL) configuration, and afterward brought into each 3Dprinter's particular slicer programming to make the G-code used to print every example type.

PUBLICATIONS BY THE FACULTY

Mr. K. Venkateswara Reddy

Asst. Professor

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Title of the Paper: Design and Static Structural Analysis of Pressure Vessel Using Finite Element Technique

Name of the Journal: International Journal of Disaster Recovery and Business Continuity

Co-Authors: K. V. Viswanadh, B. Sudheer Kumar

Publication on: June 2021

ISSN No: 2005-4289

Doi:

Abstract: A pressure vessel is a closed container which is designed to accommodate gases and liquids at a high operating pressures and temperatures differs from the atmospheric conditions. The top of the pressure vessel end capsis fitted to the cylindrical body known as heads. The purpose of this investigation is to compute detailed design & analysis of boiler Pressure vessel used for appropriate design parameters and operating parameters such as thickness and temperature distribution respectively using FEA tool ANSYS, Finite Element Analysis‟ is an analytical tool used to carry out the static stress analysis. In this method the geometric model of the pressure vessel is divided into small elements. Loads and constraints are applied to the FEA model at desired locations. Several material properties are applied to the Model such as material type, real constants like area, thickness, volume, density etc. The meshed model is therefore analysed in FEA solver. Finally the obtained results will be captured in the form of flow contours in order to understand the physical phenomenon. This study involves design of a axi-symmetrical pressure vessel to withstand 0.1 MPa pressure and figured out the optimum wall thickness required to limit the maximum yield stresses. A design tool CATIA V5 R19 is used to generate geometrical model and Ansys Fluent is used to create finite element model (meshed model) Ansys workbench supports the simulation in static structural and thermal analysis.

BOOKS/CHAPTERS PUBLISHED BY THE FACULTY

Dr.V. Dhana Raju,

Assoc. Professor

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dhanaraju1984@gmail.com

Title of the Paper: Effect of Nanoparticles in Bio-oil on the perfromance, combustion and emission characteristics of a diesel engine

Name of the Journal: Liquid Biofuels: Fundamentals, Characterization and applications, Wiley Publisher

Co-Authors: Dr. S.Rami Reddy

Publication on: May 2021

ISSN No: 978-1-119-79198-0

Doi: 10.1002/9781119793038.ch17

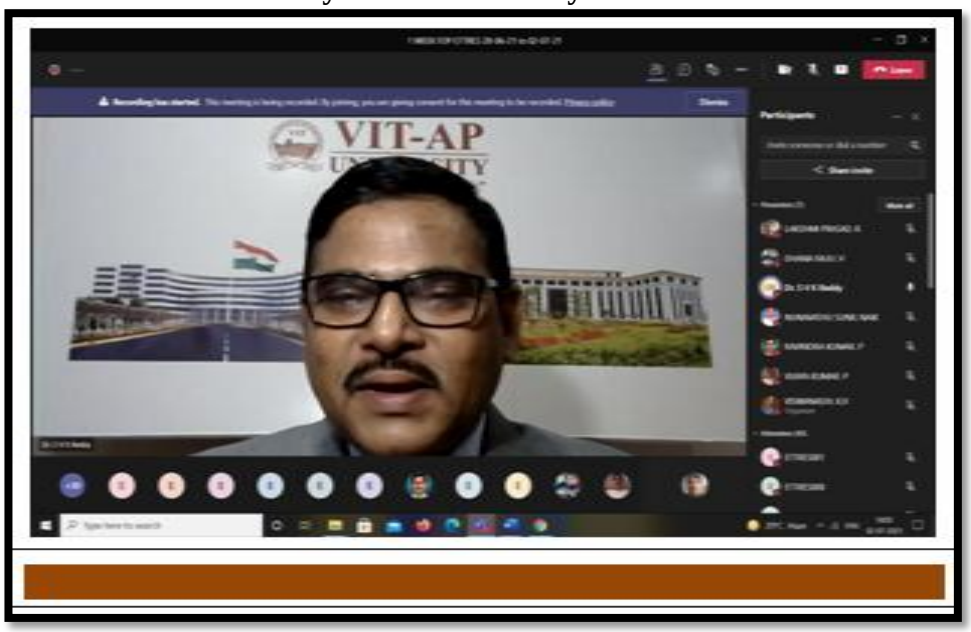
Abstract: Bio-oil production is one of the feasible options for researchers due to its renewable nature and also the environmental benefits. This research work mainly emphasizes the suitability of a novel bio-oil for diesel engine. The mango seed methyl ester was produced with the help of transestrerification process. The various thermo-chemical properties were evaluated for the mango seed biodiesel blends. Preliminary tests were conducted with Diesel, MSME10, MSME20 and MSME30 blends on single-cylinder four-stroke diesel engines at varying load conditions. Among these three blends MSME20 showed better performance, emission and combustion properties. MSME20 blend is mixed with Aluminum oxide (Al2O3) nanoparticles at a concentration of 100ppm and 200ppm by the application of Ultrasonicator for homogeneous mixture. Then diverse characteristics of test fuels were analyzed with MSME20 100ppm Al2O3, MSME20 200ppm Al2O3 and compared with diesel. Test results revealed that 200 ppm addition of Al2O3 to the MSME20 was shown significant enhancement of 1.39% brake thermal efficiency and considerable reductions of HC and CO emissions by 35.48% and 13% respectively at full load. However, there was a slight increment in NOX emissions at full load.

EVENTS ORGANIZED BY THE DEPARTMENT

ONLINE FACULTY DEVELOPMENT PROGRAM EMERGING TRENDS IN THERMAL AND RENEWABLE ENERGY SYSTEMS

The Department of Mechanical Engineering, organized a online faculty development program on **"Emerging Trends in Thermal and Renewable Energy Systems"** through online from 28/06/2021 to 02/07/2021 by various faculty from reputed institutions. Dr.P.Vijay Kumar, Dr.V.Dhana Raju, Dr.N.Sunil Naik, K.V.Viswanadh, K.Lakshmi Prasad coordinated the event.

Addressed by Dr.S.Pichi Reddy Professor & HoD

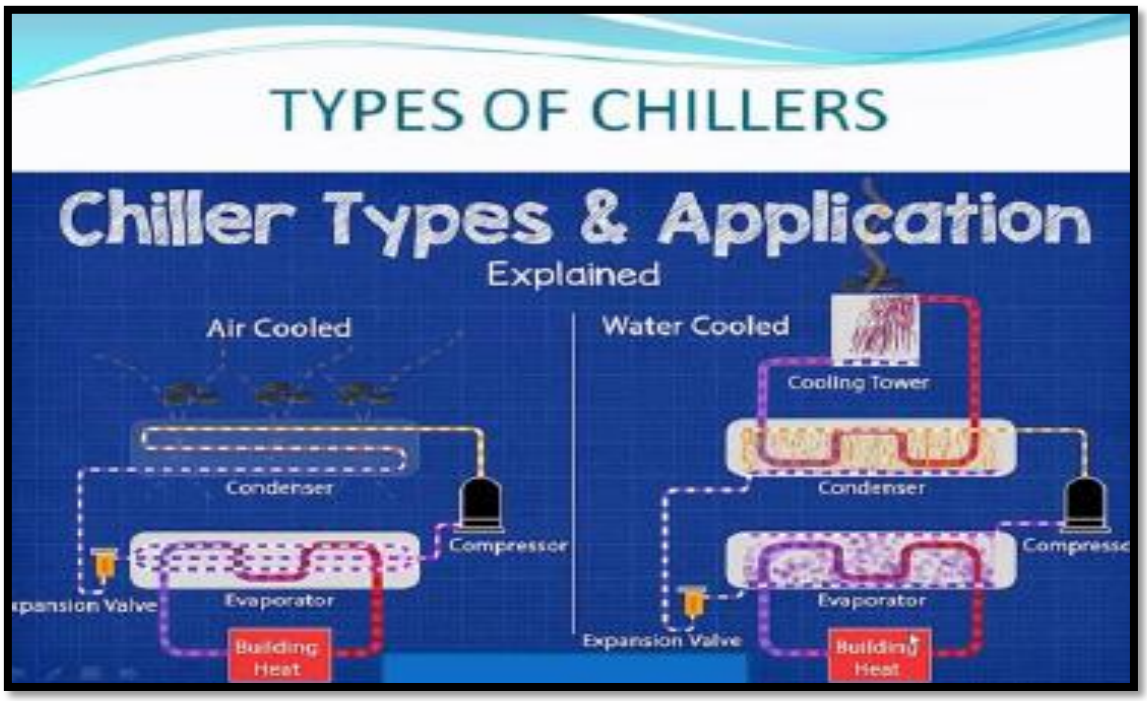


Lecture given by Dr.S.V.K.Reddy, Vice-Chancellor VIT AP

WORKSHOPS

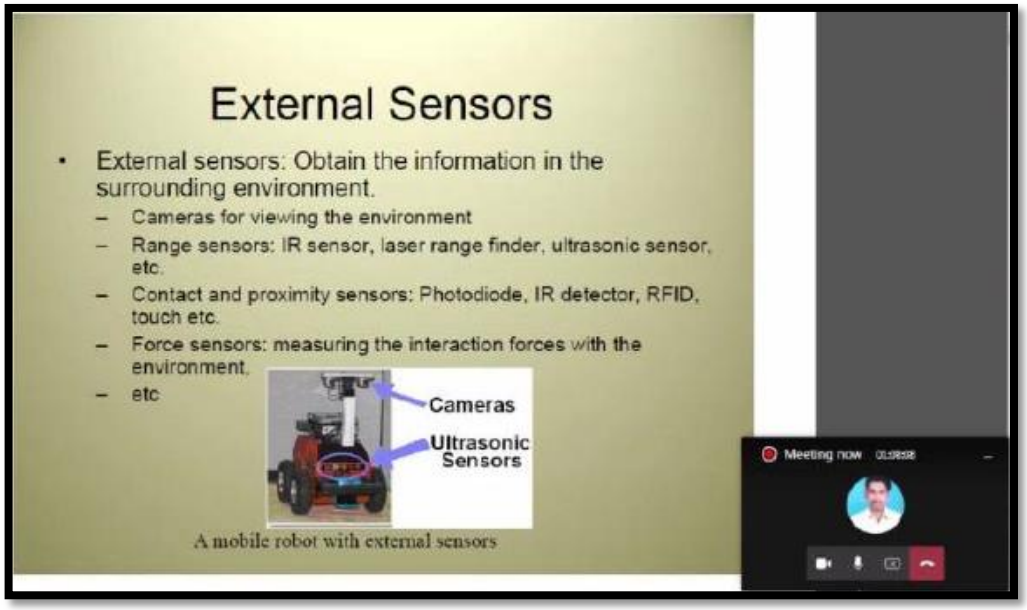
- The Department of Mechanical Engineering organized a online workshop on "Water and Air Cooled Chillers" on 12.06.2021 by Mr.B.Anand, Associate Consultant, Genex Consultants, Hyderabad, Mr.Shaik Jilani, Large Deals Manager, South, Trane Technologies, Hyderabad. Dr.P.Vijay Kumar, K.V.Viswanadh, coordinated the event.

Reciprocating Chillers



Types of Chillers

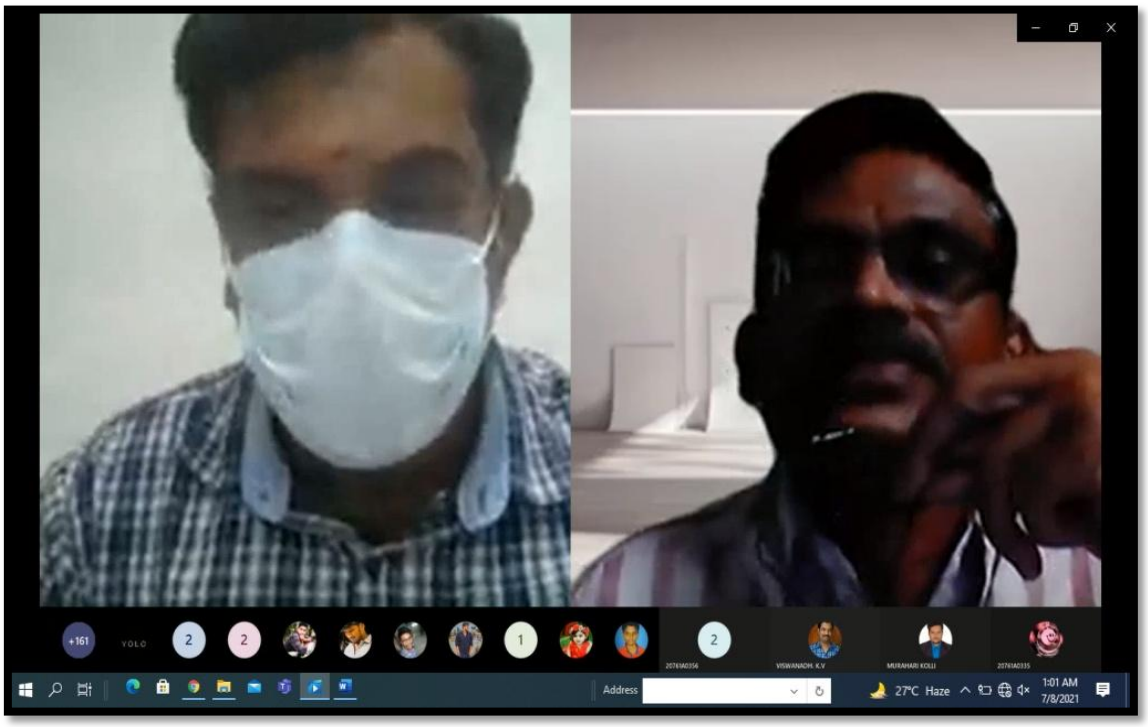
- The Department of Mechanical Engineering organized a online workshop on "Robotics and Automation - Industrial Applications" from 28.06.2021 to 30.06.2021 by Dr. K.R.L. Prasad, Mr. J. Subba Reddy, Mr. B.V.N.R.Siva Kumar. Mr. J. Subba Reddy, Mr.V.Sankararao, Mr.V.Venkatrami Reddy coordinated the event.



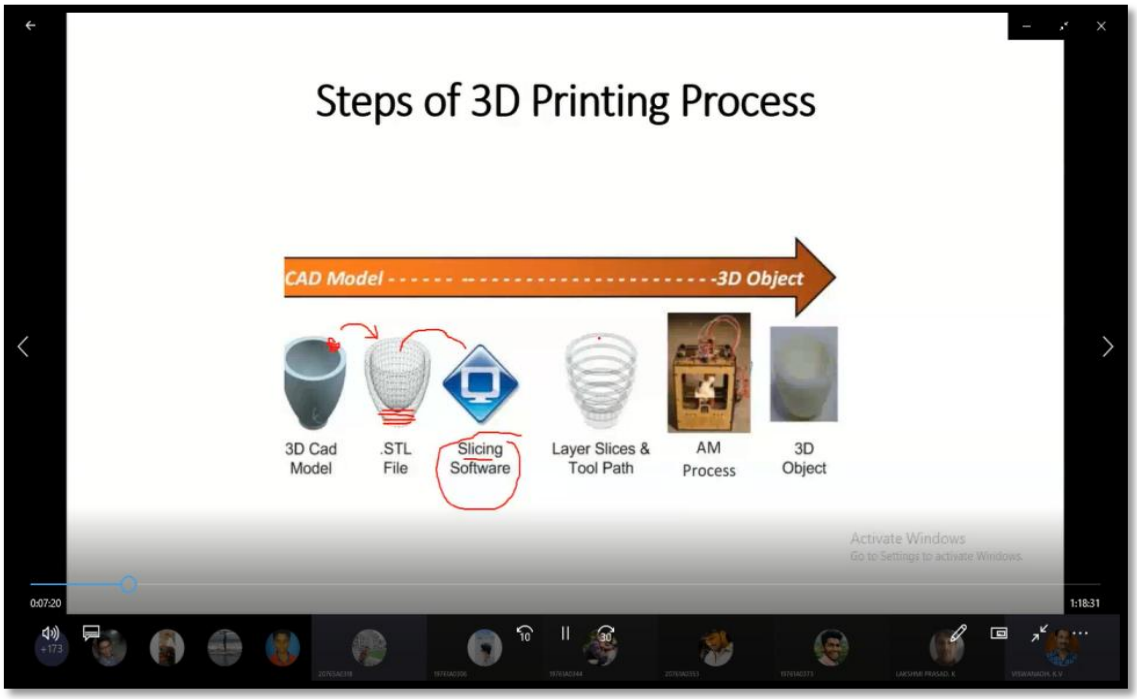
External Sensors in Robotics

Role of Mechatronics in Industries

- The Department of Mechanical Engineering organized a online workshop on "3D Printing and Its Applications" from 09.06.2021 to 11.06.2021 by Dr. Murahari Kolli, Associate Professor, LBRCE, Mylavaram. Dr. Murahari Kolli, KV.Viswanadh, K.Lakshmiprasad coordinated the event.



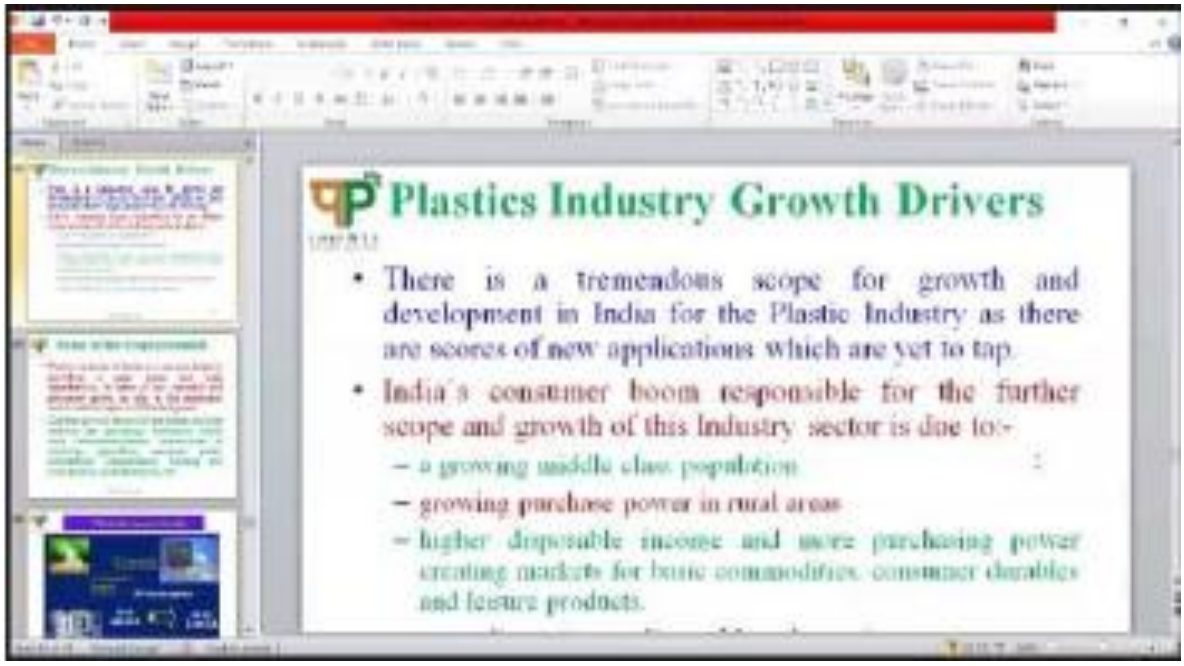
Addressed by Dr.S.Pichi Reddy, Professor & HoD



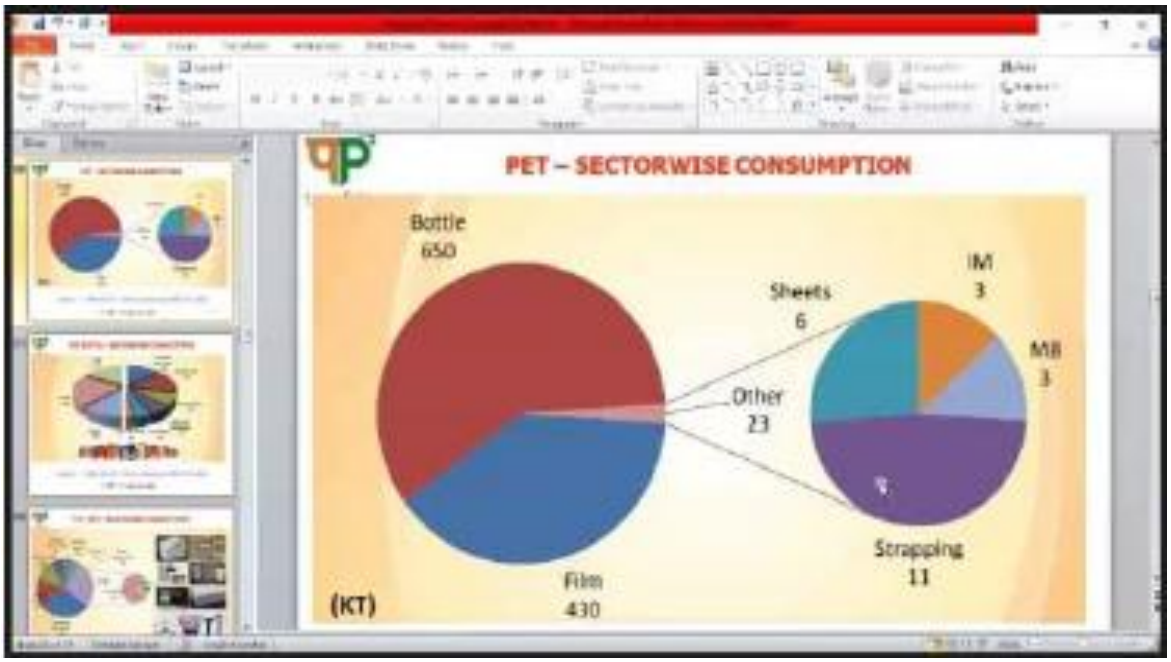
Steps in 3D printing

Guest Lecture

The Department of Mechanical Engineering organized a online guest lecture on "**Emerging Trends of Plastics**" on 04/06/2021 by Mr.Kirti Kameshwar Rao, Asst.Technical Officer and HoD, Tool Room, Central Institute of Plastics Engineering and Technology, Surampally, Vijayawada. Dr. P.Vijay Kumar, Mr. K.V.Viswanadh coordinated the event.



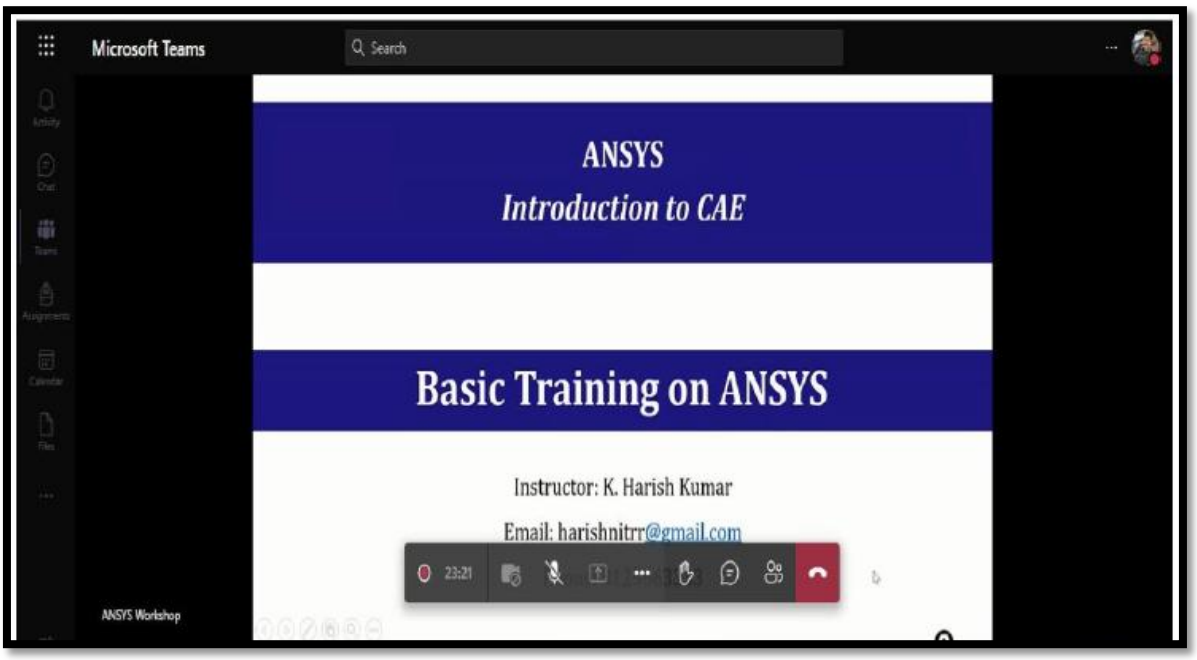
Plastics in Industrial Applications



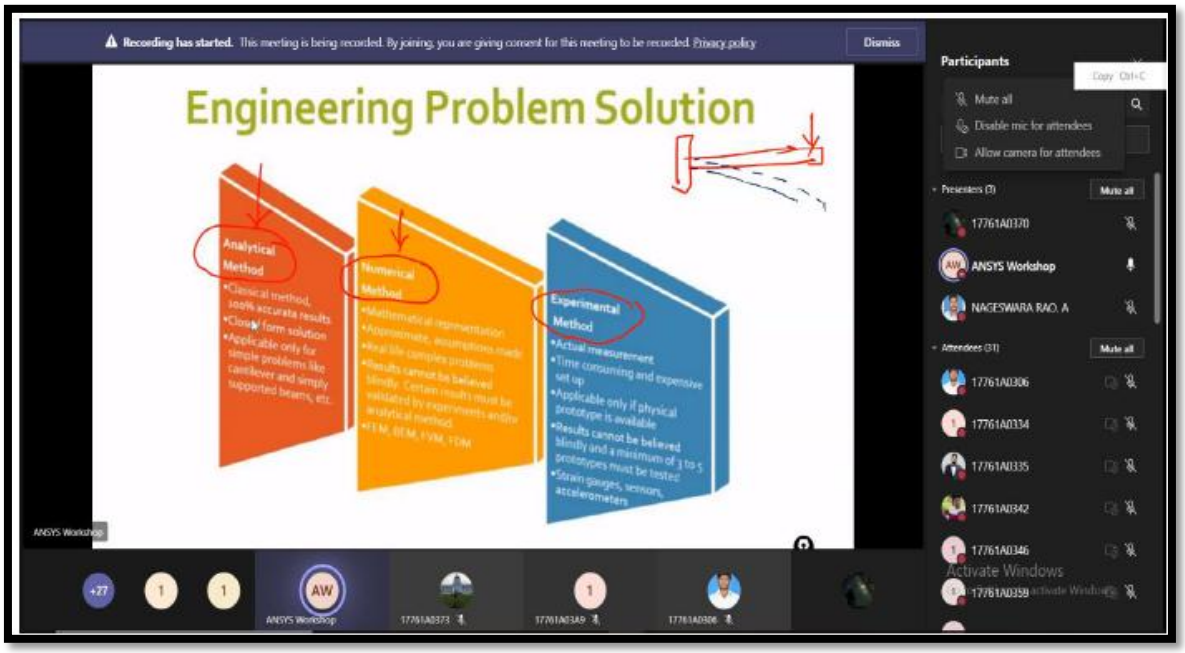
Consumption of Plastics

Student Certification Program

The Department of Mechanical Engineering organized an online student certification program on "**FEA using ANSYS**" From 14-06-2021 to 19-06-2021 by Mr.K.Harish Kumar, FEA Engineer, Exceentric Acadamy, Visakhapatnam. Mr.B.Chaitanya, Mr.A.Nageswara Rao coordinated the event.



Introduction to FEA using ANSYS



Problem solutions using ANSYS

GUEST LECTURES GIVEN BY FACULTY

Name of the faculty	Name of the Topic	Name of the Program	Duration	Organizing Institute & Place
J.Subba Reddy	**1.** Introduction to Robotics, Kinematics, Applications of Robotics **2.** Introduction to Mechatronics, Demonstration of RoboAnalyzer and CProg Softwares	Three Days Online Workshop on Robotics and Automation - Industrial Applications	28.06.2021 & 30.06.2021	Robotics Club, Lakireddy Balireddy College of Engineering, Mylavaram
Dr.K.Murahari	Additive Manufacturing Processes	Online Workshop on 3D Printing and its Applications	08.06.2021	LBRCE, Mylavaram
	Reverse Engineering to 3D Printing		09.06.2021	LBRCE, Mylavaram
	Additive Manufacturing Processses	One week FDP on Cutting edge Technology on 3D Printing & its applications	30.06.2021	Prakasam Engineering College, Kandukuru, AP.
K.V.Viswanadh	3D modelling for 3D Printing	Online Workshop on 3D Printing and its Applications	10.06.2021	LBRCE, Mylavaram

ONLINE CERTIFICATIONS

Coursera:

Name of the Faculty	Name of the Course	Duration	Organizing Institute	Percentage
Ch.Siva Sankara Babu	Fundamentals of waves and vibrations	6 weeks	École Polytechnique	86
K.V.Viswanadh	The 3D Printing Revolution	2 Weeks	Illinois, Urbana-Champain	98

COLLABORATIONS / LINKAGES

Name of the Faculty	Name of the Researcher	Name of the Institute	Duration
Dr.K.Murahari	Dr. K. Krishna Kishore	SVNIT Surat	4 Years (upto June 2025)

SUMMARY OF COLLOQUIMS ORGANIZED

S. No	Name of The Faculty	Name of the Topic	Date
1.	A.Nageswara Rao	Role of robotics to improve the growth of agriculture sector	05.04.2021
2.	K.Lakshmi Prasad	Thermal energy storage systems	12.04.2021
3.	V.Sankararao	Vibrational analysis of composite leaf spring	23.04.2021
4.	B.Udaya Lakshmi	New challenges in finite element technology from perspective of mechanics	05.05.2021
5.	Mallikharjuna Rao.D	Multiple stage compression system and cascade system	18.05.2021
6.	A.Dhanunjay Kumar	Investigation of EDM machining parameters of aluminium metal matrix composites	28.05.2021
7.	B.Kamala Priya	Design and Analysis of Square Model Unit Cell for the Prediction of Thermal Conductivity of Fibre Reinforced Composites	14.06.2021
8.	S.Snigdha	Fracture Behavior of Carbon Based Composites	23.06.2021

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

1. Mr. J.Subba Reddy, has participated in a faculty development program on "Recent Advancements in AI & Robotics" organized by Dr. D.Y. Patel School of Engineering and Technology, Pune from 25th to 29th April 2021.
2. Dr.V.Dhana Raju, has participated in a faculty development program on "Recent Advancements in AI & Robotics" organized by Dr. D.Y. Patel School of Engineering and Technology, Pune from 25th to 29th April 2021.
3. Mr. A.Nageswara Rao, has participated in a faculty development program on "Recent Advancements in AI & Robotics" organized by Dr. D.Y. Patel School of Engineering and Technology, Pune from 25th to 29th April 2021.
4. Mr. K.V.Viswanadh, has participated in a faculty development program on "Cloud based 3D EXPERIENCE –CATIA" organized by VNR VJ Institute of Engg & Technology, Hyderabad from 5th to 9th April 2021.
5. Mr. V.Sankararao, has participated in a faculty development program on "Cloud based 3D EXPERIENCE –CATIA" organized by VNR VJ Institute of Engg & Technology, Hyderabad from 5th to 9th April 2021.

6. Mr. B.Udaya Lakshmi, has participated in a faculty development program on "Cloud based 3D EXPERIENCE –CATIA" organized by VNR VJ Institute of Engg & Technology, Hyderabad from 5th to 9th April 2021.
7. Mr. V.Venkatrami Reddy, has participated in a faculty development program on "Cloud based 3D EXPERIENCE –CATIA" organized by VNR VJ Institute of Engg & Technology, Hyderabad from 5th to 9th April 2021.
8. Mr. J.Subba Reddy, has participated in a faculty development program on "Advanced Applications in Composite Materials" organized by Vel Tech High Tech Dr.Rangarajan Dr.Sakunthala Engineering College, Avadi, Chennai from 17th to 22nd May 2021.
9. Dr.B.Chaitanya, has participated in a faculty development program on "Recent Innovations in Design and Manufacturing" organized by Malla Reddy Engineering College, Hyderabad from 25th to 29th May 2021.
10. Mr. A.Nageswara Rao, has participated in a faculty development program on "Recent Innovations in Design and Manufacturing" organized by Malla Reddy Engineering College, Hyderabad from 25th to 29th May 2021.
11. Mr. V.Sankararao, has participated in a faculty development program on "Recent Innovations in Design and Manufacturing" organized by Malla Reddy Engineering College, Hyderabad from 25th to 29th May 2021.
12. Mr. A.Dhanunjay Kumar, has participated in a faculty development program on "Recent Innovations in Design and Manufacturing" organized by Malla Reddy Engineering College, Hyderabad from 25th to 29th May 2021.
13. Mr. K.Sai Babu, has participated in a faculty development program on "Recent Innovations in Design and Manufacturing" organized by Malla Reddy Engineering College, Hyderabad from 25th to 29th May 2021.
14. Mr. B.Dyva Isac Prem Kumar, has participated in a faculty development program on "Recent Innovations in Design and Manufacturing" organized by Malla Reddy Engineering College, Hyderabad from 25th to 29th May 2021.
15. Dr. V.Dhana Raju, has participated in a faculty development program on "Emerging Trends in Mechanical Engineering" organized by Perumal Mani mekalai College of Engineering, Hosur, Tamilnadu from 28th to 31th May 2021.
16. Mr. S.Rami Reddy, has participated in a faculty development program on "Emerging Trends in Mechanical Engineering" organized by Perumal Mani mekalai College of Engineering, Hosur, Tamilnadu from 28th to 31th May 2021.

17. Mr. K.Karthik, has participated in a faculty development program on "Emerging Trends in Mechanical Engineering" organized by Perumal Mani mekalai College of Engineering, Hosur, Tamilnadu from 28th to 31th May 2021.
18. Mr. S.Umamaheswara Reddy, has participated in a faculty development program on "Emerging Trends in Mechanical Engineering" organized by Perumal Mani mekalai College of Engineering, Hosur, Tamilnadu from 28th to 31th May 2021.
19. Mr. K.Srinivasa Rao, has participated in a faculty development program on "Emerging Trends in Mechanical Engineering" organized by Perumal Mani mekalai College of Engineering, Hosur, Tamilnadu from 28th to 31th May 2021.
20. Mr. B.Dyva Isac Prem Kumar, has participated in a faculty development program on "Emerging Trends in Mechanical Engineering" organized by Perumal Mani mekalai College of Engineering, Hosur, Tamilnadu from 28th to 31th May 2021.
21. Dr. S.Pichi Reddy, has participated in a faculty development program on "Emerging Trends in Thermal and Renewable Energy Systems" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram from 28th June 2021 to 2nd July 2021.
22. Dr. P.Vijay Kumar, has participated in a faculty development program on "Emerging Trends in Thermal and Renewable Energy Systems" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram from 28th June 2021 to 2nd July 2021.
23. Dr. P.Ravindra Kumar, has participated in a faculty development program on "Emerging Trends in Thermal and Renewable Energy Systems" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram from 28th June 2021 to 2nd July 2021.
24. Mr. S.Srinivasa Reddy (Sr), has participated in a faculty development program on "Emerging Trends in Thermal and Renewable Energy Systems" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram from 28th June 2021 to 2nd July 2021.
25. Mr. V.Sankararao, has participated in a faculty development program on "Emerging Trends in Thermal and Renewable Energy Systems" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram from 28th June 2021 to 2nd July 2021.
26. Mrs. B.Kamala Priya, has participated in a faculty development program on "Emerging Trends in Thermal and Renewable Energy Systems" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram from 28th June 2021 to 2nd July 2021.
27. Dr.P.Vijay Kumar , has participated in a faculty development program on "Technology Advancements in Mechanical Engineering-TAME-2021" organized by Anantha Lakshmi Institute of Technology & Sciences, Anantapur from 8th – 12th June 2021.

28. Mr. B.Dyva Isac Prem Kumar, has participated in a faculty development program on "Technology Advancements in Mechanical Engineering-TAME-2021" organized by Anantha Lakshmi Institute of Technology & Sciences, Anantapur from 8th – 12th June 2021.
29. Mr. J.Subba Reddy, has participated in a faculty development program on "Industrial Internet of Things" organized by Siemens Centre of Excellence in Manufacturing, NIT Trichy, Trichy from 14th – 18th June 2021.
30. Dr.K.Murahari, has participated in a faculty development program on "Recent Developments in Manufacturing Technology" organized by Sreyas Institute of Engineering and Technology, Hyderabad from 21th – 26th June 2021.
31. Mr. Ch.Siva Sankara Babu, has participated in a faculty development program on "Recent Developments in Manufacturing Technology" organized by Sreyas Institute of Engineering and Technology, Hyderabad from 21th – 26th June 2021.
32. Mr. K.Narayana, has participated in a faculty development program on "Recent Developments in Manufacturing Technology" organized by Sreyas Institute of Engineering and Technology, Hyderabad from 21th – 26th June 2021.
33. Mr. K.Karthik, has participated in a faculty development program on "Recent Developments in Manufacturing Technology" organized by Sreyas Institute of Engineering and Technology, Hyderabad from 21th – 26th June 2021.
34. Dr. K.Murahari, has participated in a faculty development program on "Advances in Manufacturing" organized by BIT Sindri, Dhanbad, Jharkand from 15th – 19th June 2021.
35. Dr. K.Murahari, has participated in a faculty development program on "Advance materials and processes for sustainable intelligent manufacturing" organized by DAV institute of Engineering and Technology, AICTE-ISTE, Punjab from 7th – 12th June 2021.
36. Mr. S.Srinivasa Reddy (Sr), has participated in a faculty development program on "Recent Trends in Computer Vision" from 17th – 19th June 2021.
37. Dr. V.Dhana Raju, has participated in a faculty development program on "Augment Reality and Virtual Reality" organized by AISSMS College of Engineering, Pune from 21st – 25th June 021.
38. Mr. S.Rami Reddy, has participated in a faculty development program on "Thrust areas of research in mechanical engineering" organized by Geethanjali institute of technology and science, Nellore, AP from 22nd – 26th June 2021.

39. Mr. A.Dhanunjay Kumar, has participated in a faculty development program on "Thrust areas of research in mechanical engineering" organized by Geethanjali institute of technology and science, Nellore, AP from 22nd – 26th June 2021.
40. Mr. K.Sai Babu, has participated in a faculty development program on "Thrust areas of research in mechanical engineering" organized by Geethanjali institute of technology and science, Nellore, AP from 22nd – 26th June 2021.
41. Mr. S.Rami Reddy, has participated in a faculty development program on "Research talk" organized by Gurunanak institute of technology (Autonomous), Khanapur Village, Ibrahimpatnam, Telangana on 26th June 2021.
42. Mr. A.Nageswara Rao, has participated in a faculty development program on "7 Day International Professional Development Programme (PDP) on SPSS" organized by Patrician College of Arts and Science, Adyar, Chennai, Tamil Nadu from 21st - 27th June 2021.
43. Mr. K.Lakshmi Prasad, has participated in a faculty development program on "Challenges in Energy Management for Smart Cities" organized by AVIT, Chennai, Tamil Nadu from 7th - 11th June 2021.
44. Mrs. B.Udaya Lakshmi, has participated in a faculty development program on "INDUSTRY4.0; ADVANCED MANFACTURING" organized by K.S.R.M College of Engineering, KADAPA from 18th - 20th June 2021.
45. Mr. K.Karthik, has participated in a faculty development program on "Automation and Smart Manufacturing" organized by Geetanjali institute of technology and science, SPSR Nellore, AP from 22nd - 26th June 2021.
46. Mr. K.Lakshmi Prasad, has participated in a short term training program on "Energy Conservation and Audit" organized by Sharad Institute of Technology College of Engineering, Yadrav from 14th - 19th June 2021.
47. Mr. V.Sankararao, has participated in a short term training program on "Computational Fracture Mechanics" organized by IIT Bhubaneswar, Bhubaneswar, Odisha from 24th May- 4th June 2021.
48. Mr. V.Venkatrami Reddy, has participated in a short term training program on "Innovations and Challenges in Industry 4.0 Automation and Smart Manufacturing" organized by Kallam Haranadhareddy Institute of Technology, Guntur from 7th- 12th June 2021.
49. Mr. B.Dyva Isac Prem Kumar, has participated in a short term training program on "Innovations and Challenges in Industry 4.0 Automation and Smart Manufacturing" organized by Kallam Haranadhareddy Institute of Technology, Guntur from 7th- 12th June 2021.

50. Mr. K.Lakshmi Prasad, has participated in a workshop on "Elsevier Author Workshop: Fundamentals of Research Article Writing" organized by School of Engineering and Technology, Centurion University, Odisha on 4th June 2021.
51. Mr. V.Sankararao, has participated in a workshop on "Robotics and Automation - Industrial Applications" organized by Robotics Club, Lakireddy Balireddy College of Engineering, Mylavaram from 28th – 30th June 2021.
52. Mr. V.Venkatrami Reddy, has participated in a workshop on "Robotics and Automation - Industrial Applications" organized by Robotics Club, Lakireddy Balireddy College of Engineering, Mylavaram from 28th – 30th June 2021.
53. Mr. K.Karthik, has participated in a workshop on "Robotics and Automation - Industrial Applications" organized by Robotics Club, Lakireddy Balireddy College of Engineering, Mylavaram from 28th – 30th June 2021.
54. Mr. S.Umamaheswara Reddy, has participated in a workshop on "Robotics and Automation - Industrial Applications" organized by Robotics Club, Lakireddy Balireddy College of Engineering, Mylavaram from 28th – 30th June 2021.
55. Mr. D.Mallikharjuna Rao, has participated in a workshop on "Research methodology" organized by Annai Vailankanni college of Engineering, Kanyakumari from 2nd – 4th June 2021.
56. Ms. S.Snigdha, has participated in a workshop on "Research methodology" organized by Annai Vailankanni college of Engineering, Kanyakumar from 2nd – 4th June 2021.
57. Mr. S.Umamaheswara Reddy, has participated in a workshop on "Thesis documentation skills for Researchers using MS word, Excel and LaTex editor" organized by Anantha Lakshmi Institute of Technology & Sciences, Anantapur from 17th – 19th June 2021.
58. Mr. B.Dyva Isac Prem Kumar, has participated in a workshop on "Thesis documentation skills for Researchers using MS word, Excel and LaTex editor" organized by Anantha Lakshmi Institute of Technology & Sciences, Anantapur from 17th – 19th June 2021.

WEBINARS ATTENDED BY FACULTY

1. Mr. Jonnala Subba Reddy, has participated in a webinar on "Recent Advances in Rolling Contact Bearings" organized by Arasu Engineering College, Kumbakonam on 29th May 2021.
2. Mr. S.Srinivasa Reddy (Jr), has participated in a webinar on "Recent Advances in Rolling Contact Bearings" organized by Arasu Engineering College, Kumbakonam on 29th May 2021.

3. Mr. B.Sudheer Kumar, has participated in a webinar on "Recent Trends in Industry" organized by SMSMP Institute of Technology & Research, Shankarnagar-Akluj from 3rd-7th May 2021.
4. Mr. V.Sankararao, has participated in a webinar on "Recent Trends in Industry" organized by SMSMP Institute of Technology & Research, Shankarnagar-Akluj from 3rd-7th May 2021.
5. Mr K.V.Viswanadh, has participated in a webinar on "Probabilistic Approach To Design Mechanical Components" organized by AIMS College of Engineering, Mummidivaram, AP on 17th May 2021.
6. Mr V.Sankararao, has participated in a webinar on "Probabilistic Approach To Design Mechanical Components" organized by AIMS College of Engineering, Mummidivaram, AP on 17th May 2021.
7. Mr V.Sankararao, has participated in a webinar on "Importance of Biological Diversity" organized by Prakruthi-The Environmental Club of LBRCE, Mylavaram, AP on 22nd May 2021.
8. Mr K.Karthik, has participated in a webinar on "Importance of Biological Diversity" organized by Prakruthi-The Environmental Club of LBRCE, Mylavaram, AP on 22nd May 2021.
9. Mr S.Umamaheswara Reddy, has participated in a webinar on "Importance of Biological Diversity" organized by Prakruthi-The Environmental Club of LBRCE, Mylavaram, AP on 22nd May 2021.
10. Mr K.Srinivasa Rao, has participated in a webinar on "Importance of Biological Diversity" organized by Prakruthi-The Environmental Club of LBRCE, Mylavaram, AP on 22nd May 2021.
11. Mr B.Dyva Isac Prem Kumar, has participated in a webinar on "Importance of Biological Diversity" organized by Prakruthi-The Environmental Club of LBRCE, Mylavaram, AP on 22nd May 2021.
12. Mr V.Sankararao, has participated in a webinar on "Quality Sustenance In Higher Educational Institutions" organized by AISSMS College of Engineering, Pune on 10th May 2021.
13. Dr.P.Vijay Kumar, has participated in a webinar on "Emerging Trends of Plastics" organized by Lakireddy Bali Reddy College of Engineering, Mylavaram on 4th June 2021.
14. Mr. S.Srinivasa Reddy (Sr), has participated in a webinar on "National Education Policy (NEP) 2020 - Technology Use and Integration" organized by IQAC, LBRCE and Science City of Andhra Pradesh, Govt. of AP, Mylavaram on 12th June 2021.

15. Dr.V.Dhana Raju, has participated in a webinar on "National Education Policy (NEP) 2020 - Technology Use and Integration" organized by IQAC, LBRCE and Science City of Andhra Pradesh, Govt. of AP, Mylavaram on 12th June 2021.
16. Mr. Ch.Siva Sankara Babu, has participated in a webinar on "National Education Policy (NEP) 2020 - Technology Use and Integration" organized by IQAC, LBRCE and Science City of Andhra Pradesh, Govt. of AP, Mylavaram on 12th June 2021.
17. Mr. K.Lakshmi Prasad, has participated in a webinar on "National Education Policy (NEP) 2020 - Technology Use and Integration" organized by IQAC, LBRCE and Science City of Andhra Pradesh, Govt. of AP, Mylavaram on 12th June 2021.
18. Mr. V.Sankararao, has participated in a webinar on "National Education Policy (NEP) 2020 - Technology Use and Integration" organized by IQAC, LBRCE and Science City of Andhra Pradesh, Govt. of AP, Mylavaram on 12th June 2021.
19. Mrs. B.Udaya Lakshmi, has participated in a webinar on "National Education Policy (NEP) 2020 - Technology Use and Integration" organized by IQAC, LBRCE and Science City of Andhra Pradesh, Govt. of AP, Mylavaram on 12th June 2021.
20. Mr. A.Dhanunjay Kumar, has participated in a webinar on "National Education Policy (NEP) 2020 - Technology Use and Integration" organized by IQAC, LBRCE and Science City of Andhra Pradesh, Govt. of AP, Mylavaram on 12th June 2021.
21. Mr. K.Venkateswara Reddy, has participated in a webinar on "National Education Policy (NEP) 2020 - Technology Use and Integration" organized by IQAC, LBRCE and Science City of Andhra Pradesh, Govt. of AP, Mylavaram on 12th June 2021.
22. Mr. V.Venkatrami Reddy, has participated in a webinar on "National Education Policy (NEP) 2020 - Technology Use and Integration" organized by IQAC, LBRCE and Science City of Andhra Pradesh, Govt. of AP, Mylavaram on 12th June 2021.
23. Mr. S.Umamaheswara Reddy, has participated in a webinar on "National Education Policy (NEP) 2020 - Technology Use and Integration" organized by IQAC, LBRCE and Science City of Andhra Pradesh, Govt. of AP, Mylavaram on 12th June 2021.
24. Mr. B.Dyva Isac Prem Kumar, has participated in a webinar on "National Education Policy (NEP) 2020 - Technology Use and Integration" organized by IQAC, LBRCE and Science City of Andhra Pradesh, Govt. of AP, Mylavaram on 12th June 2021.
25. Mr. Jonnala Subba Reddy, has participated in a webinar on "Personal Financial Management for Disaster Risk Reduction and Resilience" organized by National Institute of Disaster Management, Ministry of Home Affairs, Govt. of India, New Delhi on 22nd June 2021.

26. Dr.K.Murahari, has participated in a webinar on "Fundamentals of Research Article Writing" organized by Centurion University, Odisha on 4th June 2021.
27. Mrs. B.Udaya Lakshmi, has participated in a webinar on "Retrofitting of structural elements using wrapping techniques" organized by Lakireddy Balireddy College of Engineering, Mylavaram on 10th June 2021.
28. Mr. D.Mallikarjuna Rao, has participated in a webinar on "Recent advances in satellite propulsion system" organized by Hindustan institute of technology, Coimbatore on 5.06.2021.
29. Mr. D.Mallikarjuna Rao, has participated in a webinar on "Ecosystems Restoration in India" organized by Nagarjuna university, Guntur on 5th June 2021.
30. Mr. D.Mallikarjuna Rao, has participated in a webinar on "Unlocking Industrial Potential of Digital Twin" organized by SNJB's Late Sau. Kantabai Bhavarlalji Jain College of Engineering, Nashik on 4th June 2021.
31. Mr. V.Venkatrami Reddy, has participated in a webinar on "Bio Fuel and Hydrogen as Alternate energy For IC Engine" organized by BIST, BIHER, Chennai on 12th June 2021.
32. Mr. V.Venkatrami Reddy, has participated in a webinar on "Digital Manufacturing 3D Printing- Present & Future" organized by RMD Sinhgad School of Engineering, Warje, Pune on 30th June 2021.
33. Mr. K.Karthik, has participated in a webinar on "Digital Manufacturing 3D Printing- Present & Future" organized by RMD Sinhgad School of Engineering, Warje, Pune on 30th June 2021.
34. Mr. S.Umamaheswara Reddy, has participated in a webinar on "Digital Manufacturing 3D Printing- Present & Future" organized by RMD Sinhgad School of Engineering, Warje, Pune on 30th June 2021.
35. Mr. K.Karthik, has participated in a webinar on "Entrepreneurship and start-ups" organized by Vidyavardhaka College of Engineering, ISHARE, Mysore on 30th June 2021.
36. Mr. S.Umamaheswara Reddy, has participated in a webinar on "Eco Systems Restoration In India" organized by Acharya Nagarjuna University, Guntur on 5th June 2021.
37. Mr. S.Umamaheswara Reddy, has participated in a webinar on "Biomedical Waste Impact during Pandemic Times" organized by Acharya Nagarjuna University, Guntur on 12.06.2021.
38. Mr. B.Dyva Isac Prem Kumar, has participated in a webinar on "Biomedical Waste Impact during Pandemic Times" organized by Center For Environmental Education and Ecological Development (CEED), India, World Environment Organisation (WEO), Hyderabad and Prakruthi club of Lakireddy Bali Reddy College of Engineering, Mylavaram on 12.06.2021.

PATENTS PUBLISHED

Name of the Inventors	Patent Number	Title of the Patent	Agency	Date of Published
Dr.M. Nageswara Rao, Dr.Murahari Kolli, Dr.S.Sudhakar Babu, Dr.Atul Bhattad	342011001	Chassis Design	Indian Patent	07.04.2021
RAJA Santhosh Tulala, Bramah Hazela, S. Vijayalakshmi, Shoaib Arif Shaikh, Garima Pandey, K. Dilip Kumar, T. Srinivasa Rao, B. Raghu Kumar, Jakeer Hussain Shaik, Malladi R. Ch Sastry	2021101399	An Agricultural Smart Robot Device	IP Australia	28.04.2021
V.Venkatrami Reddy, K.Lakshmi Prasad, S.Uma Maheswara Reddy, K.V.Viswanadh, A.Naresh Kumar	202141019607 A	Method of Synthesizing Hybrid Metal Wood Composite And 3D Printing Thereof	Intellectual Property India	07.05.2021
Dr. Anurag Shrivastava, Dr. Ezhilarasi Nagarajan, Deepak Shripat Mane Dr.Tanneeru Srinivasa Rao **Dr. Konka Dilip Kumar, Sudheer Kumar Battula,** Mohammed Yaseen Ahmed, Dr. Shaik Jakeer Hussain, Mrs Fatima M Inamdar, Mohammad Shabaz, Tulala Rajasanthosh Kumar	202121021172	A Sensor Fusion Precision Technology in Agricultural and its method and Controlling Parameters	IPR	18.06.2021
Dr. M. Nageswara Rao, Dr. Murahari Kolli, K.V.Viswanadh, Sankararao Vinjavarapu, B. Sreedhar	345219-001	A Table with Adjustable Chairs	IPR	23.06.2021
Dr. K. Deepti, D Tulika Chakrabarti, Dr. Ananda Shankar Hati, Mr. Shivakumar Kagi, Dr. Sudharsan Jayabalan, Mr. Ragavanantham Shanmugam, Mr. Siva Sankara Babu Chinka, Dr. Chodavarapu Vijaya Kumar, Dr. Bazani Shaik, DR J Bhaskaran, Dr. Prasun Chakrabarti, Dr. Namrata Tripathi	2021102660	Navigation technique for industrial cleaning robots with multi height and width adaptability	IP Australia	23.06.2021

NPTEL ONLINE CERTIFICATIONS

- The following are the details of faculty completed the NPTEL online courses during 2020-21.

S.No.	Name of the Faculty	Title of the course	Duration	Awarding Institute	Grade
1.	Dr.P.Vijay Kumar	Effective Engineering Teaching Practice	Jan to Feb 2021	IIT, Madras	Elite
2.	Dr.P.Ravindra Kumar	NBA Accreditation and Teaching - Learning in Engineering (NATE)	Jan – Apr 2020	IISc, Bangalore	Elite + Silver
3.	Dr.P.Ravindra Kumar	Power Plant Engineering	Jan – Apr 2020	IIT Roorkee	Elite + Silver
4.	Dr.P.Ravindra Kumar	Laws of Thermodynamics	Jan to Feb 2021	IIT, Kharagpur	Successfully Completed
5.	J.Subba Reddy	Engineering Drawing and Computer Graphics	Sep to Dec 2020	IIT Kharagpur	Elite + Silver
6.	Dr.V.Dhana Raju	Power Plant Engineering	Jan – Apr 2020	IIT Roorkee	Top 5%
7.	A.Naresh Kumar	Module 7: Creative problem solving, Innovation and Meaningful Research and Development	Jan-May 2020	NITTTR-Chandigarh	Elite + Silver
8.	K.Lakshmi Prasad	Introduction to Research	Sep - Nov 2020	IIT Madras	Elite
9.	B. Kamala Priya	Effective Engineering Teaching in Practise	Jan-Feb 2021	IIT Madras	Successfully Completed
10.	S.Snigdha	NITTTR- Module 1: Orientation towards Technical Education & Curriculum Aspects.	Sep - Nov 2020	NITTTR-Chennai	Elite + Silver

- Dr.P.Ravindra Kumar received Appreciation certificate from NPTEL as Discipline Star Dec 2020.
- Dr.P.Ravindra Kumar got Appreciation certificate from NPTEL as NPTEL Belivers 2020.
- Dr.V.Dhana Raju acted as external supervisor to Mr.S.Rami Reddy for Ph.D part time course in KLEF, Vaddeswaram, Guntur from 23.02.2021.

FACULTY ARTICLES

1. NEW INSIGHTS INTO HOW TO PROMOTE PROSOCIAL BEHAVIOR

What do you want for your kids, family, friends, or yourself? There are numerous potential responses to this question, but many of them boil down to two main goals: most people want to be happy and to make a positive contribution to the world. Prosocial behavior contributes to both of these aims.

Prosocial behavior refers to actions that people perform voluntarily to try to help other people. This includes a wide range of helpful behaviors such as comforting a friend, donating to a charitable organization, mentoring a less-experienced coworker, or caring for a neighbor's pet when he or she is out of town.

Prosocial behavior has many benefits. The most obvious extend to the recipients of help. For example, driving a friend to the airport could save them time and money. Interestingly, prosocial behavior also contributes to the well-being of the person giving the help. For one, helping others feels good: it often leads to a positive mood and reduced stress. Over time, prosocial behavior is associated with greater psychological well-being, better social relationships, and better physical health, including greater longevity. Thus, prosocial behavior is valuable for both those who receive help and those who do the helping.

Given the widespread benefits of prosocial behavior, many people are interested in promoting it. Researchers have identified several strategies for promoting prosocial behavior. But many benefits of prosocial behavior arise not from any single action, but rather from patterns of behavior. Thus, a critical question is how to cultivate prosocial habits.

One such intervention is service learning. Service learning involves asking students to volunteer for some form of service work within their community. This service is integrated with the learning goals of a course. Although service learning has been shown to encourage helping behavior, it is limited because it requires significant time and resources to implement.

2. How To Manage Or Deal With Stress?

In the present competitive world, to tie down admission to any great course and in a prestigious college or university, you should confront distinctive placement tests. There is a wide range of competitive examinations for admission to courses, for example, engineering, medical, MBA, law, etc. and many more. At the point when the test season is on, you will get worried about shifting ways. This assessment stress can truly crush out your vitality. It is extremely evident to feel a specific measure of worry before any test. In the event that you need to turn into a high-achiever, at that point, you will clearly experience a particular sort of stress.

Regardless, imagine a scenario where the pressure crosses its cutoff points and, in the end, influences your presentation. In this way, don't let the weight of the test time frame influence your performance. To mitigate study pressure and to feel relaxed, there are loads of ways! They will support your learning potential, as well!

Let us investigate which are those ways...

- **Try to comprehend your body...!**

At the point when you begin worrying, attempt to recognize it and enjoy a reprieve. Stretch your body since extending the body will likewise help calm muscle pressure, will build

flow, and will assist you with focusing your mind. Attempt to take in the middle of as Breathing systems are one of the fastest and most straightforward approaches to ease the strain in the body and quiet the brain.

- **The way to success is Time Management...!**

  Attempt to design the day preceding the test or the month before the test month a long time previously, so you'll know precisely what you have to do, and that you'll have the opportunity to cover all that you need. Making a timetable will help ensure you fit the most significant components into the timeframe you have left, regardless of whether you have less time than you might want. Start your day early with the goal that you will have more opportunities to design your day and work on things. Since early morning is likewise an extraordinary time to study as your brain is crisp, and your body is well- refreshed.

- **Have a great deal of Sleep...!**

  A safeguard approach to improve the nature of your rest is going to bed at generally a similar time each night. A sleep time routine is additionally exhorted, and it is gainful in light of the fact that the body realizes it is going to rest and will unwind in the arrangement.

- **Some contemplation or physical action...!**

  A few people want to contemplate, while some may discover practicing a decent method to alleviate pressure. Both the exercises help to create feel-great synthetic concoctions in our cerebrum, which prompts a decrease in the feelings of anxiety in our body and psyche. Customary exercise mitigates worry as well as improve focus and mental mindfulness. If you are worn out in view of activity, at that point, it will enhance your rest, and consequently, it will decrease your feelings of anxiety.

- **Take breaks in the outdoors...!**

  Research shows that basically being outside brings down feelings of anxiety, significantly following a five-minute stroll in the outdoors. You simply need to discover the closest green space next time you have to take a study break, and you'll promptly feel not so much restless but rather more sensible.

- **Keep away from Comparison...!**

  Attempt to keep away from loved ones who make you tense. It might be a result of their inquiries or looking at capacity.

  Try not to look at the measure of difficult work which you have placed in with any other person since everybody has their own arrangement of getting things done. However, aside from the previously mentioned advances, self-inspiration, a casual personality, and trust in yourself are the things which are generally imperative to ward worry off.

  Attempt to clean out negative musings and dread from your psyche and focus on the present. Put forth a valiant effort, and you will prevail in your test!

Ms. S. Snigdha
Assistant Professor

STUDENT ARTICLES

How To Protect The Earth From Environmental Damage?

Environmental protection refers to protecting the environment. Tree-plants have great importance in human life. They are very useful for humans. They are the basis of human life, but today the human being is neglected by not understanding its significance and usage. Giving the importance of secondary benefits, it is continuously being exploited by them. As many trees cut down, they should be done too, but this is not happening and their number is continuously decreasing. As a result, many problems are present in front of humans. The animal is dependent on the vegetation of life for its life.

The person lives in the air by breathing in the oxygen present in the air. Tree plants release oxygen in the process of photosynthesis. In this way tree plants provide the basis of the life of a human being. Apart from this, the diet of the creatures is the vegetation. Flora gives nutrition to creatures.

How To Protect Environment?

In the past, the growth of tomorrow-factories has been considered as the basis of development. Agriculture and irrigation have been emphasized for food production, but as much attention as possible to understand the importance of forest wealth, it has not been given as much. Forests were considered to be encircling the land and they were thought to be harvested and planted. Agriculture has also been used indiscriminately for the need for timber and timber, and neglected to plant new trees in their place. Therefore, today we are going to become poor with the view of forest wealth and are seen in front of it as a direct impairment of indirect consequences.

Why is environmental protection important?

Environmental protection is one of the basic prerequisites for the overall development of any country in the world. As awareness of environmental protection is developed, human awareness is also developed about the need to preserve the environment by preventing adverse impacts on nature.

What is the study of environmental protection?

Environmental protection focuses on solving problems arising from the interaction between humans and environmental systems and includes issues related to conservation, pollution, loss of biodiversity, land degradation or environmental policy.

How should we protect our environment essay?

Soil conservation is yet another important way to save the Environment. For this, there must be control of landslides, floods, and soil erosion. Furthermore, there should also be afforestation and tree plantation to conserve the soil. Also, terrace farming and using natural fertilizers are some more ways.

G.Sadhana
20765A0334
II B.Tech C/S ME

STUDENTS QUALIFIED IN GATE/CAT/IELTS/GRE/TOEFL, etc

S.No.	Name of the student	Roll No	Qualified Exam	Qualified exam Hall Ticket No.	Score
1.	Ramisetti Pavan Kumar	16761A03A2	TOEFL	2327003214062247	93
2.	Parasa Krishna Vamsi	16761A0345	IELTS	175542	7
3.	Sandeep Surapaneni	16761A03A3	GRE	9107914	301
4.	Shaik Lal Ibrahim	16761A0352	MAT	295118337	645.5
5.	Kotagiri Sai Teja	16761A0330	IELTS	170743	6.5
6.	Ramisetti Pavan Kumar	16761A03A2	GRE	8873456	316

STUDENTS JOINED IN HIGHER STUDIES

S.No.	Name of the student	Roll No	Name of Course	Institute, Place
1.	Gorla Kusuma Reddy	16761A0316	MS	Wright State University, USA
2.	Gutta Sai Pranay	16761A0376	MS	Wright State University, USA
3.	Ramisetti Pavan Kumar	16761A03A2	MS	Wright State University, USA
4	Potluri Nithin Sai	15761A03A3	MS	Lancaster University, UK
5.	Datla Naga Harish	13761A0371	M.S	University of Windsor
6.	Kotagiri Sai Teja	16761A0330	MS	Clever Land State University

STUDENTS PLACEMENTS

S.No.	Name of the student	Roll No	Name of the company	Annual package
1.	R.Sarvani	17761A0339	HCL Technologies	3.6 Lakhs
2.	K.S.S. Hemanth	18765A0322	HCL Technologies	3.6 Lakhs
3.	K.Surya Sai Kumar	17761A0325	HCL Technologies	3.6 Lakhs
4.	Shaik Khadarbasha	18765A0313	HCL Technologies	3.6 Lakhs
5.	A Siva Reddy	17761A03B2	HCL Technologies	3.6 Lakhs
6.	T. Siva Chenna Kesava	17761A0348	HCL Technologies	3.6 Lakhs
7.	B.Veeraraghavulu	17761A0357	HCL Technologies	3.6 Lakhs
8.	G.Gerataraju	17761A0373	HCL Technologies	3.6 Lakhs
9.	B.Bhavana	17761A03B3	HCL Technologies	3.6 Lakhs
10.	P.Gunakar	17761A03F3	HCL Technologies	3.6 Lakhs
11.	Y.Subba Ramaiah	17761A03G5	HCL Technologies	3.6 Lakhs
12.	K.Vijay Kumar	18765A0309	HCL Technologies	3.6 Lakhs
13.	C.Vamsi Krishna	17761A03C1	HCL Technologies	3.6 Lakhs
14.	B.Surendra	17761A0309	Infosys	4 Lakhs
15.	G.Gopinath	17761A0317	Infosys	4 Lakhs
16.	B.Prasanth	17761A0359	Infosys	4 Lakhs
17.	G.Sasi Vardhan	17761A0371	Infosys	4 Lakhs
18.	V.Ravinder Reddy	17761A03A8	Infosys	4 Lakhs
19.	V.Phanidar Reddy	17761A03B0	Infosys	4 Lakhs
20.	A.Siva Reddy	17761A03B2	Infosys	4 Lakhs
21.	P.Gunakar	17761A03F3	Infosys	4 Lakhs
22.	Y.Subba Ramaiah	17761A03G5	Infosys	4 Lakhs

23.	K.S.S.Hemanth	18765A0322	Infosys	4 Lakhs
24.	P.V.M. Subhakar	16761A03F6	KIA Motors	3 Lakhs

Online Certifications/Trainings

S.No	Name of the student	Roll No.	Name of the topic	Organizing Institute
1	Anam Mani Dinesh	20761A0302	Auto CAD	INTERNSHALA

NSS

- The following are the list of students participated as volunteers for MPTC/ZPTC Elections on 08/04/2021.

S.No.	Student Name	Roll No.	Duration	Place
1	Songa Naveen Kumar	18765A0329	08/04/2021	Mylavaram
2	Shaik Gows Rabbani	18765A0328	08/04/2021	Mylavaram
3	Chetan Satya Manikanta M	17761A0312	08/04/2021	Mylavaram
4	B VenkateswaraRao	17761A0303	08/04/2021	Mylavaram
5	Muppidi Joshua Paul	17761A0335	08/04/2021	Mylavaram
6	Mohammed Saif Ali Khan	17761A0334	08/04/2021	Mylavaram
7	Avanigadda Anil	17761A0301	08/04/2021	Mylavaram
8	Kurasala Sai Praveen	17761A0326	08/04/2021	Mylavaram
9	Peram Sai Krishna Reddy	17761A0338	08/04/2021	Mylavaram
10	Kollu Lalith Dattu	18765A0308	08/04/2021	Mylavaram
11	Shaik Khadar Basha	18765A0313	08/04/2021	Mylavaram
12	L. Kiran Siva Naga Kumar	17761A0327	08/04/2021	Mylavaram
13	Kadali Satya Sai Hemanth	18765A0322	08/04/2021	Mylavaram
14	Pasupuleti Pandu Ranga Rao	17761A0396	08/04/2021	Mylavaram
15	Singuluri Naga Manikanta	17761A0346	08/04/2021	Mylavaram
16	Vallabhuni Rakessh Sai	18765A0330	08/04/2021	Mylavaram
17	V.Udaygnani	17761A03A7	08/04/2021	Mylavaram
18	Pullepu Srikanth	18765A0325	08/04/2021	Mylavaram
19	Ette Tejanadh	17761A0370	08/04/2021	Mylavaram

NCC

S.No	Rgtl No.	Name of Cadet	Roll No.	Name of the event	Institute, Place	Date
1	AP20SWA 375538	Ummadisetti Tejaswi	20761A0398		LBRCE	
2	AP19SWA372082	K. Akanksha	18761A03D4			

3	AP19SWA372083	Tadepu Veena Naga Madhuri	18761A03A3	Yoga Quiz	through online mode	20.06.2021
4	AP19SWA372091	M.Divya Teja	18761A0383			
5	AP19SWA372092	G.Pravallika	18761A0369			
6	AP20SWA 375538	Ummadisetti Tejaswi	20761A0398	IDY - 2021 Yoga	LBRCE through online mode	20.06.2021
7	AP19SWA372082	K. Akanksha	18761A03D4			
8	AP19SWA372083	Tadepu Veena Naga Madhuri	18761A03A3			
9	AP19SWA372091	M.Divya Teja	18761A0383			
10	AP19SWA372092	G.Pravallika	18761A0369			
11	AP20SWA 375538	Ummadisetti Tejaswi	20761A0398	Yoga Pledge	LBRCE through online mode	21.06.2021
12	AP19SWA372082	K. Akanksha	18761A03D4			
13	AP19SWA372083	Tadepu Veena Naga Madhuri	18761A03A3			
14	AP19SWA372091	M.Divya Teja	18761A0383			
15	AP19SWA372092	G.Pravallika	18761A0369			

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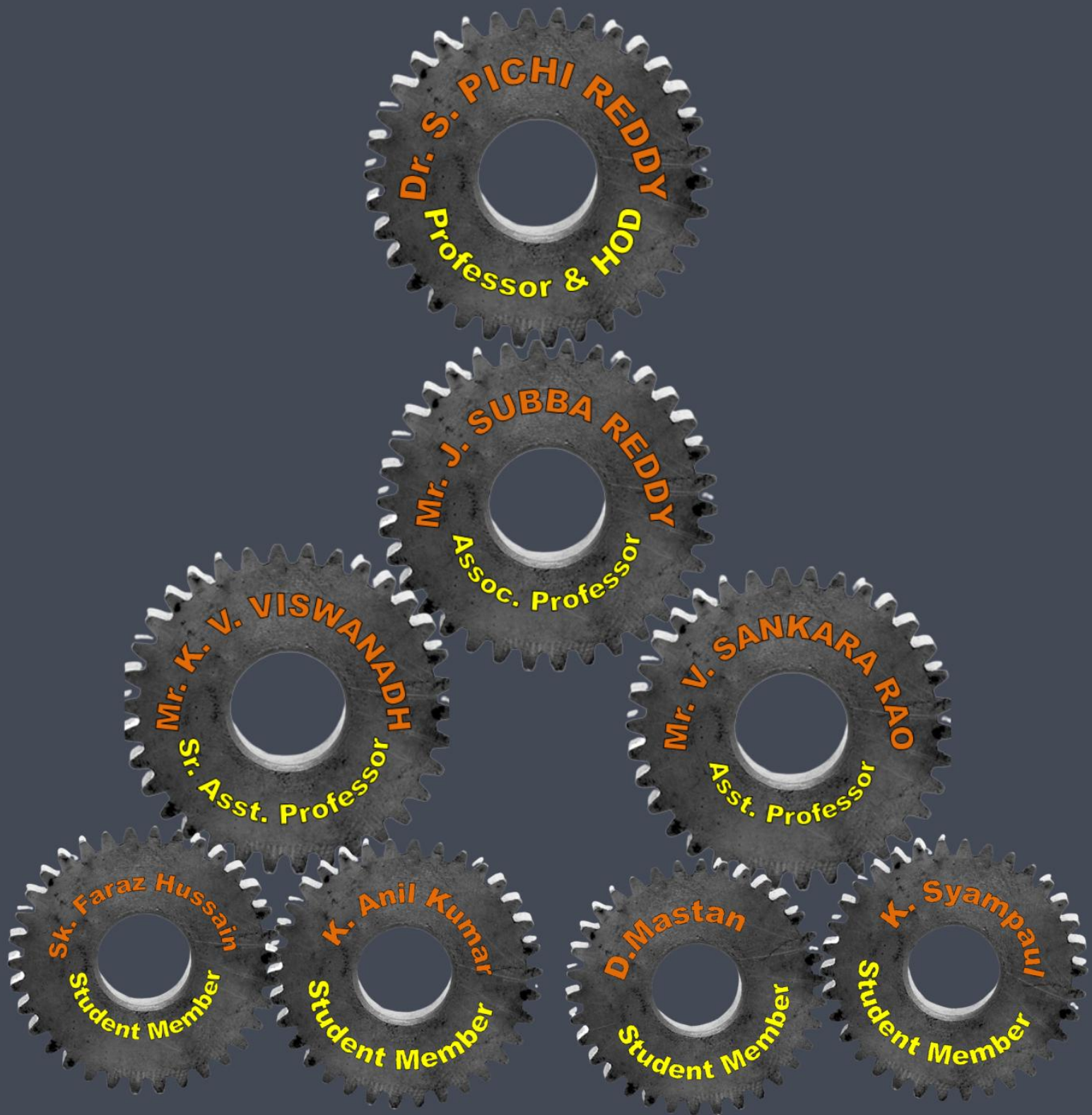
Editorial Board



DEPARTMENT OF MECHANICAL ENGINEERING

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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