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# INGENIUM

Volume 1, Issue 1, January-2020

Departmental Newsletter

## Department of Mechanical Engineering



**A.J. Institute of Engineering and Technology**

(A Unit of Laxmi Memorial Education Trust ®)

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## Message from Editor's Desk:

Welcome to the first issue of Newsletter from the Department of Mechanical Engineering. We are delighted to launch our Bi-Annual Newsletter "INGENIUM". This newsletter is a digital way for us to communicate with our students, faculty members, alumni and industrial partners. It aims to showcase the glimpse of the departmental activities and achievements. It enlightens the readers about the latest happenings in the department, focusing about different activities like placement, industry-academia, club activities, student and faculty achievements. We look forward for more activities and achievements for the department to march towards excellence in the future. We would like to thank all teaching, non-teaching staff and our beloved students for their constant support. We thank all the contributors for their support. Do send us your feedback and suggestions for improvement.

## Editorial Committee

Dr. Sreejith B K  
Mr. Harold J D'Souza  
Mr. Prasad B G  
Mr. Sudheer Kini K  
Ms. Anusha  
Mr. Chirag P  
Mr. Harshith Shetty

## HOD's Message:



I am happy to see that the first volume of INGENIUM has been brought out by Newsletter Team of Mechanical Engineering Department. I take this opportunity to congratulate all the team members in particular for their commendable effort in bringing out the first successful issue of INGENIUM. It has been our intention to use the newsletter for highlighting the on-going activities in the department. For this year, INGENIUM as an e-magazine will serve a useful platform for exchanging ideas and information with outer world. I am sure this volume of INGENIUM will be acceptable to even more readers. I hope you all will enjoy reading this issue of INGENIUM and will also contribute to successful future editions. Have a great time in reading this newsletter and beyond.

## Dr. Rajesh Rai P

HOD, Department of Mechanical Engineering  
AJ Institute of Engineering and Technology,  
Mangaluru

## VISION

To create globally competent and self-reliant mechanical engineers adaptive to an interdisciplinary environment contributing to society through development, authority and entrepreneurship

## MISSION

- To offer high quality graduate programme in the fields of Mechanical Engineering with value education to the students and make them responsive to societal needs.
- To nurture the students with a global outlook for a sustainable future with high moral and ethical values.
- To strengthen collaboration with industries academia and research organizations to enrich learning environment, thus enhance research and entrepreneurship culture.
- To create awareness about the need of interdisciplinary applications through alumni industry-institution interactions.

## Program Educational Objectives (PEOs)

**PEO1:** Prepare graduates with mathematical, scientific and engineering skills to design and develop energy efficient systems for sustainable development.

**PEO2:** Excel graduates with high level of technical competency combined with research and complex problem solving ability to generate innovative solutions in Mechanical and multi-disciplinary areas.

**PEO3:** Equip students with modern tools, technology and advanced software's for deliberating engineering solutions.

**PEO4:** Inculcate graduates with strong foundation in academic excellence, soft skills, leadership qualities, professional ethics, and social concerns and understand the need for lifelong learning for a successful professional career

## Program Outcomes (POs)

- 1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2. 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.
- 3. 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.
- 4. 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.
- 5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- 6. 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.
- 7. 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.
- 8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- 9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- 10. 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.

**11. 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.

**12. 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:** Apply the knowledge of modern engineering tools to design and Analyse the products and processes related to mechanical engineering system.

**PSO2:** Develop technical and interpersonal skills pertinent to mechanical and allied engineering for careers in industry, academia and government organisations.

## Research

Domain Name	Domain Co-coordinator	Domain Members
<b>Manufacturing</b>	Dr. Rajesh Rai P	Mr. Prashanth D A Mr. Nithin Shet Mr. Prasad B G Mr. Vijaykumar H K
<b>Thermal</b>	Dr. Vighnesha Nayak	Dr. Sreejith B K Mr. Prakhyath Mr. Karthik A V
<b>Design</b>	Mr. Sunil Kumar S	Mr. Sudheer Kini, Mr. Harold J D'Souza

Sl No	Subject Domain Name	Members
1	Additive Manufacturing, CIM	Dr. Rajesh Rai P, Mr. Prasad B G
2	Composite and Polymers	Mr. Prashanth D A
3	Fuel Cell	Mr. Nithin Shet
4	Alternative Fuels, Combustion	Dr. Vighnesha Nayak
5	Wind Energy, Heat Transfer	Dr. Sreejith B K
6	Solar Energy, Heat Transfer, Cryogenics	Mr. Prakhyath, Mr. Karthik A V
7	Fatigue, Machine Design	Mr. Sudheer Kini K, Mr. Sunil Kumar
8	Composite Design, CIM	Mr. Vijay Kumar
9	FEA, Vibration	Mr. Harold J D'Souza,

## Student Projects

Batch No.	USN	Team members	Guide	Project Topic
B1	4JK16ME020	Ashit Prinston M	Mr. Nithin Shet Dr. Sreejith B K	Design And Analysis Of Vertical Wind Turbine Blade
	4JK16ME003	Anusha		
	4JK17ME402	Bhushith B		
	4JK17ME408	Vikyath K L		

<b>B2</b>	4JK16ME018	Sourabh A S	Dr. Rajesh Rai P. Mr. Sudheer Kini K	"Garuda" –Recon And Attack Drone
	4JK16ME019	Varunchand S		
	4JK17ME400	Akhil Thomas		
	4JK17ME407	Punith Raj Naik J		
<b>B3</b>	4JK16ME013	Muhammed Faizal	Dr.Vighnesha Nayak Mr. Karthik A V	Performance, Combustion & Emission Characterstics Of Single Cylinder Ci Engine With Wco Bio Diesel & Nano Particles
	4JK16ME012	Mohammed Suhail		
	4JK16ME006	Hammabba Anshif		
	4JK16ME009	Mahammed Ashik		
<b>B4</b>	4JK16ME016	Rasik Ahamed	Mr. Prashanth D A Mr. Prakhyath	Design And Fabrication Of Plastic Recycling Machine
	4JK16ME008	K M Krishnanand		
	4JK16ME001	Akshay George		
	4JK16ME002	Anoop Chandran K		
<b>B5</b>	4JK17ME401	Anu Mathew	Mr. Vijay Kumar H K Mr. Harold Joyson D'souza	Waste Segregation Using Robotic Arm
	4JK16ME014	Pavan I K		
	4JK17ME403	Mahammad Mufeez		
	4JK17ME405	Navanith Shetty		

## Student Achievements



## Cultural Events

Academic Year	Date	Semester	Student Name	Event	Prize
2019	28 <sup>th</sup> February 2019	IV	Mr. Chirag	AAKRITHI 19, Canara Engineering College	Best Director Award
2019	28 <sup>th</sup> February 2019	IV	Mr. Chirag Poonja, Mr. Nihal Lloyd, Mr. Sanath kumar, Mr. Vikas p	One Reel, AAKRITHI 19, Canara Engineering College	Second Place
2019	26 <sup>th</sup> March 2019	IV	Mr. Chirag Poonja, Mr. Nihal Lloyd, Mr. Sanath kumar, Mr. Vikas p	Light Camera Action, Sentia 19 In Mangalore Institute Of Technology And Engineering	First Place
2019	26 <sup>th</sup> March 2019	VI	Ms.Anusha, Mr. Sourabh A S	Auto Quiz, Sentia 19 In Mangalore Institute Of Technology And Engineering	First Place
2019	09 <sup>th</sup> March 2019	VI	Mr,Ashith P, Mr. Akhil Thomas Ms.Anusha	CAED Venture, AAKAR-2K19 AJIET	First Place

2019	26 <sup>th</sup> March 2019	VI	Mr . Vikyath	Mighty Machinist, Sentia 19 In Mangalore Institute Of Technology And Engineering	Second Place
2019	14 <sup>th</sup> March 2019	VI	Mr. Vikyath K L and Mr. Ashith P	Navapravartya-Hobby Exhibition A National Level Technical Fest	Second Place

## Students curricular activities

- 🏆 Anusha, Ashith P. M., Bhushith, Vikhyath K.L. of 7<sup>th</sup> semester presented a paper titled “Effect of Static Ignition Timing on the Emission and Performance Characteristics of a Four Cylinder MPFI Engine Fueled by LPG” in 26th National Conference on IC Engines and Combustion, NIT Kurukshetra, India held on 01st to 04th November 2019.

## Association

The formal inauguration function of Inaugural ceremony of Association of Royal Mechanical Students (ARMS) 2019 -2020 inaugurated on 16<sup>th</sup> August 2019 at 11 AM in the seminar hall of AJIET, Mangaluru. Mr. Sourabh, President of ARMS escorted the dignitaries to the Dias. The chief guest of the function was Major Karthik



Panchapakesan, Deputy General Manager–HR, TVS Motor Company

Bengaluru. Principal of AJIET, Mangaluru Dr. Shantharama Rai and HOD of Mechanical Engineering Department Dr. Rajesh Rai, Association Co-ordinators Mr. Prasad B.G. and Mr. Harold Joyson D’Souza and Mr. Sourabh President of ARMS were present on the Dias. Function began with invocation song by Ms. Karna Thulasi and Ms. Neha Jain followed by lighting the lamp by chief guest and dignitaries present on the Dias. The chief guest of the function Major Karthik Panchapakesan inaugurated the association.

Mr. Bhusith introduced the chief guest to the audience. Mr. Sourabh formally welcomed the students of second year

and delivered the association activity report.

The chief guest of the function Major Karthik Panchapakesan addressed the gathering and said that the Engineering students should be aware of the interdisciplinary subjects so that it will greatly help them to pursue their career in automobile sector beside the fact that the additional attributes of the students like Commercial awareness, Problem-solving, Team working, Relevant technical knowledge, Good leadership, IT and Analytical skills are inevitable part of the any company requisites. He appreciated the students of AJIET for planning the activities for the academic year 2019-2020. Major Karthik Panchapakesan had given a technical talk on Chaos and Clarity Automobile industry 2030. Winners of various competition and ex-office bearers of the association were awarded and honoured respectively by chief guest

and Principal AJIET. HOD of Mechanical Engineering Dr. Rajesh Rai addressed the audience and suggested the students that endeavours of Youth especially engineering students should be towards developing the nation and has to be inherent within themselves. On this occasion he had handed over a cheque of 20,000 rupees towards the chief minister Flood relief Fund collected in the department. Speaking to the audience Dr. Shantharama Rai C Principal AJIET, Mangaluru said that Students association activities should be result oriented that is it should end up with serving the society by nurturing the minds with cutting edge technologies and skill sets.

Principal presented a memento as a love and gratitude to the chief guest. Ms. Anusha was Master of Ceremony and Mr. Tejesh proposed vote of the thanks. Various Departments heads faculty and students witnessed the event.

## Ayudha Pooja

Department of Mechanical Engineering, A. J. Institute of Engineering and Technology celebrated Ayudha Pooja on 5th of October 2019. All were gathered

in the Material testing lab to pay reverence to the equipment that allows for smooth learning. The lab was adorned with flowers and mango leaves.

A photo of Devi with floral decoration was set. The lab had beautiful Rangolis on display which garnered a lot of praise from students and staff alike. Traditions and cultural norms were adhered to provide all with a holistic celebration experience.

Doorway was decorated with flowers and mango leaves and hosted a sign along with Chande instruments. At 10:30 am, the ceremony started off with poojas to the goddess. Later poojas were



performed separately to the various equipment's in all the labs. The occasion was graced by our Principal, HODs, Faculties, Staffs and Students. The prasadam was distributed at the end of the ceremony.

## Technical Talk

### **A Technical talk on 'Basic's and Advancements in IC Engines and Combustion'**

A technical talk by Dr. Kumar G N, Associate Professor, Department of Mechanical Engineering, NITK on **'Basic's and Advancements in IC Engines and Combustion'** for the students of Mechanical Engineering was organised on 23-10-2019. The Session began by welcoming the Guest florally by the Head of the Department Dr. Rajesh Rai. The Guest was introduced to the audience by Ms. Anusha of 7<sup>th</sup> semester Mechanical Engineering.

Dr. Kumar G N spoke on the basics of IC Engines and also on the problems associated with emissions of IC Engines. He then mentioned the importance of using Hydrogen as an alternate fuel and its advantages over the fossil fuels, later he spoke about his research area on



how hydrogen can be used as a fuel in IC engines. At the end to all the devotees.

The active participation of members of the staff, and the efforts of ARMS and other students made the event a grand success.

He also discussed the challenges faced in the process involved in synthesis and storage of hydrogen. He concluded the session by encouraging the students to take up research in this area and he would extend his support to the students. The session was concluded by Vote of thanks by Mr. Sharvan P C, 3rd semester, Mechanical Engineering.



## **Technical talk on 'Computational Fluid Dynamics (Limitations, Advantages and Application of CFD)'**

Department of Mechanical Engineering, A. J. Institute of Engineering and Technology in association with ARMS organized a technical talk on 'Computational Fluid Dynamics (Limitations, Advantages and Application of CFD)' on 14<sup>th</sup> February 2019 from 3.30 PM to 5.00 PM in Seminar Hall-1, AJIET by Mr. Madhwesh N, Senior Assistant Professor, MIT, Manipal. The occasion was graced by

our beloved HOD, teaching, non-teaching staffs of various departments and students of 2<sup>nd</sup> and 3<sup>rd</sup> Mechanical Engineering.

Ms. Karna Thulasi from 2<sup>nd</sup> year Mechanical Engineering was Master of Ceremony. Professor and Head of the Department of Mechanical Engineering Dr. Rajesh Rai P formally welcomed the speaker. Mr. Shailesh , from 2<sup>nd</sup> year Mechanical Engineering introduced the speaker to the gathering.

Mr. Madhwesh N started the session by defining CFD and explained the use of CFD in various areas of engineering such as modeling and analysis of pressure distribution on wings of aeroplane, air distribution over the surface of vehicles, biomedical, chemical processing of different fluids-prediction of flow separation and residence time effects.

He also described application of CFD in



oil and gas, power generation-modeling of cooling tower. He gave an introduction to software by explaining various features associated with modeling co-ordinates, geometries, meshing, boundary conditions, results and reports. He also explained theoretical concepts such as Navier Stokes equation for fluid flow, continuity equation and also demonstrated the FEA model of dinosaur.

The guest speaker gave various inputs for carrying out research activities in the areas of flat plate heater with and without turbulators.

Dr. Rajesh Rai, HOD, Department of Mechanical Engineering honored the speaker and proposed the vote of thanks. The programme was successful with the co-operation of teaching and non-teaching staffs.

## Workshop

One day workshop on “Cost effective manufacturing and Assembly using CATIA” was organized by Department of Mechanical Engineering for the Pre-final years Students on 19-09-2019. The resource person for the workshop was Mr Santhosh Kumar K R, Manager - Business support, Karnataka region, CADD Centre.

Mr Santhosh Kumar briefed the students regarding the importance of

CAD software in the industry and its growing popularity due to the powerful functionality that it offers. He also gave a insight on CATIA, its features and capabilities across multiple domains. The professional, intricate and high-spec designs that it provides for those who need precise results.

Hands on training was provided in the noon session so that the students get a feel of the capability of the tool.



However the trainer informed interested students who want to pursue training in CATIA as per Industry requirement need to get trained by the experts in training institutes by CADD Centre anywhere in India. International quiz contest 'Engineeria 2019' was conducted for the participants and with the feedback session, the workshop was concluded with a vote of thanks by Mr Prasad B G, Assistant Professor, Department of Mechanical Engineering.



## **Workshop conducted on "Refrigeration and Air-Conditioning"**



Department of Mechanical Engineering, A. J. Institute of Engineering and Technology in association with ARMS organized one day workshop on "Refrigeration and Air-Conditioning"

on 25<sup>th</sup> March 2019 at 10:00 AM in Seminar Hall-1.

The inaugural function was started by lighting of lamp. Ms. Anusha, President of ARMS welcomed the gathering. Principal, Dr. Shanthrama Rai C motivated the students to get benefited by this workshop. Professor and Head of the Department of Mechanical Engineering, Dr. Rajesh Rai explained the importance of workshop. Mr Chirag from 2<sup>nd</sup> year proposed the vote of thanks.

The occasion was graced by Principal, HOD, teaching, non-teaching staffs and students of 2<sup>nd</sup> and 3<sup>rd</sup> year mechanical engineering attended the session.

The session of the workshop started in



Machine Shop at 10.30 AM. Students of 2<sup>nd</sup> and 3<sup>rd</sup> year mechanical engineering participated in the workshop and enriched their knowledge and skill

practically in the area of Refrigeration and Air-Conditioning. Mr. Sai Pradeep, Amith Refrigeration, Mangaluru along with Dr. Vignesh Nayak, Mr. Karthik A V and Mr. Vijay Kumar H K, Assistant Professor demonstrated the working



and construction of Refrigerator and Air Conditioner to the students.

Dr. Rajesh Rai, HOD, Department of Mechanical Engineering honoured the resource person. The programme was successful with the cooperation of teaching and non-teaching staffs.



### **Workshop on “Structural Analysis using FEMAP with NX-Nastran”**

Department of Mechanical Engineering, A. J. Institute of Engineering and Technology in association with ARMS conducted a one day workshop on **“Structural Analysis using FEMAP with NX-Nastran”** on 21<sup>st</sup> February 2019 from 9 AM to 5.00 PM by Jerry

Francis, Director, PLM Indish Tech Pvt. Ltd., Bengaluru.

The inauguration of workshop started in Seminar Hall-1 at 9.00 AM with a prayer and lighting of lamp. Miss Karna Tulasi from 2<sup>nd</sup> year Mechanical Engineering was Master of Ceremony. Ms. Anusha , Co-ordinator, ARMS welcomed the gathering. Mr. Ashith , from 3<sup>rd</sup> year Mechanical Engineering introduced the speaker to the gathering. The occasion was graced by our beloved HOD, teaching, non-teaching staffs of various departments and students of 2<sup>nd</sup> and 3<sup>rd</sup> Mechanical Engineering attended the session.

Professor and Head of the Department of Mechanical Engineering Dr. Rajesh Rai explained the importance of workshop. Resource person, Mr. Jerry C Francis presented the theme of the workshop and discussed the importance of software in various engineering applications. Mr. Chirag from 2<sup>nd</sup> year presented the vote of thanks.

The session of workshop started after breakfast in CAED lab. Total 50 participants from 2<sup>nd</sup> and 3<sup>rd</sup> year mechanical engineering participated in the workshop and enriched their

knowledge and skill in FEMAP software. During the workshop, the students got hands-on training in structural analysis of various complex engineering problems. Dr. Rajesh Rai, HOD, Department of Mechanical Engineering

honored the resource person and proposed the vote of thanks. The programme was successful with the cooperation of teaching and non-teaching staffs.

## Industrial visit

40 Students of 3 Semester along with 2 faculty members visited Lamina Suspension Products Limited on 15-11-2019 at 11.30 AM. Students were guided by Mr. Sagar Shetty, Engineer-Quality Control. Initially, the safety measures to be followed by the students were informed to the students. The students were taken around the industry to show the various stages that were involved from the processing of raw material to the finished product. The different stages of operation such as Shearing, Taper rolling, End cutting and Pressing, Manual Rolling, Cambering, Quenching,



Shot Peening, Assembly were explained to students as the process was done. Brief details on the business end, raw material supply, the quality determination of raw materials, Companies where the products are delivered were given to the students.

## Virtual lab

As a part of Virtual Labs project of MHRD India, simulation labs on multiple domains of science and engineering have been created to

complement conventional teaching methods. V Labs gives a complete list of the available labs and experiments developed by top technology institutes



of India. The experiments help students to explore a system by simulated variation of parameters and numerous such experiments in various areas have been developed. NITK Surathkal hosts 6 such labs which are listed below:

- Mechanics of Machines Lab
- Machine Dynamics and Vibrations Lab
- Strength of Materials and Fluid Mechanics Lab
- Process Control, Reaction Engineering and Unit Operations Lab
- Industrial Electric Drives Lab
- Substation Automation Lab



Centre for System Design (A Centre of Excellence at NITK Surathkal) envisages an interdisciplinary approach and means for realization of successful engineering systems. Key components for this are system modeling & simulation, understanding system dynamics, system optimization, virtual



and physical experimentation. The Centre aims at facilitating and providing required environment for all the key components of system design. Modern engineering problems are comprised of elements from all the traditional disciplines and these elements must be integrated to meet the overall design objectives. The Centre focuses on how to address and solve problems that transcend traditional boundaries.

NITK, Surathkal has signed a MoU with M/s National Instruments, Bangalore in

the area of Centre for Graphical System Design. Centre is also pursuing with many industries and R&D labs to have active collaborations and MoUs.

Students from mechanical and Civil engineering visited the Centre for System Design (CSD) at NITK on 14-11-2019. Students were given a brief

introduction regarding the facilities and the work being carried out in the lab. Demo of simulation related to Mechanical and Civil Engineering lab was given to the students so that the students could work more whenever required by logging into the website and practise and learn about various experiments and its concepts.

## Faculty Development Program (FDP)

### TEQIP 1.3 SPONSORED FIVE DAY FDP ON 3D PRINTING

The FDP started at 9:00 AM with a registration session and breakfast for the delegates and participants. After that FDP is started with inaugural session on 8<sup>th</sup> July, 2019 morning at 9:30 AM at Seminar Hall-1. The program



started by an invocation song sung by Ms. Chaitrali and Ms. Harshitha Amin, followed by lighting the lamp. Dr. C. P. Paul, Head, Laser Additive

Manufacturing Laboratory, RRCAT, Indore, Mr. Prashanth Shetty, Vice President, LMET, Mangaluru, Dr. Shivakumar H. R., Special Officer, VTU Extension Center, Mangaluru, Dr. Shantharama Rai C., Principal, AJIET, Mangaluru and Dr. Rajesh Rai P. Convener & Head, Mechanical Engineering Department, AJIET. Mr. Sunil Kumar S introduced Chief Guest Dr. C. P. Paul, to our esteemed audience. Dr. Shantharama Rai C., Principal, gave welcome address by inviting the gathering which included around 33 external participants from various engineering colleges in and around Karnataka, various department heads

and faculty members of A. J. Institute of

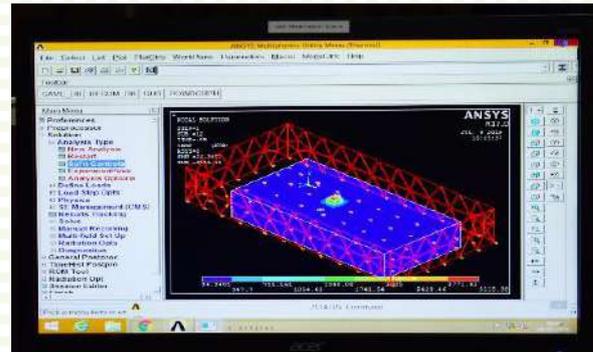


Engineering and Technology. Dr. Rajesh Rai P. Convener and Head, explained the significance of the FDP.

Presidential address was delivered by **Mr. Prashanth Shetty**, Vice President, LMET, Mangaluru. **Dr. C. P. Paul**, Head, Laser Additive Manufacturing Laboratory, RRCAT, Indore was the chief guest for the inaugural function, shared his valuable thought on 3D Printing and recent development in globally. **Dr. Shivakumar H R** was the guest of honour for the inaugural function and address the gathering. The session was followed by release of the course material by the dignitaries and



concluded by proposing vote of thanks by Mr. Vijay Kumar H K, CO- Convenor of the FDP. **Dr. C. P. Paul**, Head, Laser Additive Manufacturing Laboratory, Raja Ramanna Centre for Advanced



Technology, Indore delivered the keynote address on **Additive Manufacturing fuelling Industry 4.0**. In this session participants were learnt the application of Additive manufacturing technologies in industry



4.0 which is very much trending aspects of mechanical engineering field. Prof. M R Doddamani, Department of Mechanical Engineering, NITK Surathkal

had delivered an Interactive lecture on “Additive manufacturing of Composites”. In his talk participants learnt various processing methods, problems in composite materials on mechanical properties, injection molding, processing parameters and



results of various composite materials on mechanical properties.

Day 2, morning session had informative lecture by Prof. Shrikanth Bontha, Department of Mechanical Engineering, NITK Surathkal, on “**Thermo-Mechanical Modeling of Laser**



### **Additive Manufacturing Processes”**

Participants learnt about Laser Additive Manufacturing (LAM) techniques such as Direct Metal Deposition (DMD) which is a powder fed technique and Selective Laser Melting (SLM), both use a Laser to locally melt the powder and build layers to form the desired shape. Prof.. Shrikanth Bontha and his team also gave



demonstration on ANSYS software tool in which he explained about the Computational Modelling of Metal Additive Manufacturing Processes”. Participants learnt the ANSYS software tool in which they developed model and

different computational techniques. On day 3, morning session Prof. Manjaiah M., Department of Mechanical and



Manufacturing Engineering, MIT Manipal, has illuminated on **“Metal Additive Manufacturing”**.

In this session participants were gained with the knowledge need of metal additive manufacturing in industry with various factors affecting it and solution for those.

Afternoon all the participants visited the Additive manufacturing lab at NITK. In this lab demonstration and hands on training is given to participants where



they build the 3D printing model. Also participants learnt the actual practical knowledge of 3D printing machine.

On day 4 Morning session, Dr. Deepa Srinivasan Chief Technology Officer, INTECH DMLS Pvt. Ltd. Bengaluru had delivered technical talk on **“Successfully Qualified Metal Additive Manufacturing Applications”**.

In this session participants were familiar with casting techniques along with heat treatment methods used for manufacturing the component.



**Dr. Deepa Srinivasan** also delivered the wonderful informative session on **“Mechanical Properties of Additive Manufactured Materials”**. In this session participants were learnt various mechanical properties of the materials along with the design aspects of 3D Printing. Also participants came to know about metal additive options, performance matrices and current scenario.

In day 5 Morning session had discussions on “Design for Additive Manufacturing” session was delivered by Prof. B. N. Manjunath, Scientist, Additive Manufacturing Technology, CMTI, Bangalore.

In this session participants got the knowledge about industrial product development using additive manufacturing technology. Participants came to know about Direct Metal Laser Sintering with its applications and product developed by CMTI. Also talked about different design parameters

involving time management. The five days FDP program was concluded with a valedictory program was presided by Dr. Rajesh Rai P., Convener and Head, Department of Mechanical Engineering, AJIET and Dr. B. N. Manjunath, Scientist, Additive Manufacturing Technology, CMTI, Bangalore was the chief guest of the day. Participants shared their valuable suggestions and feedback. Chief Guest of the day handed over the participation certificate to the participants. The program was ended with high tea.

## Faculty Achievement

### NPTEL Courses

- Mr. KARTHIK A V has completed 8 weeks of an online course titled “Steam and gas power cycle” from NPTEL online certification.
- Mr. KARTHIK A V has completed 12 weeks of an online course titled “Heat exchanger; Fundamentals and design analysis” from NPTEL online certification.
- Mr. PRAKHYATH has completed 8 weeks of an online course titled “Steam and gas power cycle” from NPTEL online certification.
- Mr. PRAKHYATH has completed 12 weeks of an online course titled “Heat exchanger; Fundamentals and design analysis” from NPTEL online certification.
- Mr. SUNIL KUMAR S has completed 12 weeks of an online course titled “Finite Element Analysis” from NPTEL online certification.

- Mr. VIJAY KUMAR has completed 12 weeks of an online course titled “Manufacturing guidelines on Product design” from NPTEL online certification.
- Mr. Nithin Shet has completed 8 weeks of an online course titled “Polymer composites” from NPTEL online certification.
- Prashantha D A has completed 8 weeks of an online course titled “Manufacturing of composites” from NPTEL online certification.

## FACULTY PUBLICATIONS

- ⊕ Dr. Rajesh Rai P et. al, “Optimization of process parameters in surface grinding for AISI 410 by Taguchi technique”, American Institute of Physics, 2080, 050001 (2019); 1-6, scopus.
- ⊕ Rajesh Rai P et.al, “Application of Taguchi Technique to reduce Casting Defects, National Conference on Recent Advances in Mechanical Engineering and Technology”, ISSN: 2347-9965.
- ⊕ Dr. Rajesh Rai P et.al, “Application of Genetic Algorithm for Optimization of Riser”, National Conference on Recent Advances in Mechanical Engineering and Technology, 39, ISSN: 2347-9965.
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