ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY

Shobhavana Campus, Mijar – 574225, Moodbidri.

Dakshina Kannada Karnataka, India.

A Report on

NEWS LETTER YANTRA 2017-18

Department of Mechanical Engineering

YANTRA

MECHANICAL DEPARTMENTAL

Volume: 2 issue : 2

As the editorial team of our departmental newsletter "YANTRA", we feel overwhelmed to be a part of this consecutive edition.

The pleasure and the responsibility of making the departmental newsletter is unparalleled and is experienced by every other member of the team alike. One of the challenges faced by us has been to constantly change and re-invent the newsletter in order to appeal to a larger section of students and staff alike.

Your contribution is highly important to us since this whole initiative of YANTRA been to improve the skills and knowledge of students.

There are a lot of entrepreneurs, businessmen, technical geniuses, innovative scientists hidden in our department who are yet to realize their potential. The department & management is striving to improve your technical skills & soft-skills. With the activities, events, workshops which have been planned to be put into action, your skills and confidence are bound to go higher. At this highly esteemed moment, we feel deeply obliged to thank our beloved Chairman Dr. M. Mohan Alva, Managing trustee Shri. M.Vivek Alva , our respected Principal, Dr. Peter Fernandes , Head of the Department, Prof. Suresh K V , staffs and advisors who have been very helpful, encouraging and supportive in this journey and much more to come. Their continuous support has made the expectations to rise and this has indeed

From HODs desk

The spirit of improvement is not always a spirit of liberty; for it may aim at forcing improvement on an unwilling people.

Mechanical Engineering is the largest of the engineering disciplines and a large number of mechanical engineers go into manufacturing of computer and electronic products, machinery and transportation equipment's.

The department cares for student support, mentoring, tutoring, study skills workshops and career development. Mechanical Engineering students culminate their studies with a year-long capstone project requiring design problem solving, creative thinking, project planning and teamwork. A broad election of technical electives encourages students to pursue special interests in design and manufacturing, energy and environmental issues, thermal and fluid sciences materials, dynamics & controls and robotics.

TECHNICAL TALKS

Along with regular theory & practical classes, Students are benefitted from Technical talks by Industrial / Academics experts, including IIT, NIT etc. About 250 to 300 students of 5th semester & 7th semester were present in every technical talks. Total 5 Technical Talks conducted in odd semester 2017-18, odd semester.

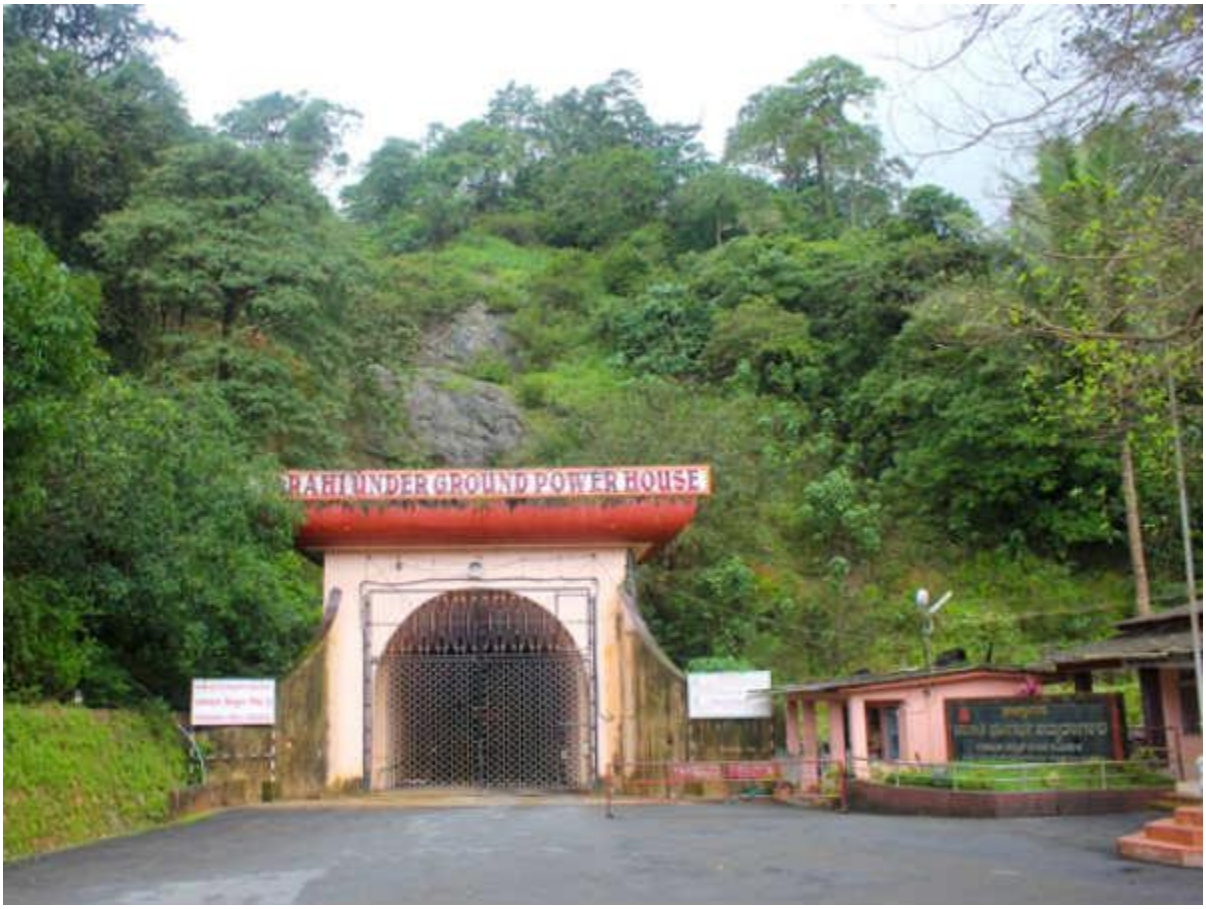
DATE	TOPIC	RESOURCE PERSON
18-09-2017	**Role of Biomimetics in Materials Design**	**Dr. Udaya Bhat Head & Assc. Professor, Dept.of Metallurgical & Materials Engg, NITK, Surathkal**
16-09-2017	**Indian power generation sector- Energy efficiency**	Dr. M S Bhat Director (Rtd), CPRI, Bangalore
07-10-2017	**Advanced Composite Analysis for Aircraft Structures**	Mr. Chandra Naik D Chief Manager Quality Assurance Dept, RWRDesign Centre, HAL Bangalore
05-11-2017	**Health Assessment of Thermal Power Plant Boiler Components**	Dr. M. Venkateswara Rao Joint Director, Materials Technology Division, CPRI, Bengaluru
09-11-2017	**Waste to Wealth**	**Mr. Satish Kumar Dabbiru, Assistant General Manager, (R & D), JSW Steel Ltd, Toranagallu, Bellary**

Along with regular theory & practical classes, Students are benefitted from Technical talks by Industrial / Academics experts, including IIT, NIT etc. About 250 to 300 students of 6th semester & 8th semester were present in every technical talks. Total 5 Technical Talks conducted in odd semester 2017-18, even semester.

DATE	TOPIC	RESOURCE PERSON
27-02-2018	Application of hydraulics and pneumatics in automation	**Mr. Venugopal** Managing Director, Venjay Institute of Automation, Jayanagar, Bangalore
16/03/2018	Corporate Expectations from Students	**Mr. Santosh Rao** General Manager, Toyoto Industries, Bangalore
19/03/2018	Application of CFD for heat transfer	**Dr. Chandrakant Kini** Professor, Dept. of Aeronautical Engg, MIT Manipal
11-04-2018	Advancement of Mechanical engineering through Innovations in Materials	**Dr. C.D. Madhusoodana** Additional General Manager Ceramic Technological Institute, BHEL, Bangalore
17-04-2018	Aircraft Materials	**Dr. Raghavendra R. Bhat** Deputy General Manager, F & F Division, HAL, Bangalore

INDUSTRIAL VISIT

VARAHI UNDERGROUND POWER HOUSE



Industrial visits enhance the practical knowledge of students to empower them with the recent developments in the core field and also to provide with a fair idea of the work environment at the power station. In this concern School of Mechanical Engineering organized industrial visit to Varahi Hydro Electric Power Plant.

The blue print of the entire power plant along with a video was explained to the students. Varahi hydro power plant has an installed capacity of 230 MW each at stage I and stage II, contributing a total of 1100 MU annually. This consists of 4 x 115 MW Generating Units at Varahi underground Powerhouse and two 4.5 MW units in the power house at the Mani Dam site. Additionally the practical aspects of SCADA control room were explained. The working of the entire power plant which includes turbine, lubricants used, transformers, nozzle, was explained in detail.

The visit helped the students to gain an in-depth practical knowledge on Generation, Transmission, Switchgear, & Protection Devices.

LAMINA SPRINGS PVT LTD

The Mechanical Engineering Department organized a one-day Industrial visit for pre-final year students to Lamina Springs Pvt. Ltd – Baikampady .

The main objectives of this visit are:

1. Provide an overview of the Manufacturing Processes involved in manufacturing of Leaf springs
2. Enhance knowledge on different materials used in the manufacturing processes.

Lamina Suspension Products Ltd., are India's leading Manufacturer, Supplier, Exporter and Dealer of a wide assortment of Leaf Springs, Automobile Leaf Springs which feature higher load capacity, stability and lasting durability. They are also dealing with numerous foreign concerns across the world like USA, UK, Italy, Taiwan, South Korea, France, Saudi Arabia, Singapore, Belgium, Germany, Australia, Finland, Greece, UAE and many others.

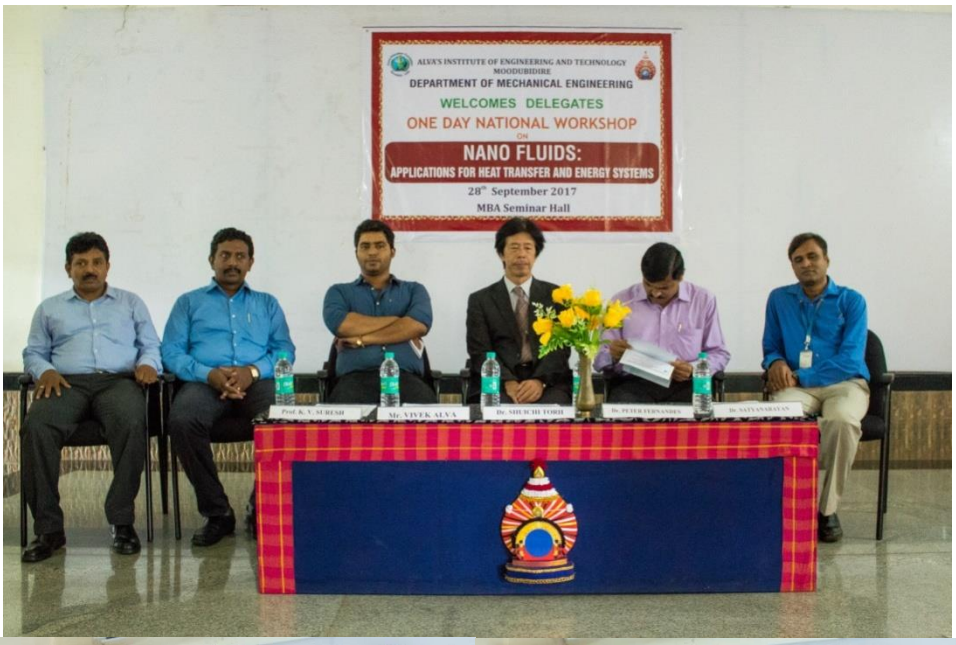
The layout of steps followed in manufacturing of leaf springs was explained by the company supervisor. Students witnessed different process like bending, cutting, rolling, heat treatment and various other manufacturing processes.

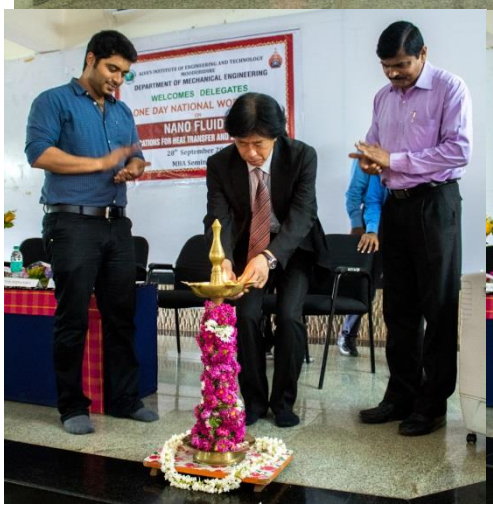
The visit has enhanced the students' knowledge on materials and processes used in manufacturing of leaf springs. Also, various difficulties encountered in manufacturing the same were realized.

ONE DAY NATIONAL WORKSHOP
ON
"NANOFLUIDS: APPLICATIONS FOR HEAT TRANSFER AND ENERGY SYSTEMS"

REPORT IN BRIEF

One Day National Workshop on "Nano–Fluids: Applications for Heat Transfer and Energy Systems" was organized by Department of Mechanical Engineering, Alva's institute of engineering and technology, Moodbidri on 28th September 2017 for the benefit of the students, research scholars, faculty from technical institutes and industrialists to upgrade and share their knowledge.





Inauguration of Workshop

Dr. Shuichi Torii, Assistant Director (College of Cross-Cultural and Multidisciplinary Studies) and Professor in the Department of Mechanical System Engineering, Kumamoto University – Japan was Chief Guest as well as resource person of the workshop. **Mr. Vivek Alva**, Managing trustee, Alva's Education Foundation and **Dr. P. Selvakumar**, Vice Principal, PSN College of Engg and Technology, Tirunelveli were guest of honours of the function. President of the function **Dr. Peter Fernandes,** Prnicipal, AIET, **Prof. K V Suresh**, convener of the workshop and workshop coordinator **Dr. Satyanarayan** were presided over the podium.

The programme was started at 10.00 AM in the Main seminar hall, MBA block by **Prof. Yogish Rao (**Master of ceremony of the function), Dept. of Mechanical Engg with the prayer song sung by by **Mr. Shravan Prabha** Final year mechanical Engg student. **Prof. K V Suresh**, convener of the welcomed dignitaries on the dais. **Mr. Trivikram Prabhu**, Asst. Professor, introduced the Chief Guest **Prof. Shuichi Torii** and gave a detailed description of the research work and achievements of Prof. Torii to the gathering.

In an inaugural address, **Prof. Shuichi Torii** said, Nanofluid helps in improving the performance of the thermal systems by enhancing heat transfer rate. Nanofluids are widely used in various applications like as fuel, as coolant in automobiles, in medical and electronic equipment to reduce the thermal resistance. Prof. Torii addressed about MOU between AIET and Kumamoto University following opportunities for foreign students to pursue Master and Doctoral courses in Kumamoto University, Japan. He also gave the information on the international symposium which will be held in Japan every year in the month of March and suggested the students and staff members to apply.

Mr. Vivek Alva, guest of honour addressed the gathering highlighting understandings between AIET and Kumamoto University about exchange of students, faculty, joint projects handling and utilization of mutual resources in the domains of engineering.

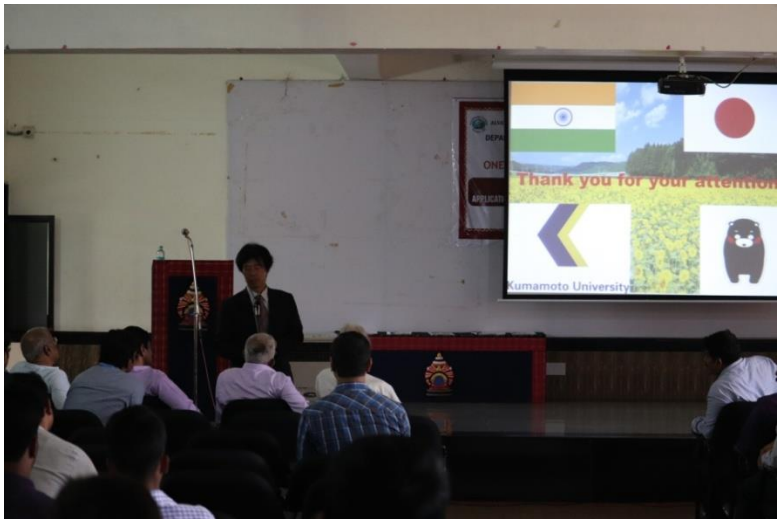
Dr. Peter Fernandes Principal of AIET delivered the presidential talk to the gathering. Principal thanked Prof. Torii for hospitality given us at Japan during MoU agreement. Then, he told about the importance of nanotechnology and nanofluids in engineering applications. The reason for selecting nano size particles over micro size particles was well explained by Principal. He gave an example of his paper published in Elsevier journal within three days expressing how important and advanced field is nanofluid. He appreciated the efforts of Dept. of Mechanical Engg in organizing such a

wonderful workshop. He thanked Prof. Shuichi Torii for agreeing to deliver Technical talk. He then called upon all the gathering to benefit from this national workshop.

The program was concluded by Vote of Thanks by workshop coordinator **Dr. Satyanarayan**, Associate Professor, Dept. of Mechanical Engg, AIET.

As a part of workshop, Technical talk on Turbulent heat transfer behavior of nanofluid in a circular tube heated under constant heat flux and its application was presented by Prof. Shuichi Torii. He introduced Kumamoto University, Japan indicating the location of Kumamoto, Japan in the world map and how far it is from India. **Prof. Torii** gave a brief history of Kumamoto University highlighting legends created from this university.

In the talk Prof. Shuichi Torii described basics and importance of Nano-Fluid defining that, it is a fluid with particles less than 100nm in diameter suspended in a fluid like water, engine oil or other fluid etc. Further, he explained and elaborated results of all the research works done on Nanofluids at Kumamoto University, Japan. He spoke about agglomeration of nano particles and preventation of the same. He conveyed that, turbulent flow is of higher importance than laminar flow.

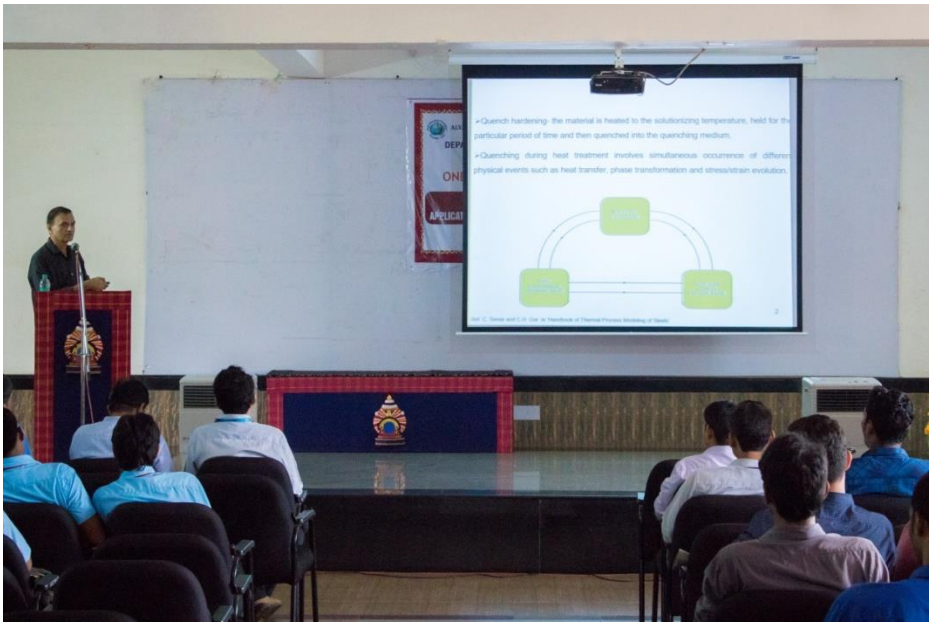


Talk: Turbulent heat transfer behavior of nanofluid in a circular tube heated under constant heat flux and its application by **Dr. Shuichi Torii, Kumamoto University, Japan**

In the presentation, he exhibited compounding of Nano Particles of Cu and Al_2O_3 with water and measurement of thermal conductivity against the concentration of the Nano particles. He said, diamond nano particles were synthesised at Institute of pulsed power science (Shockwave and condensed matter research centre) of Kumamoto University. He also talked about the Zeta potential of Nano- Diamonds in fluid. In which water was considered as a fluid.

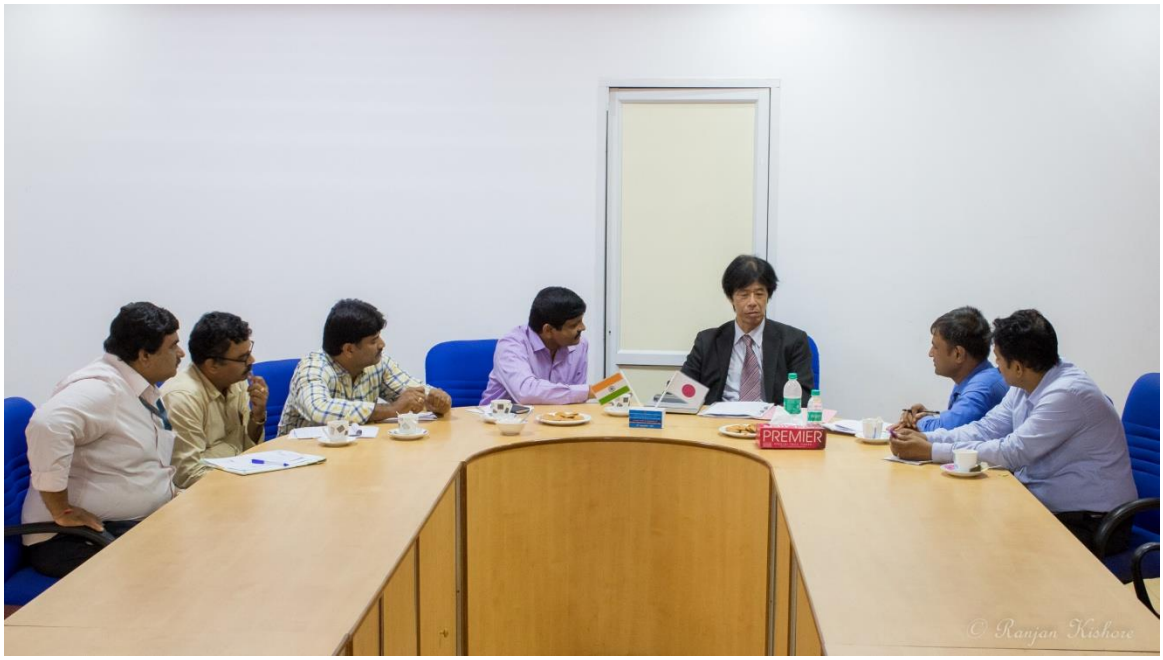
In future Professor will be focussing on usage of Nanofluids as coolants so that higher performance and lower size can be achieved. He ended his presentation indicating that research in the area of improvement of heat transfer performance of Nano-Particles is important and should be focussed on systematically. The talk was followed by interaction with delegates. **Prof. Chadaga**, Dean and Head, Dept. of MBA, interacted with Professor about use of nanofluids in space applications. Later as a token of love and appreciation Memento was given to Prof. Shuichi Torii by **Dr. Peter Fernandes.**

Presentation of Memento to Prof. Shuichi Torii by Principal Dr. Peter Fernandes

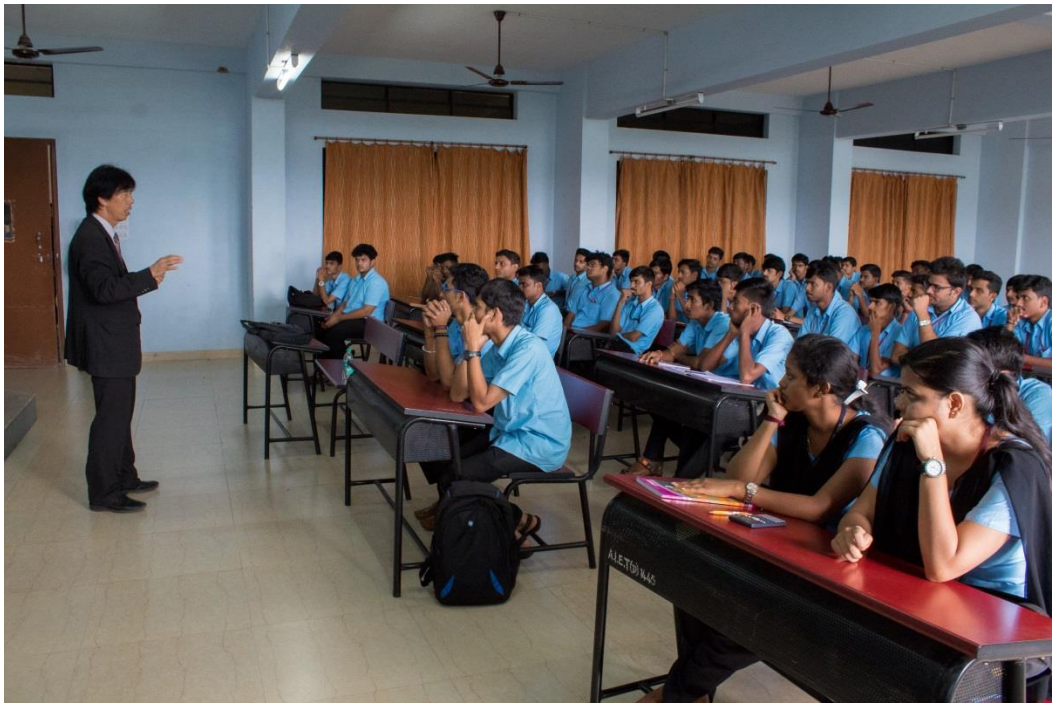


Talk: Science & Technology of Quenching Nanoquenchants for Industrial Heat Treatment-
Dr. K. N. Prabhu, Professor, NITK Surathkal

Valedictory Chief guest **DrK. N. Prabhu,** with faculty and workshop delegates



Discussion about MoU matters, exchange of faculty and students



Interaction with students