

## **An Expert talk on "RECENT TRENDS IN METALLURGY"**

***13<sup>th</sup> November, 2013***



**Mr.S.Muralimohan Babu delivering expert talk**

An Expert lecture on **"Recent Trends in Metallurgy"** by **Mr. S.Muralimohan Babu, GM (Iron making division), M/S Lanco Industries Ltd** is organized **under IIIC & TEQIP-II** for II & III B.Tech students of Mechanical Engineering in Dasari auditorium on 13<sup>th</sup> November (Wednesday).

**Mr. S. Murali Mohan Babu** explained the basics of metallurgy and advances in metallurgy which is related to industrial application. He focused on types of materials and material standards. He explained material testing methods, standards and the working of Blast furnace in industry. The students have interacted with expert talk member and they were benefited by the talk.



**Students attended for the expert talk**

**An Expert Talk on**  
**“HIGH STRAIN RATE BEHAVIOR OF MATERIAL”**  
**(IIIC Activity)**  
**05<sup>th</sup> December, 2013**  
**(Under TEQIP-II)**

Sri B.Ramakrishna, Scientist F, DRDO, addressed the first year, second year, and third year Mechanical Engineering Students on various aspects of Mechanical Engineering discipline and the high strain rate behavior of material as applied to impacts of armaments on battle equipment and humans involved.



As an introduction, Sri Ramakrishna introduced the basic concepts of protection and stealth features of various armed vehicles and the design considerations from Mechanical Engineering point of view. He explained the various levels of “onion” concept of protection viz., not to be seen, not to be noticed, not to be attacked, not to be captured, not to be killed, both for personnel in the armed vehicle and the vehicle itself. He also went on to explain the stealth features and how mechanical engineering design principles can be applied towards achievement of covertness from opponents’ observations from all angles. The next part of his presentation was very technical involving demonstration of the finite element technique for design of mechanical components. He presented many

simulations involving simple elastic models, Euler-Lagrange models, and nonlinear mechanics models.



These models show techniques of predicting and clearly showing simulations of failure phenomena using finite element software packages. Several screen shots and animations of the members failing in elongation, shear, and dynamic loading were shown to give clear understanding of the failure phenomena. A discussion of these animations is made in an interactive way, drawing responses from students and building further material on simple mechanical engineering principles.

The style of presentation was interactive and the students participated in the session with zeal, asking questions challenging the propositions made and to probe into the topics presented. Sri Ramakrishna also discussed about the career growth options available for Mechanical Engineer in defense sector and encouraged students to eschew the beaten path of software.

The presentation was very well received by the students and many students thronged around the speaker after the lecture with questions and suggestions. As noted by Sri Ramakrishna, some of the questions posed by the students in this post lecture session exhibited the practical acumen, critical evaluation, and creativity on the part of the students. Sri Ramakrishna was felicitated by the Principal, Dean (R&D), and the Head, Department of Mechanical Engineering. Students, as a token of their love and respect presented a memento and honored the speaker with standing ovation.

**An Expert Talk under IIIC on  
“MODERN MANUFACTURING TRENDS: A PARADIGM  
SHIFT”**

**28<sup>th</sup> January, 2014**

**(Under TEQIP-II)**

Mr. Niles Siraskar, President / CTO, Dexterous Technologies, Nashik discussed about the advances in manufacturing methods and the paradigm shift in shop floor practices which took place over the past few years. Current vibrant market demands very quick turn-around times and rapid response changes in product



to

specifications. Mr. Niles elucidated the diversity of needs of customers and the rapidity with which these needs change in proportions and also in terms of characteristics. When these customer aspirations need to be met with the limited



facilities in the shop floor, a lot of planning, improvisation, and optimization need to be undertaken by the shop floor managers, policy makers, and the designers. There is a lot of industrial engineering practice, operations research, intuition into the manufacturing process, and

sheer common sense to minimize the wastage and maximize productivity, Mr.Nilesh opined. Many start-up companies as well as veteran companies suffer huge losses because they lack such expertise in "dodging" the demands with limited resources.



The lecture was well received since it contained vivid examples, lively discussions, and real-life illustrations.

## **An Expert Talk under IIIC on “DESIGN AND MANUFACTURE OF AEROSPACE SYSTEMS”**

**22<sup>nd</sup> April, 2014**

**(Under TEQIP-II)**

An expert talk was organized on “Advances in Design and Manufacture of Aerospace Systems” by **Dr. K. Ramesh Kumar**, Scientist ‘G’, Director, Productionisation and Technology Transfer, Defence Research & Development Laboratory (DRDL), Hyderabad under Industry Institute Interaction Cell (IIIC) activity sponsored by Technical Education Quality Improvement Programme (TEQIP-II) on the afternoon of 22.04.2014 by the Department of Mechanical Engineering, Sree Vidyanikethan Engineering College, Tirupati.

During the Session-I on **Design of Aerospace Systems**, the speaker Dr. K. Ramesh Kumar elucidated the components and configuration of missile and propulsion systems. He explained the importance of integrated product development in the aerospace systems, tools required for design and analysis like CAD/CAM, design for manufacture and assembly (DFMA), 3D tolerance analysis, structural optimization and finite element analysis. Later on, Dr. K. Ramesh Kumar illustrated the various tests like structural load test, frequency test and functional test to be conducted before manufacturing the missile systems.



During the Session-II on **Manufacture of Aerospace Systems**, the speaker Dr. K. Ramesh Kumar discussed the CAD/CAM/CAE technologies, advanced manufacturing processes like near net shape processes, metal additive processes, advanced manufacturing

concepts like concurrent engineering, just-in-time, six sigma, advanced manufacturing systems like flexible manufacturing, lean manufacturing, agile manufacturing, advanced quality control systems like coordinate measuring machines, laser trackers, computer aided tomography, non destructive testing, advanced materials like composites, ceramics, super alloys, smart materials, welding technologies like friction stir welding, electron beam welding, interpulse TIG welding, capacitor discharge resistance spot welding, magnetic pulse welding and the applications of MEMS in the manufacturing of missile systems. He had given a clear picture on the simulation and manufacturing of various components of missile systems.



**Dr. K. Ramesh Kumar, Scientist 'G' addressing the students**

The students of Mechanical Engineering got enriched by the interaction with Dr. K. Ramesh Kumar and his knowledge and experience helped them in appreciating the significance of various subjects they are studying for design and manufacture of complex Aerospace Systems.