



The following technical talks were organized for the benefits of U.G and Faculty members of the department for the **odd semester 2018**. The report in brief of each talk is summarised as follows

Sl. No	Date	Title of the technical talk	Name of Invited speaker
1	3-08-2018	Corporate Expectations from Students	Mrs. Anita Borulkar Vice President Human Resources Bharat Fritz Werner Ltd. (BFW), Bangalore
2	27-08-2018	Efficiency Improvement of Biomass Based Thermal Power Plant	Dr. R. Hafeez Basha Chief Technology Officer, Station-H Corporation (Non-profit), Mentor for Change at Atal Innovation Mission at NITI-Aayog (Planning Commission), Hyderabad
3	04-9-2018	Millenials in corporate India - Expectations and Preparedness	Sri. Manojit Acharya Managing Director Jungheinrich Lift Truck India, Pvt Ltd, Mumbai
4	12-10-2018	Synergism in material systems: Polymer matrix composites	Dr. Anandhan Srinivasan Professor and HOD Dept. of Metallurgical & Materials Engg National Institute of Technology, Karnataka, Surathkal
5	22-11-2018	Mechanical Aspects of Gas Turbine Engines	Mr. C. Veera Sesha Kumar Senior Scientist CSIR-National Aerospace Laboratories (NAL) Bangalore

Corporate Expectations from Students

Mrs. Anita Borulkar

Vice President Human Resources

Bharat Fritz Werner Ltd. (BFW), Bangalore



Talk by Mrs. Anita Borulkar



Talk by Mrs. Anita Borulkar

Every year, many numbers of student graduates pass out from technical institutes in India and around the world. Seeing the trend and the fast pace growth in today's world, the industry standards also keeps increasing at the same time. With this, of course comes many numbers of expectations from the up-coming students by the company. To educate the students on the same, the Department of Mechanical organized an invited lecture on "*Corporate Expectations from Students*". Mrs. Anita Borulkar, Vice President Human Resources, Bharat Fritz Werner Ltd. (BFW), Bangalore delivered lecture on 13th August 2018.

Initially she said that, rapid technological change, participative management and employee empowerment, global competition, and other workplace innovations have created a demand for a higher skill level for engineering graduates. Identifying industry expectations for engineering graduates are an important step in developing university curricula which are responsive to the needs of the profession. She highlighted on specific industry expectations for new engineering graduates and which provide practical recommendations for strategically aligning engineering curricula with the professional community. It was emphasised that, by identifying specific skills requisite for career success, universities can provide an improved service for their graduates and the engineering industry.

It was concluded that, regarding the corporate expectations of the graduates in terms of skills from the corporate industry, domain knowledge becomes the highest votes. However, the soft skills became less focus by the corporate industries today. The main benefits of this talk are students and faculty members of the department got exposure of understanding of Corporate Expectations from Students.



Presentation of memento to **Mrs. Anita Borulkar** from Prof. Harishanada K S (HOD Mech)

Efficiency Improvement of Biomass Based Thermal Power Plant

Dr. R. Hafeez Basha

Chief Technology Officer, Station-H Corporation (Non-profit),
Mentor for Change at Atal Innovation Mission at NITI-Aayog (Planning
Commission), Hyderabad



Talk by **Dr. R. Hafeez Basha**

Biomass is a derivative of waste materials from various natural sources that exists in different forms depending upon its composition in content. However, the choice of biomass type based on its availability alters the values of the calorie and thermal efficiency. In the technical talk, the use of information technology in developing the renewable fuel by increasing the thermal performance and reducing the cost was highlighted by **Dr. R. Hafeez Basha**, Mentor for Change at Atal Innovation Mission at NITI-Aayog (Planning Commission), Hyderabad.



Talk by **Dr. R. Hafeez Basha**

Speaker mainly focussed on his outcomes of research obtained at Kumamoto University, Japan during his doctoral research. He said that, biomass samples (Wood Pellet and rice husk with different weight percentage) were configured into the database management system using the user interface system of the computer model which was self-developed by his team in the laboratory. The computer model was coded with moisture content feature that would influence the thermal output significantly, producing advanced material from combustible waste and also reducing global warming and pollution. The user can enter the value of moisture content in terms of percentage in each sample of biomass while entering the composition parameters itself which is the uniqueness of model. He also highlighted that; the model will be useful in determining the optimum composition of biomass and preparing its sample accordingly.

It was observed that the performance of samples during the combustion was extremely poor at 30% moisture content in biomass and the combustion halted when moisture percentage exceeded beyond 30%. The samples cannot be experimented if the moisture content is high and needs pre-treatment so that the percentage falls below 30%. The talk was concluded that, the method and model shall reduce the dependency on pre-treatment methods to increase the calorie of

fuel when used in place of coal in the thermal power plants. However reduction in percentage of moisture content is considered critical in order to get better performance and avoid wastage of fuel. Natural drying techniques are still suitable for most users while preparing the biomass composition, however if the user desires to get better efficiency some of the forced drying techniques also need to be considered.

The talk was specially appreciated by faculty members those are pursuing Ph.D course in the area of thermal engineering. Since the talk was specific to their subject. In conclusion the talk was benefited for U.G and faculty members of the department.



Presentation of memento to **Dr. R. Hafeez Basha**
from Prof. Suresh P S, Sr. Assistant Professor

Millennials in corporate India - Expectations and Preparedness

Sri. Manojit Acharya

Managing Director

Jungheinrich Lift Truck India, Pvt Ltd, Mumbai

Talk by Manojit Acharya

Demographics have become increasingly important in marketing, especially with the growth of better segmenting algorithms and plenty of big data to draw on that can help mould effective strategies. One group that is now extremely important to brands are millennials, those born between the early 1980s and the turn of the century. In fact, they've changed the way we marketers look at customers and delivered something of a marketing revolution. Nowhere is the group more important than in India. A talk on Indian Millennials: Facts and Figures was delivered by **Sri. Manojit Acharya**, Managing Director, Jungheinrich Lift Truck India, Pvt Ltd, Mumbai.

Talk by Manojit Acharya

Speaker said that, those under 35 represent a large proportion (65%) of the Indian population, They are undoubtedly better educated and more tech savvy than their predecessors, They are more likely to engage and shop online. And they have a clear set of characteristics that define how marketing companies and brands should engage with them.

While earlier generations migrated to digital media, millennials were the first to be digital natives. They grew up with this stuff and are certainly more comfortable with it than their parents. This tech, lifestyle and social landscape has not only

defined how these people work but how they play, shop and aspire to greater things.

Speaker highlighted the four areas of technology that businesses should remain at the forefront of to attract and retain the best talent:

1. Education 2. Communication 3. Artificial Intelligence 4. Project Management

He said that, Millennials are eager to learn and grow, and businesses should be willing to accommodate that. With e-learning technology solutions, businesses can deliver training via progressive and more cost-effective channels, such as learning management systems, podcasts and on-demand videos. He stressed that, According to PwC (PricewaterhouseCoopers), millennials also expect to communicate through social networking, instant messaging, blogs and wikis -- in other words, all the different types of technology they have grown up using. Workplaces that make it easier for millennials to exchange information in a way that is natural to them will foster greater productivity.

He conveyed students that, Businesses also need to help their employees gain the skills needed to take full advantage of Artificial Intelligence (AI). According to the 2016 Dell & Intel Future Workforce Study Global Report, 56% of millennials believe that AI leads to more productivity in the workplace. Automation of routine and mundane tasks gives employees more time to focus on creative, human and value-added work.

In the talk speaker specifically said that, management and completion of work are changing. Instead of adjusting to one enterprise-wide project management system, millennials opt to use the best software tools to complete specific tasks.

At the end he concluded that, talent is becoming more and more tech-fluent, and the expectations for attracting and maintaining talent will only continue to grow.

Businesses that recognize and accommodate these shifts will see higher employee engagement, satisfaction and retention.

Presentation of memento to Sri. **Manojit Acharya** from

Synergism in material systems: Polymer matrix composites

Dr. Anandhan Srinivasan

Professor and HOD

Department of Metallurgical & Materials Engineering
National Institute of Technology, Karnataka, Surathkal



Talk by **Dr. Anandhan Srinivasan**

Polymer matrix composites (PMCs) are comprised of a variety of short or continuous fibers bound together by an organic polymer matrix. Unlike a ceramic matrix composite (CMC), in which the reinforcement is used primarily to improve the fracture toughness, the reinforcement in a PMC provides high strength and stiffness. The PMC is designed so that the mechanical loads to which the structure is subjected in service are supported by the reinforcement. The function of the matrix is to bond the fibers together and to transfer loads between them.



Talk by **Dr. Anandhan Srinivasan**

Professors said that aerospace applications of advanced composites account for about 50 percent of current sales. Sporting goods, such as golf clubs and tennis rackets, account for another 25 percent. The sporting goods market is considered mature, with projected annual growth rates of 3 percent. Automobiles and industrial equipment round out the current list of major users of PMCs, with a 25 percent share.

The next major challenge for PMCs will be use in large military and commercial transport aircraft. PMCs currently comprise about 3 percent of the structural weight of commercial aircraft such as the Boeing 757, but could eventually account for more than 65 percent. Because fuel savings are a major reason for the use of PMCs in commercial aircraft, fuel prices must rise to make them competitive. The largest volume opportunity for PMCs is in the automobile. PMCs currently are in limited production in body panels, drive shafts, and leaf springs. Professor gave incite on principle, production and applications of PMCs and mainly focussing on Research and Development Priorities. Determination of mechanical properties of PMCs was explained in the talk.

Speaker concluded that, there will no doubt give composite materials a lot of development opportunities and challenges by Providing services for information technology, making contributions to improve the quality of human life, Making contributions to solve the shortage of resources and the energy crisis. The talk was specially appreciated by students and faculty members specially those are pursuing Ph.D course in the area of materials engineering. In conclusion the talk was benefited for U.G and faculty members of the department.



Presentation of memento to **Dr. Anandhan Srinivasan**
from HOD Dr. Harishanand K S

Mechanical Aspects of Gas Turbine Engines

Mr. C. Veera Sesa Kumar

Senior Scientist

CSIR-National Aerospace Laboratories (NAL) Bangalore



Talk by **Mr. C. Veera Sesa Kumar**

At the outset Scientist introduced National Aerospace Laboratories (NAL) to students and faculties. Indicating that, NAL is a constituent of the Council of Scientific and Industrial Research (CSIR), India, established in the year 1959 is the only government aerospace R&D laboratory in the country's civilian sector. CSIR-NAL is a high-technology oriented institution focusing on advanced disciplines in aerospace.

He said, the aerothermal design of advanced gas turbines has progressed significantly in the last decade, primarily due to the requirement of increased turbine efficiencies and power. Performance increases are driven not only for reducing the consumption of fuel and the subsequent cost benefits, but also to reduce the emissions of CO₂, which is a primary component for the increased global warming.

It was highlighted that, over the last decade, major gas turbine performance enhancements have been achieved by the use of higher turbine inlet temperatures and pressures, design of advanced turbine aerodynamics, through reductions in turbine cooling and leakage air, and via the introduction of new high temperature alloys, metallic antioxidation coatings, and thermal barrier coatings.



Talk by Mr. C. Veera Sessa Kumar

The talk was further discussed on the operation of a gas turbine, design consideration of cooled turbine blades Turbine blade thermal analysis and Detailed aerothermal designs.

Scientist concluded that the aerothermal design of gas turbine components has progressed at a rapid pace in the last decade with all gas turbine manufacturers, in order to obtain higher thermodynamic efficiencies. This has been achieved by using higher turbine inlet temperatures and pressures, advanced turbine aerodynamics, efficient cooling systems for turbine airofoils and advanced high temperature alloys, metallic coatings, and ceramic thermal barrier coatings.

Due to the complexity of the heat transfer phenomenon associated with gas turbine airofoils, it is also relatively common that final airofoil designs are thermally

validated in several validation carriers which are representative of engine conditions. These validation carriers include high speed cascade rigs, scaled perspex models, airflow and qualitative heat transfer flow benches, and gas turbine test engines.

The talk was appreciated by students and faculty members especially students are in 5th semester because there are learning turbo machinery subject. In conclusion the talk was benefited for U.G and faculty members of the department memento to Mr. C. Veera Sesa Kumar was presented by HOD Dr. Harishanand K S.



Presentation of memento to **Mr. C. Veera Sesa Kumar**
by HOD Dr. Harishanand K S