



SVERI's COLLEGE OF ENGINEERING, PANDHARPUR
Department of Mechanical Engineering

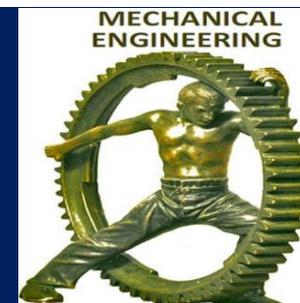
MECHIES

(bi-annual bulletin)

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Message from the Head:

Dear student friends,

I would like to extend warm welcome to you all for the Ist semester of the academic year 2016-2017. Last semester was full of departmental events like Technical competitions, STTP, workshops and FDPs for students and staffs. To create awareness amongst the students about the students about entrepreneurship and project planning we have arranged EDP programs in this Semester. To make the technocrat tuned with the recent technology, FDP and workshops are always useful. Due to this reason, this time AutoCAD, ANSYS, CFD simulation workshops were also organized by our department. At SVERI we don't intend to dispatch degree holders, but to release engineers who are ambitious, responsible and can stand out in the crowd as most responsible citizen. All the best for your future.

EDITORIAL

We feel very glad to bring the 13th issue of MECHIES on the occasion of Independence day. In this issue, we brought the information of various activities organized by our Mechanical Engineering Department. Our institute is committed to give value based technical education to all our students. In order to fulfill this mission, our department is always boosting such event which will help for overall development of teacher and student. I am very much thankful towards our Management, Principal Prof. Dr. B.P. Ronge, all Deans, Our Head Prof. Dr. P.S. Kachare, all faculty members and beloved students of our department for the support and cooperation. All the Best!!!!

Robotryst-2015-16

An International Robotics Workshop and Championship in association with Tryst-2016 Indian Institute of Technology, Delhi

Robotics is the branch of Mechanical, Electrical, Electronics and Computer science that deals with the design, construction, operation,

and application of robots, as well as computer systems for their control, sensory feedback, and information processing.



This Technology is famous worldwide. Lot of research is going in it. In order to motivate the students for the Robotics, the zonal round of Robotryst 2015-16 was organized in the SVERI on 27th and 28th January 2016. Our College was a zonal center for the same. Staff Coordinator for this event was Prof. D. S. Gaikwad. From students' side, Mr. Ajinkya Desmukh, Mr. Suhas Bagal, Mr. Nilesh Hargude helped to make this event grand success. In this competition total 10 groups had participated. In each group there were 4 participants. Out of those 10 groups, **3 groups were selected for final round which was held at IIT, Delhi.**



One Day Workshop on “Introduction to CFD simulations using Open FOAM” by Prof. S. Yadav IIT, Guwahati



One Day Workshop on “Introduction to CFD simulations using Open FOAM” Was organized by Mechanical Engineering Department on 29th March 2016. Prof. S. Yadav was keynote speaker for the workshop. He is pursuing his Ph. D. from IIT Guwahati. Prof. S. R. Gavali, Dean, Student was Convener and Dr. P. M. Pawar, Dean, R & D was the Chairperson for the Workshop. All Mechanical Engineering Faculty members were beneficiaries of that workshop. Computational Fluid Dynamics (CFD) is important area with respect to designing and certification of Spacecrafts, Aeroplanes, Automobiles and Bikes. There are plenty of commercial CFD software in market but all are expensive ones. Open FOAM is open source CFD software anyone can have it without spending a penny. Prof. Yadav has explained in detail functioning of the Open FOAM software. He had explained about uses of this software to capture Fluid flow activities in Micro-channel. As in our college, Micro-channels related work is going on. This Workshop enhanced knowledge of our faculty in the field of CFD.

A Faculty Development Program on Hands on Experience on AUTOCAD



Computer aided design and drafting is very essential in the process of teaching-learning and research. In Mechanical and Civil engineering, AutoCAD is widely used software for 2D and 3D wireframe model drafting. Through the motivation of Head of the department Dr. P. S. Kachare, and under the guidance of Prof. S. J. Shinde , FDP of ‘Hands on Experience on AutoCAD’ was successfully organized in the department. All faculty members of mechanical Engineering department participated in the same.



One Week Short Term Training Program “FEA by using ANSYS & Hypermesh”



One Week workshop on “FEA by using ANSYS & Hypermesh” was organized by Mechanical Engineering Department on 24th May to 29th May, 2016. Dr. S. N. Tande, From WCE Sangli, Er. Sameer Latkar and Sachin Thor from IFS Pune were speakers for the STTP. Organizing secretary was Dr. P. S. Kachare and convener was Prof. S. M. Khomane. This STTP is totally having hands on experience with ANSYS and Hypermesh software. 30 Faculties form 13 various colleges form Solapur, Kolhapur, Pune Universities participated in this STTP.

One Day Workshop on “Power Transmission Devices”
by Top Gear Transmission, Satara



Mechanical Engineering department had organized the one day workshop on ‘Power Transmission Devices’ on 10th July 2016. under IIPC cell of SVERI. Mr. Shrikant Pawar, CMD of company Top Gears Transmission, which is situated in MIDC Satara guided in this workshop. In his talk, he covered the important topics like gear technology and Latest developments. All the faculty members and students of department had taken benefit of the same.

Entrepreneurship Awareness Camp



A three days workshop on EAC was arranged in college for the students of Mechanical engineering Department. This program is outcome of the efforts of EDC cell of institute with DIC,Solapur. Under SVERI’s umbrella, we had organized Entrepreneurship Awareness Camp (EAC) under District centre, Maharashtra Center for Entrepreneurship Development, Government of Maharashtra, on 20th to 22nd July-2016

Training was regarding ‘Entrepreneurship’ as a career choice and motivation for students. Topics discussed were Qualities of an Entrepreneur, Supporting agencies for a Entrepreneur, Role of DIC/KVIB/Bank Panel discussion in EDP, Process of starting micro small Medium Enterprises, Business opportunities guidance, How to conduct market survey, Sharing of experience by successful entrepreneurs, Basic management concepts and Marketing of MSME products/Services, Project financing and documents required. Also discussion on Forth coming training opportunities from MCED was done.



All-optical method for quantifying thermal conductivity in individual silicon nanowires using pump-probe microscopy

Management of thermal energy is an important concern in the design of nanoelectronic devices. Understanding of the thermal characteristics of individual components is crucial for designing the properties of the overall system, however it is difficult to measure the thermal conductivity of such small structures, and even more challenging are variations in the conductivity within a single structure. Here it is developed an ultrafast microscopic technique, which can measure the thermal conductivity in localized regions of a nanostructure in an all-optical, contact-free configuration. In pump probe microscopy a pump pulse excites free carriers in a localized region of a silicon nanowire. The carriers thermalize to the band edge within 100s of femtoseconds depositing ~ 2 eV of energy into the lattice as heat. A probe pulse interacts with the sample at a specific delay. The presence of free carriers in the wire renders it more transparent to the probe increasing the probe intensity, while an increase in thermal energy in the wire decreases intensity. By pumping in one location and probing in another, we can observe the movement of free carriers and thermal energy within a nanowire. Free carrier dynamics (i.e. recombination and diffusion) and thermal transport are measured in both the suspended and substrate-supported sections of a NW suspended across a narrow (~ 8

μm) channel etched into a quartz slide. While the substrate has no effect on the recombination time or diffusion length, it does significantly impact the thermal relaxation properties of the NW. Thermal energy deposited into the lattice by the laser pulse dissipates within $\sim 10\text{ns}$ through coupling to the substrate, while in suspended regions it persists for over 100ns .

Figure legend: By pumping the wire in one location and scanning the probe beam across the sample we can image the spatial distribution of charge carriers and thermal energy at various delays.

