

AMEN

The Association of Mechanical Engineers

NEWSLETTER

Published by the Association of Mechanical Engineers, IIT Kanpur

"If you are not happy here and now, you never will be."
Taisen Deshimaru Roshi

*From the Department***Awards and honours**

Dr Avinash Agarwal from the department has been selected for the Alkyl Amines UIC Foundation Day Young Scientist Award for the year 2007.

Freshers' Nite Y7

I had previously heard that the departmental freshers' is the real fresher party which is actually thrown by the seniors for the first year students where we can actually interact with them without any hesitation. On August 17 I actually found this happening.

There was a large turnout in L7, the venue for the event. The stage gave an opportunity to all the fresher's to showcase their talent in front of the department which will be like family to us during our entire stay on campus. The eve commenced with back to back songs by two fresher's who were not exactly Elton John yet exuberated great enthusiasm. Then there was a speech by AME UG president Bijender Kumar Sheron who told about the various facets and functions of the AME. It was really refreshing to hear that AME is an organization for us which will help us through various industrial tours and lab trips. AME constantly releases newsletters to keep our people updated about one of the largest departments in IITK.

This was followed by another enlightening speech by the PG president Ankit Surti about various aspects of the department. To awaken those who were asleep by now (or maybe it was the other way around) there was another song by a first year undergraduate student. Then our respected HOD Dr. K Muralidhar spoke to us about the department, praised the well deserved AME for its efforts and gave away certificates to the former AME council. An enthralling solo dance performance followed the speech. Now it was time for the most awaited part of the evening, the skit, which was a spoof about our munna bhai and the unforgettable (or unforgivable) Rajnikant. The skit was well directed by Nipun Srivastava, a second year student and well presented by all the participants and made everyone exercise their stomach muscles. The success of the skit could be heard in all nearby lecture halls due to the thunderous applause. Then an informal session with the seniors was followed by a delicious dinner.

Raghav Khanna(Y7331)

Nano talk by Dr. Debjyoti Banerjee

Dr. Debjyoti Banerjee from the Texas A&M (Agricultural and Mechanical) Engineering University visited our department on 2nd Aug to give a talk about Nanotechnology and the relevant frontier areas of research. Dr. Banerjee has worked for the 'Applied Bio system Inc.' performing research on integrating nanofabrication, micro fluidics and molecular biology for novel bio-detection and clinical diagnostics instrumentation. At Nanolnk Dr. Banerjee was instrumental in developing a micro fluidic device (called Inkwells™) from the concept to commercial product for Dip Pen Nanolithography applications in biotechnology. Then a turning point came into his life when he interviewed around 80 people and got annoyed with. He joined academia and continued his research in nanotechnology.

Using MEMS one can develop switches for the mobile phones and devices for explosive sensing. DPN technology that he is a part of, in its recent development has promising future for storing messages as in cryptography or in multiple colour highly efficient printers. It is interesting to note however that while working at nano stage all of our Fourier laws and the famous Navier-Stokes equation does not work. Instead Daner jones potential is used for the analysis.

Dr. Banerjee is the first one to explain the 400% increase in the conductivity of the solution when nano particles are used in it using the concept of unprecedented decrease in the surface resistance. He also explained the concept of nano fins acting as cooling spots while heat transfer occurs in fluids. In fact all the natural objects are fractals, meaning scale of their measurement changes the value obtained. This is the reason that liquid surface is not as smooth as envisaged. Using nano particles therefore leads to further increase in the area and thus the decrease in the surface resistance.

PUZZLE: You have four points on the corner of a unit square. Join these points with minimum length of lines. You can have the lines intersecting. Diagonal joining ($2\sqrt{2}$) is not the answer. Look at the website on 5th.



Internship Experience in University

Summer internship is one of the key factors in deciding one's path after graduation. A good summer exposure fosters professional as well as personal development of the participant.

I worked at the University of Illinois, Urbana-Champaign on a research project involving study of machineability of polycarbonate composites. Unlike my interest which lies in modeling/simulation (basically anything which involves mathematics), my work was mostly experimental with some analysis to be done here and there. Though such work does not make much use of mental faculty but it does require a lot of patience and ability to work for long hours at a stretch.

The work spanned over a period of about 10 weeks. The first four weeks went in getting familiarized with the project and learning to work with the equipments or machines. The rest of the time went in conducting the designed experiments, collecting relevant data and finally number crunching. I had never been into such kind of work before, so it was a very positive and learning experience. I also got an insight into the life of a graduate student, from daily lab activities and interacting with fellow students, to presenting work for the critique of faculty.

The best part of a summer internship is the exposure one gets. At a university you get a chance to interact with eminent people in academia. Meeting people with diverse backgrounds and getting to know what is the scenario of ongoing research across the globe is truly invaluable. Apart from professional growth, internship provides a great scope for personal development. Living and supporting yourself at a new place, getting a chance to interact with people from myriad cultural backgrounds is a big plus.

Isha Ghai(Y4169)

Summer Internship 2007

As a compulsory course the senior students went to many good companies and Universities during the summer '07. As it has become the tradition many of them went to University internships especially in European countries like Sweden, France, UK apart from the companies like ITC, Lehman Brothers, Goldman Sachs, HUL, Shree cement etc. According to statistics as many as 27 students went to Universities or research laboratories and 29 joined companies.

As the seniors shared their experience that getting an University intern was not very difficult as it may seem at the first thought since they just had to apply in as many good universities as they could and hope to get lucky. Projects done are a plus point in this case and do mention your CPI if it is more than 6. Reminder application may serve the purpose for unanswered mails in most of the cases. The number of applications may vary but as the seniors say that generally it is more than 100. This year the major chunk of university going students went to European universities and Sweden was a favourite destination.

Companies like ITC, Goldman Sachs, Lehman Brothers followed a selection procedure of short listing the students first and then selected the applicants on the basis of their performance in group discussion followed by an interview. Shree cement and Tata steel were the major internship providers, numbers standing at 8 and 6 respectively. Lehman brothers, Goldman Sachs took one each. The encouraging aspect is that among the few who joined HUL, one PPO was also offered. Many of the students did impressive work at their stay in their places and the departmental policy of compulsory summer internship was as an opportunity and a new range of experience for them.

Ankur(Y5083)

BTech Project: Views of Seniors

I would like to say that BTP helped a lot in making us realize the complexities involved in converting theory to practice. There are a few suggestion which I would like to give. Firstly, I learnt that design and fabrication are inseparable. So I think the students can be asked to choose a project in the first month and do some basic design till the second mid sem. And then they can start with the fabrication and simultaneous improvement of design, which ultimately everybody has to do. You really can't expect anybody to work during the vacations and the idea of submitting the materials in December failed at our time. I think people should spend more time in simultaneous improvement of design and there should be a way to evaluate this aspect as well.

Secondly, the support of workshop was not really sufficient. I am probably not the best person to comment on this because I got only few things made from there. But still I was not really very happy. A better structure would to assign a particular lab assistant to a particular project. This will in turn lead to a concerted effort on his part. The assistant with his experience will be able to guide the students in a better way as well.

Thirdly, I believe there is a lot of emphasis on the design of a mechanical device which should be able to give some end effect, like toy dog and lemonade machine. We should also give the students the opportunity to design experiments to study some physical laws. They may come up with some very innovative experiments and this will nurture their research temperament as well. I am not at all against fabrication. As mechanical engineers we should be expert in this aspect.

Initially I used to think that a theoretical or computational BTP would have been the best for those going for higher studies. But after completing the BTP I am totally of the viewpoint that we should make 'things'. An experimental project based on the philosophy to investigate some physical laws can be very interesting and challenging as well.

Apart from these 3 things I would say BTP was a huge success. I learnt a lot from this. It gave me immense sense of joy when I saw my design getting converted into reality. Actual fabrication helps a lot in understanding the fundamentals.

Sumeet Kumar (Y3 batch)

Next issue will have views of former HOD Dr. V.K. Stokes who visited the institute on 24th and synopsis of some other senior's views on BTP.

Contributions are invited from all UG and PG students. Send in your entries to aranjan@iitk.ac.in