Volume 1, Issue 12 (Dec, 2006)

AMEN

The Association of Mechanical Engineers

NEWSLETTER

Published by the Association of Mechanical Engineers, IIT Kanpur

"Freedom is not worth having if it does not include the freedom to make mistakes."

– Mahatma Gandhi

From the Department

Last week a team from **University West, Sweden** visited our department. The team comprised **Prof. Per Nylen**, HOD, Department of Mechanical Engineering and **Prof. Anita Hansbo**, Deputy Vice Chancellor, University West Sweden. The A.M.E. Team had the privilege of a little conversation with them. The University offers internships for both UG and PG students.

Q: What is your assessment of the facilities that exist in our department in IITK?
A: High standards and quality of technical education is provided in the institute. I have been in the institute for a very short span, so quite hard to pass a judgment. I had a notion that the instruction must be very theoretical but was deeply impressed by the emphasis on laboratory work.

Q: How has your experience been with IIT students in Sweden?
A: Initially I felt very weird when Indian students called me 'Sir'. It's more informal in Sweden. Maybe it's a cultural difference. On the whole, it's a very nice experience to work with IIT students as they are ambitious have a good sense of work ethics.

Q: Can you give us some information regarding the research opportunities at your university?
A: Scholars are given full freedom in their approach to a project. We invite fundamental research for specific areas. Most of the projects have study courses and research intertwined with each other. Also most of the research is industry oriented. PhD programs are of 4 years duration constituting of a years course work and 3 years project/thesis. We have two type of Masters Program: of 1 year duration and of 2 year duration.1 year programs has 9 months of course work but the project work starts off after 6 months itself so that the course work and thesis go hand in hand. The 2 year Masters Program has a years and a half course work and 6 months project work.

Q: Can you give us some information about the National Masters' Program Scholarship?
A: All the relevant information in on the website www.studyinsweden.se. Application forms are also available for download. As the number of applications is very large, the prospects of getting in on a scholarship are not very bright.

Q: How would you compare American and European universities in terms of technical education and research?
A: A difficult question to answer. The best of American institutes like MIT etc. are a cut above European standards. In Europe, countries like Germany and Sweden are particularly known for their superior technical research.

Q: What is your criterion for selection of UG and PG students for internships?
A: We can't take too many students, perhaps 3 to 5 students every year. The students have to send personalized application to the HOD. The method of selection is subjective and the GPA (CPI) matters. The overall profile of student with interest in specific areas is given importance. Students with past experiences are preferred, so 3rd yr undergraduates stand a better chance than the 2nd yr students. The process is same for Post Graduate students. The period of internships may vary depending on their curriculum. Normally it is a period ranging from 6 to 10 weeks.

The ideal engineer is a composite ... He is not a scientist, he is not a mathematician, he is not a sociologist or a writer; but he may use the knowledge and techniques of any or all of these disciplines in solving engineering problems.

N. W. Dougherty
1955

Maglev Vs Conventional High Speed Trains

A few countries are using powerful electromagnets to develop high-speed trains, called **maglev trains**. Maglev is short for magnetic levitation, which means that these trains will float over a guide way using the basic principles of magnets. The Maglev Trains differs radically from its more conventional high-speed cousins. It doesn't have wheels and it doesn't run on a steel track. It doesn't even have an on-board motor. The motor that propels the maglev is in the special track, and the propulsion comes from magnets.

Maglev technology has several theoretical advantages over conventional high-speed trains. Since there is no wheel-to-track contact, less energy is lost due to friction and the trains create less noise. Maglev also uses less energy to achieve the same speed as conventional very fast trains.

In addition, since the motor is in the guide way rather than on the train, it is possible to increase its power on steep sections. This means that maglev can climb steeper grades than conventional high-speed trains, reducing the need for tunnels.

Despite such advantages, maglev remains commercially unproven. In comparison, trains like the TGV, the bullet train and the ICE have been formidably successful. Millions of people have travelled on them; hundreds of thousands use them each day. Each new generation of train gets faster, and they boast an impressive safety record.

One of the biggest barriers to maglev is the need for a whole new infrastructure. Their guide ways need to be constructed from scratch, a costly and financially risky venture, at least in the early stages. In contrast, conventional high-speed trains can run on existing tracks through urban areas, and the high-speed portions can be constructed in stages.

Shubhankar Gosh
Y5443

automobili Lamborghini

Automobili-Lamborghini S.p.A., commonly referred to as Lamborghini, is a subsidiary of German car manufacturer Volkswagen. It is a manufacturer of high performance sports cars based in the small Italian village of Sant'Agata Bolognese, near Bologna. The company was founded in 1963 by businessman Ferruccio Lamborghini (April 28, 1916–February 20, 1993), who owned a successful tractor factory, Lamborghini Trattori S.p.A..

Around the 1960s, tractor manufacturer Ferruccio Lamborghini began to gain interest in developing a high-performance car. He had owned Oscas, Maseratis, and Ferraris, but was never completely happy with his car. Ferruccio Lamborghini went to meet Enzo Ferrari at the Ferrari factory to complain about the quality of the clutch in the Ferrari 250 GT he owned. Enzo Ferrari sent him away telling him to go and drive tractors because he was not able to drive cars. Lamborghini went back to his factory, had his Ferrari's clutch dismantled and realized that the clutch manufacturer was the same who supplied the clutches for his tractors. In his warehouse he found a spare part which he thought suitable, and when it was installed the problem was solved.

Ferrucio decided that his car was to have a V12 engine, and enlisted the services of talented engineer Giotto Bizzarrini, who had previously worked on a Ferrari V12. The new engine had 4 cams, a short stroke and 2 big bore valves per cylinder, and developed a surprising 350 horsepower. The engine featured aluminium construction, with a crankshaft supported by seven main bearings, forged aluminium pistons, and camshafts with their own half-engine-speed sprocket and silent chain. The car the engine was mounted in was designed by Franco Scaglione's Scaglione-Touring.

This Lamborghini 350GTV prototype began making public appearances in 1963, starting with the Turin Auto Show. Sales of the production model, known as the 350GT, began the following year with great success, with over 130 examples sold. Born under the sign of the taurus, Ferrucio Lamborghini used the bull as the badge by which to mark his new automobile.

Shubham Goel
Y4423

Think about these

Let's say (hypothetically) there is a bullet, which can shoot through any barrier. Let's say there is also an absolutely bullet-proof armour, and nothing gets through it. What will happen, if such bullet hits such armour?

Can a man drown in the fountain of eternal life?

Your mission is to not accept the mission. Do you accept?

If the temperature this morning is 0 degrees and the Weather Channel says, "it will be twice as cold tomorrow,".... What will the temperature be?

Answer truthfully (yes or no) to the following question: Will the next word you say be no?

What happens if you are in a car going the speed of light and you turn your headlights on?

Sandeep Kumar
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