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AMEN

The Association of Mechanical Engineers

NEWSLETTER

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"Imagination is more important than knowledge"

– Einstein

From The Department

Farewell 07

The association of Mechanical Engineers waved goodbye to the graduating batch in the farewell ceremony at the Auditorium, Outreach '69 and '80 on 15th April. Surprisingly, the ceremony started at the right time and resulted in much of hue and cry as may be guessed. Nevertheless it initiated a good trend.

There was a photo session at the basketball court for the faculty and the final year students organised before the formal beginning of the function. The ceremony began with some refreshing songs, followed by a dazzling performance by Abhishek and Nipun Srivastva doing mimicry. Then came the most awaited event of the evening-The Title Distribution. Ravi Badoria and Rohit Bishnoi did the honours. After that was an alluring performance by Mohit Kumar Gupta of a song from the popular album Doorie. Not to forget the breathtaking dance by Masej on the song "Hips don't lie". Now the new AME PG and UG council was formally introduced. New initiative for this year was the titles given to final year PG students. Disastrous thesis was the most enthralling along with two of its explanation-Making a disaster of one's thesis and creating disaster by one's thesis.

There after a few words of wisdom were shared by Dr.K.Muralidhar. The cultural programme concluded with the vote of thanks by current faculty adviser Dr.P. Venkitanarayan. He promised not to come in between guests and dinner to avoid the possibility of being conferred some title. Lined up next was a delicious dinner and an informative discussion session with our departing seniors about the basics of like at IITK, outside the outreach building. With this the beautiful evening came to an end and everybody left with a memory to cherish

Some observations on AME

It is two years since I took over the responsibility of faculty coordinator, AME. My first interaction with AME was when the editor of AME Magazine (2003-04) came to interview me soon after I joined IIT Kanpur (and then the treasurer came promptly to collect the subscription). The last two years as AME faculty coordinator, I made some observations which I thought I should share with all of you since my tenure as the faculty coordinator is coming to an end.

The most striking observation is that the students of our department (be it B.Techs, M.Techs or the Ph.Ds) have no dearth of creativity. They also have unbelievable deftness in planning, organizing and executing events ranging from formal and informal functions to industrial visits and even national level conferences. This is only one side of the coin. The other side is not so rosy.

It is time that we all realize some key factors that are important if AME has to reach further heights and improve it's visibility and recognition. I would like to refer these factors as the three P's or (P_1 P_2 P_3). P_1 refers to Pride- One should feel proud of being a member of the association. P_2 stands for Participation- Just becoming a member by paying the subscription is not the end of the matter. Active participation in the activities of the association and contributing to its further growth is important. P_3 is Punctuality-be it starting a function or collecting the subscription or bringing out the publications.

We could somewhat put into practice P_3 for the Farewell 07 function on April 15th. P_2 is still a matter of big concern. P_1 is not as tangible as the other two, however if P_2 and P_3 are in place, it is an indirect indicator of P_1 as well. With some more effort, I am sure we can bring these into practice and take AME to further heights in the coming years.

P. Venkitanarayanan

Hidden Countries

In each of the sentences below, the names of two countries are hidden.

For example, the sentence: "Inter*pol and* the FBI track down hid*den mark*smen" conceals the names POLAND and DENMARK. See if you can find all twenty hidden countries.

(Answers on AME website)

1. Vladimir and Olga are Soviet names.
2. Have you ever heard an animal talk in dialect?
3. The children put on galoshes to go out in the rain.
4. Extra tuition will help an amateur to improve his painting.
5. In the United Nations we denounce the wholesale ban on atomic weapons
6. Rash decisions may lead to trouble so thorough analysis is required.
7. The king and queen eat breakfast and lunch in a fine palace.
8. Such a display could be either really grand or rather disappointing.
9. Give the dog a bone and give him a little water.
10. If an iron pipe rusts you just have to shrug and accept it.

Pascaline

Blaise Pascal invented the second mechanical calculator, called alternatively the Pascalina or the Arithmetique, in 1645, the first being that of Wilhelm Schickard in 1623.
Pascal began work on his calculator in 1642, when he was only 19 years old. He had been assisting his father, who worked as a tax commissioner, and sought to produce a device which could reduce some of his workload. By 1652 Pascal had produced fifty prototypes and sold just over a dozen machines, but the cost and complexity of the Pascaline – combined with the fact that it could only add and subtract, and the latter with difficulty – was a barrier to further sales, and production ceased in that year. By that time Pascal had moved on to other pursuits, initially the study of atmospheric pressure, and later philosophy.
The Pascaline was a decimal machine. This proved to be a liability; however, as the contemporary French currency system was not decimal. It was instead similar to the Imperial pounds ("livres"), shillings ("sols") and pence ("deniers") in use in Britain until the 1970s, and necessitated that the user performs further calculations if the Pascaline was to be used for its intended purposes, as a currency calculator.
In 1799 France changed to a metric system, by which time Pascal's basic design had inspired other craftsmen, although with a similar lack of commercial success. Child prodigy Gottfried Wilhelm von Leibniz produced a competing design, the Stepped Reckoner, in 1672 which could perform addition, subtraction, multiplication and division, but calculating machines did not become commercially viable until the early 19th century, when Charles Xavier Thomas de Colmar's Arithmometer, itself based on Von Leibniz's design, was commercially successful .
The initial prototype of the Pascaline had only a few dials, whilst later production variants had eight dials, the latter being able to deal with numbers up to 9,999,999.
The calculator had metal wheel dials that were turned to the appropriate numbers; the answers appeared in boxes in the top of the calculator. Since the gears of the calculator only rotated in one direction, negative numbers could not be directly summed. To subtract one number from another, the method of nines' complements was used. To help the user, when a number was entered its nines' complement appeared in a box above the box containing the original value entered.

Rahul Choudhry
Y4317

Robot car: streets ahead in cities of the future

It is not every day that a concept car re-writes the rules of more than 100 years of motoring. In development for four years by a team of architects and engineers led by William Mitchell, former head of the school of architecture at the Massachusetts Institute of Technology (MIT), as part of his Smart Cities research group, a new MIT car is borne of a complete rethink of people's relationship with their cars in the ever-expanding cities of the future. The city car concept, with styling input by architect Frank Gehry, will be completed and delivered by MIT to General Motors early next year.
MIT team started from scratch to come up with their own concept: a stackable, shareable, electric, two-passenger car. "Imagine a shopping cart - a vehicle that can stack - you can take the first vehicle out of a stack and off you go," says Mr Chin. "These stacks would be placed throughout the city. A good place would be outside a subway station or a bus line or an airport, places where there's a convergence of transportation lines and people."
The precedent for this type of shared personal transport is demonstrated with bicycle-sharing schemes in European towns and the ZipCar and FlexCar projects on the east and west coasts of the US respectively.
The MIT concept car is a complete re-think of vehicle technology. For a start, there is no engine, at least in the traditional sense. The power comes from devices called wheel robots. "These are self-contained wheel units that have electric motors inside," says Mr Chin. "The interesting thing is that the wheel can turn a full 360 degrees so you can have omni-directional wheel movements. You can rotate the car while you're moving, any direction can be front or back and you can do things like crabbing or translate sideways. It's almost like you imagine yourself driving a computer chair."
The wheel robots, complete with their own suspension, remove the need for a drive shaft and even the engine block, freeing up designers to make new use of the space in the car.
"Essentially the car will comprise four wheel-robots plus a customizable chassis," says Chin. "The frame can be built specifically for each customer."
Add wafer-thin, programmable displays that cover the interior and exterior of the car like a layer of paint, and you have a vehicle that can be customized at will. "You can imagine signaling being not just a static signal light but something more dynamic," says Mr Chin, who suggests the words "reversing" or "turning left" could roll across the car's body to declare the driver's intentions. "From a heating and cooling point of view, you might want your car to be darker or lighter depending on weather. On the interior, you can customize your dashboard for each person. If I'm an elderly person, I probably want a very large speedometer so I can see it; if I'm a race-car driver, maybe all I want is a tachometer."

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