IITians compute real life problems

18 IIT-G students judged meritorious in international MCM contest; provide solutions to everyday problems using mathematical models

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Some of the TY BTech students who went for MCM. The students were divided into six teams of three students each

Three teams from Indian Institute of Technology, Gandhinagar (IITGN) were judged 'meritorious' in the 2013 Mathematical Contest in Modeling (MCM), which recently declared its results. MCM is a worldwide contest where teams of undergraduates use mathematical models to solve real life problems.

Eighteen third-year BTech students from the institute, which is the largest participation from any Indian institute, were divided into six teams of three students each.

Among them, three team comprising Venkatesh Balaji, Hoosein Safdari, Smit Soni, Nishank Jain, Sunil Nair, Anuj Topiwala, Shashank Agarwal, Suyash Patkar and Aryan Kumar were declared meritorious.

"This is like the ultimate honour. Close to 5636 teams from across the world took part in the MCM-2013. The title 'meritorious' was awarded to only 15 per cent of the students. We are thrilled to be among the 15 per cent," said Safdari.

Safdari's team had to solve the 'ultimate brownie pan' problem. He explained, "We tried to develop a scientific model of a brownie pan and the oven. The model is optimized to cook maximum brownies at a given time and ensure uniform cooking.

A computer code generates and simulates the cooking in different pans and ovens of various shapes and sizes. It decides the best possible scenario given the constraints and displays an intuitive depiction of the same."

Seven teams from India took part in the contest of which six were from IITGn. The seventh team was from National Institute of Technology (NIT), Tiruchirappalli. Among the three other teams from IIT-Gn, one got an honourable mention while the remaining two received recognition for 'successful participation'.

The teams comprising Saksham Kohli, Nitesh Udhani, Mohit Sharma, Yash Goyal, Shashank Tyagi, and Shivanshu Arora were commended for their solution to water woes.

Tyagi told Mirror, "We worked on finding a feasible solution to the water scarcity problem which is being faced by Saudi Arabia. Our solution included amendments in the current distribution of water usage. We also proposed new water techniques like fetching icebergs from Antarctica to the country. The water obtained by melting the icebergs does not require desalination."

Akshay Jain, who along with his team members, Nakul Nuwal and Prateek Nyati received 'honourable mention' at the contest said, "The problem demanded development of a mathematical model to describe Earth's health conditions at different levels.

Through our model we derived a health index to measure the change in the ecosystems all over the world. The index is useful in determining the effects of various human policies on earth's health. The model accounts for the interdependency of human activities and biodiversity and is therefore useful in framing effective policies."

Talking about the commendable performances by all teams from IITGn, Prof Raj Srinivasan, who guided the teams, said, "This is a remarkable achievement for a new school in India. Such a good performance reflects the interest and eagerness among the students to think 'out of the box' solutions to social issues." Prof Srinivasan is the Head, Department of Mathematics and Statistics at University of Saskatchewan in Canada.

WHAT IS MCM?
Organised by Consortium for Mathematics and Its Applications (COMAP), aUS based non-profit organization, MCM is held annually during the first week of February.

As a part of the competition, three problems are presented to the participants at a specific time on a specific date all around the world. The participants get a total of four days to choose one of the three problems and work on it, devise a mathematical solution to the problem and finally compile all the work into a report.