

Mad after mathematics

In order to upgrade the standard of mathematics need was expressed for a training programme which would search for young talents in mathematics, expose them to the joy and excitement of the subject, and encourage them to pursue a career in it. Anand Kumar writes about the mathematics training and talent search (MTTS) programme which concluded last month at IIT, Bombay.

AT a mathematical conference held at the Indian Institute of Science, Bangalore in 1992, a full session was devoted to discuss the academic background of the students who opted for the PhD programme in mathematics in various institutions in the country. In order to upgrade the standard of mathematics at the PhD level, need was expressed for a training programme which would search for young talents in mathematics, expose them to the joy and excitement of the subject, and encourage them to pursue a career in it. A five-member committee was soon formed for formulating and implementing the programme.

The mathematics training and talent search (MTTS) programme was first held in 1993 with financial support from the National Board for Higher Mathematics (NBHM). There were two levels of the pro-

gramme as well as a letter of recommendation from a teacher. Selected students were to be provided free accommodation and travel. Dr. Inder K. Rana, professor of mathematics at IIT, Bombay and secretary of the organising committee of MTTS-1994, informed that 97 participants were selected out of about 800 applicants. Like the previous year, the programme consisted of two levels, each level having lectures in the four basic branches of mathematics: algebra, analysis, geometry and topology. The teachers in the programme were professors and research scholars from reputed institutes of the country. There were some guest speakers, too.

By May 22, all the participants were in the campus of IIT, Bombay. Situated around the scenic Powai Lake, IIT, Bombay, has a beautiful campus -- full of vegetation and

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programme running simultaneously. Level-I was meant for B.Sc. final year students and Level-II for first year post graduate students. Impressed by the success of MTTS-1993, NBHM agreed to finance this year's MTTS too. MTTS-1994 was held at the Indian Institute of Technology (IIT), Powai, Bombay, from May 23 to June 18.

An advertisement, inviting applications for participation in the MTTS programme, was carried in the leading newspapers in March. The application had to be accompanied with the biodata of the student

away from the din and bustle of the metropolitan centre. The students were accommodated at IIT hostels. With the identity cards provided to them, they could avail all the facilities within the campus.

The inaugural session of the programme was held at 9.15 a.m. on May 23 in the seminar hall of the main building. In his inaugural speech, the deputy director of IIT, Bombay, emphasised on the importance of mathematics in general and outlined the significance of the MTTS programme in promoting the quality of mathematical research in the country. The students

received a gift pack including a handbag, some stationery and a souvenir. Besides other useful information, the souvenir contained a directory of the participating students and teachers. During the tea that followed, the students soon mingled with each other. It could be gathered from their conversation that every one of them was quite devoted to mathematics, some even to the extent of having romantic and emotional ties with the subject. Anantha Subramanian, an M.Sc. student from IIT, Delhi, found in mathematics a way to worship the divine Mother. Recalling her own love with mathematics, Nilli G. Delwadia from Gujarat said that she had quit engineering to pursue the subject. Ravi Shankar Shamihoke's story is even more sentimental. His father, a retired professor of the Indian Statistical Institute, Calcutta, got so involved in a mathematical problem that it made him insane and finally took his life. His father's deep involvement with mathematics has been a constant source of involvement with the subject has been a constant source of inspiration for Ravi Shankar.

The daily schedule of the programme consisted of lectures in the morning (from 9.15 a.m. to 12.30 p.m. with a tea break in between) and problem sessions in the afternoon (2.00 p.m. to 5.00 p.m., with a tea break). The lectures, unlike the usual classroom lectures, were designed to initiate discussion and to bring out the important problems. The meeting was officially called off at 5 p.m., though the students eager enough to discuss the problems could not stop meeting again soon after the dinner. Perhaps the most interesting part of their day was the after-dinner-walk, when they could enjoy talking about unsolved problems in a relaxed and informal way. The weekend was devoted to a trip to some nearby place. Though meant to be more social in nature, the programme on Sunday was still quite mathematical in spirit.

There were mixed reactions from the participants about the style of teaching in this programme. Anantha found the teaching style "good

but not wonderful", as he had already enjoyed excellent teaching at IIT. But Nilli G. Delwadia, Adake Grish Govind and others found it "wonderful and exceptional". On the other hand, Radhakant Padhi, an engineering student from Orissa, complained that he was losing self-confidence after coming to this programme because he was interested in applied mathematics and was not at all familiar with pure mathematics being taught in the programme. Anantha suggested that it would perhaps be better to concentrate on one branch of mathematics rather than cover all the four. But Nilli G. Delwadia and Dr. Rana do not agree with the suggestion, as all four branches are basic.

The response about the academic standard of participants was also quite varied. Anantha found the standard of his colleagues just as he had expected. But Govind found it well beyond his expectation. Nilli found most students exceptionally talented though she added that there were some who did not even know the 'T' of topology. Harish Khare from Bombay admitted that he had

such an abysmal state of mathematics education. Among the youth of the country today, there is no respect for mathematics, she says. Ravi Shankar points out that the people who are really good at mathematics get involved in research and try to avoid teaching, thus leaving the teaching in the hands of less talented people. Dr. Rana suggests that university professors of mathematics should occasionally spend some time teaching and motivating high school students. It was heartening to note that many of the participating students themselves were involved in providing free tuition in mathematics to high school students.

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never imagined there were students in this country so devoted to mathematics. Much to his expectations, Dr. Rana found the group to be a rather heterogeneous one with varying degrees of ability and talent.

The participants were quite critical of mathematics education in the country and the educational environment in general. Anantha calls the current teaching style a sick joke and a disservice to mathematics. Leave aside high schools, even in colleges the students are taught simply to cram the subject, Anantha observes. Nilli believes that students are equally responsible for

that in the country. We only hope that such programmes could be organised at more places with greater frequency.

(Ten or more students were selected in this programme from some states. Three students were selected from Bihar, two for level-I and one for level-II. But one student failed to turn up in level-I due to some reason. The selected student for level-I, Rajesh Kumar Lal Das, is a student of B.Sc. final year, in Bhagalpur University and for level-II, Anand Kumar who is a student of M.A. (maths) in Patna University.)