



Mathematics Training and Talent Search Programme

Skill Building in Higher Mathematics since 1993



The Mathematics Training and Talent Search (MTTS) Programme started as a four-week intensive summer training programme and has been organized since 1993 at various centres in India. Since its inception, the programme has been funded by the National Board for Higher Mathematics (NBHM), an apex body of the Department of Atomic Energy, Government of India.

From the beginning, MTTS has been organized by a group of committed mathematicians under the dynamic leadership of Prof. S. Kumaresan, (retired professor, University of Hyderabad), the first recipient of the INSA Teacher Award in Mathematics. As the activities of the programme broadened, a national core committee was formed to advise, organize and supervise various aspects of MTTS. Over the past 28 years, MTTS has been one of the most effective, and unparalleled, training programmes, which has made a significant impact on mathematical scene in India.

MTTS Trust, a non-profit educational trust, was registered in December 2016. Since 2018, all programmes under the MTTS umbrella are being conducted by the Trust with objectives that include the following:

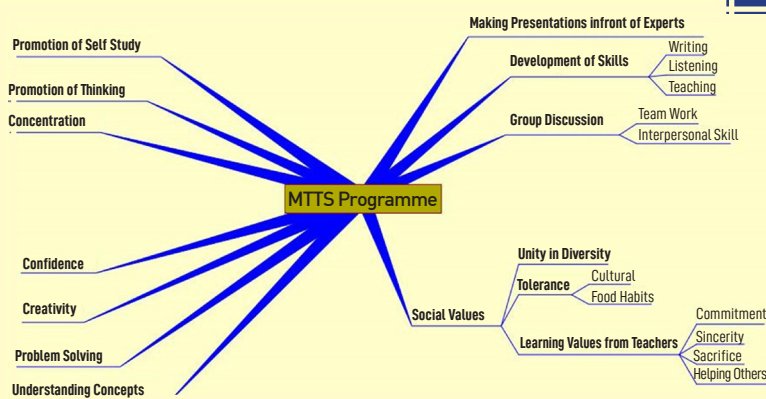
- (i) To continue organizing camps presently being organized under the MTTS umbrella and any other training camps as deemed necessary or important for the country to keep its eminence in higher mathematics.
- (ii) To provide training in mathematics to students and teachers in India, promote higher study and research in mathematics, mathematics education, and its allied subjects.
- (iii) To bring out lecture notes and text-books of high quality in mathematics.
- (iv) To support academic institutions in India to organize programmes which are in line with the objectives of the Trust.
- (v) Any other activity for the development of mathematics in the country.

SALIENT FEATURES OF MTTTS CAMPS

The teaching methodology in MTTTS is radically different from regular classrooms. Resource persons refrain from delivering well-polished lectures. All the sessions are highly interactive, and the participants are asked to think, experiment, formulate and prove mathematical results on their own at every stage.

The principle followed in this programme, is best explained in the words of Lesbegue, "The best way to teach students is to think in front of them". Some of the regular features in the MTTTS camps are: counseling sessions, thinking and writing assignments, students seminars and group discussions.

In each camp, all faculty members are constantly present during all the sessions and give individual attention to the participants. They reside with the participants and spend most of their time engaged with them during the



entire duration of the programme. MTTTS camps provide an effective platform for the participants to interact with peers and experts in the fields, which helps them to build strong mathematical foundations.

MTTTS gives preference to participants from rural background, from remote areas, and to women participants. During the last 28 years, MTTTS has reached every nook and corner of the country. Each year the participants of the programme are drawn from almost every state of the country.

Among all similar programmes, the expenditure per participant in MTTTS camps is much less than the rest. In spite of providing all the facilities, and academic excellence, MTTTS has remained one of the most cost effective training programmes in the country.



ACADEMIC PROGRAMMES

1 MTTTS ANNUAL CAMPS

The MTTTS Programme started in this form as a four-week intensive summer training programme in 1993. The academic programme in these camps: Level-O, Level-I and Level-II meant for B.Sc 2nd year, B.Sc. 3rd Year, and M.Sc. 1st year students respectively, catering to around 250 students every summer. The duration of each camp is 28 days. Usually, four fundamental topics in mathematics are taught in each level by a highly committed team of four faculty members from various leading institutes in India. Student participants are selected to participate in the programme after a very rigorous selection procedure. The selection of students depends mainly on their consistent academic record and the recommendation letter of a teacher closely acquainted with the student. The programme gives individual attention to every student and no student feels left out. Student seminars and group discussions are a hallmark of this programme. After four weeks of intensive training, one experiences a remarkable improvement in students' critical independent thinking, mathematical writing and problem solving abilities. In fact, the whole approach of these students towards mathematics changes.

INITIATION INTO MATHEMATICS & PEDAGOGICAL TRAINING FOR MATHEMATICS TEACHERS (PTMT)

In order to provide opportunities to a larger number of students and teachers, the MTTTS team came up with regional level programmes of shorter duration and modelled on the MTTTS methodology. Based on the experience of over two decades, two initiatives to serve the mathematics community better were started, namely Initiation into Mathematics (InitMath, formerly known as mini-MTTTS), and Pedagogical Training for Mathematics Teachers (PTMT). So far 56 InitMath camps and 13 PTMT programmes have been organized in various parts of the country in the past decade. These camps have been organized in almost all states in the country, including several in geographically disadvantaged regions, motivating a large number of students from remote areas to pursue a career in mathematics.

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ONLINE SHORT COURSES

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Given the unprecedented situation in 2020 due to the pandemic, MTTS was forced to reinvent itself and conduct the summer camp online. The success of this venture led to short courses offered online. These courses organized by the Trust are on advanced topics in mathematics at levels above the MTTS courses, and are given by experts in the respective fields. Each course has about eight online sessions consisting of 60 minutes of lecture followed by discussion by the participants in groups for about 40 minutes.

The MTTS Trust endeavours to expose students to the excitement of doing mathematics and to promote creative thinking. These short courses are organized keeping the objectives of MTTS in mind, and therefore dwell on introducing the concepts and well-chosen examples, rather than proving deep results hurriedly. Emphasis is given on equipping the participants with the ethos of the subject, and on instilling confidence, so that they can read the standard textbooks and learn on their own after completing the course. Three such courses have been conducted so far.

ONLINE FOUNDATION COURSE IN MATHEMATICS (OFCM)

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“Foundations” is a unique course taught in the MTTS camps to initiate the students to some fundamental topics of mathematics.

After attending a 2-week course on Foundations in the MTTS camps, almost all participants so far have experienced a change in their attitude, problem solving abilities, and logical and analytical thinking. They also acquire a high level of confidence for self-study to undertake courses in higher mathematics. The objective of these camps is to transfer the positive changes that the Foundation course brings to MTTS participants, to many more students across the country.

In October 2020, the MTTS Trust organized 6 parallel online Foundation Courses in Mathematics covering the entire country. This involved over 500 participants, 100 mentors and 20 resource people. One of the six camps was also live streamed on YouTube which was watched by a few hundred students and they were guided online by several mentors. The Trust plans to make this programme a regular activity so as to reach a large number of motivated students.

CONTRIBUTION OF MTTS TO INDIAN MATHEMATICS

Since 1993, 28 MTTS summer camps of 4 weeks duration, 56 InitMath camps of durations one to two weeks, 13 PTMT camps, 6 Online courses on Foundation Course in Mathematics and three online short courses have been organized. More than 7,000 students and 500 teachers have been trained using the MTTS methodology.

About 500 MTTS students either have obtained their Ph.D. degree in Mathematics or are in the process of finishing their degree from prestigious institutes of India and abroad. More than 1000 have gone on to become mathematics teachers at various levels from schools to universities and

research institutes. This surely speaks the volume of the contribution of this programme. More importantly, it is widely acknowledged that the quality of the students and teachers trained in MTTS is distinctly superior.

The programme has inspired a large numbers of girl students, and students coming from rural areas, to become professional mathematicians in many of the leading institutions. Several books have been written by faculty based on years of experience in MTTS. These books have been widely acknowledged by teachers and students across the country and abroad.

FUTURE PLANS

MTTS has managed to reach out to students and teachers from almost every part of the country by organizing MTTS and PTMT camps. MTTS has inspired a large number of students to choose mathematics as a career, and to become highly competent mathematicians and mathematics teachers at various levels. However, for a vast country like ours, organizing a limited number of such camps is not sufficient. The MTTS Trust would like to organize more camps in the country so that it can help students to get exposed to, and learn mathematics in a proper manner, and assist mathematics teachers in improving their teaching methodology.



AN APPEAL

So far the MTTs Trust has been able to organize a limited number of camps with the help of funding from the NBHM. Expansion of these programmes will require a lot of infrastructural resources, both human as well as material. The financial implications require the support of MTTs well-wishers like you.

The Trust solicits your financial support, and any amount, however small, is welcome, from the patrons who would like to support this endeavour. The following are some headings under which you may contribute;

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| 1. for organising an InitMath/MTTS camp at a location of your choice; | 8. maintenance of MTTs website and online system management. |
| 2. for organising a PTMT camp on a subject or location of your choice; | 9. travel expenses to explore and identify training needs; |
| 3. for organising regional Online Foundation Course in Mathematics; | 10. processing of applications; selection of participants; |
| 4. support for women participants; | 11. organization of infrastructural facilities for the camps; |
| 5. scholarship for top performing participants. | 12. maintenance and running expenses of the trust; |
| 6. procuring books for distribution to participants; | 13. general donation. |
| 7. publication of programme souvenir, articles and books; | |



We are very happy to inform you that the MTTs Trust has been registered under section 80G (5) (vi) of the Income tax act 1961 and hence your donations are eligible for tax benefit of 100% deduction under the Section 80G. We appeal to you to give donations to the Trust generously, either as a general donation, or for various specific areas as mentioned in the previous paragraph. We hope you will not miss this opportunity to serve the cause of mathematics in India.

Bank details:

Name of the account: MTTs TRUST
A/C No. 39809195527
Name of Bank: State Bank of India
Branch: VJTI, Matunga (Mumbai)
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Mathematics Training and Talent Search Programme

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