

Mini MTTS Programme

on

Number Theory and Algebra

Dec. 18-24, 2010

Sponsored by

National Board for Higher Mathematics



Organised by

Centre for Mathematical Sciences (CMS)

Apaji Institute of Mathematics and Applied Computer Technology

Banasthali University

Banasthali- 304 022 (Rajasthan)

University for women, University with a difference

Banasthali University, for women education is a unique university, which offers an integrated system extending from the primary to the Ph.D. level. It was founded on October 6, 1935 and attained deemed to be university status on October 25, 1983.

The University aims at the synthesis of spiritual values of the east and scientific achievements of the west. It develops all round personality of its students through its five-fold education programme. Considering its relatively short existence as a University, the institution has made phenomenal progress. At present, it has around 26 teaching departments offering 100 courses, over 500 teachers and nearly 8,000 students. The institution offers several programmes in the emerging areas, which include advanced courses at undergraduate and postgraduate levels in Management, Biotechnology, Computer Science, Information Technology, Mathematical Sciences, and Electronics, besides the traditional courses in Humanities, Social Sciences, Home Science, Education and Fine Arts.

Apaji Institute of Mathematics and Applied Computer Technology (AIM & ACT) was founded in 1999 with the objective of achieving synergy between teaching and research in Computer Science, Electronics, Mathematics, and Statistics. Physics, Bio-informatics and Information Technology have been also added to this list later.

In this short span of about twelve years, Apaji Institute with its world-class infrastructure and education programmes has earned the reputation of one of the best centre of teaching and research not only in the state but also in India. The students get placement in all leading companies and organizations. Many of them have gone abroad for higher education and research.

One of the strong points of Apaji Institute is to infuse logical abilities and abstract thinking in its students by integrating learning of Mathematics in all its programmes. The ambitious programme of M.Sc. (Mathematical Science) was designed with inputs from leading experts from IIT's, IISc., HRI and TIFR and offers several specializations such as Theoretical Computer Science, Statistics and Operations Research in addition to Pure and Applied Mathematics in the institute. Now, M. Phil. programme in Mathematical Sciences has also been started to provide the required research orientation to the desirous students. Institute has conducted so many major events like workshops, Seminars, Training programmes and International conferences for enhancement of R & D and making a recurrent research environment.

To motivate research, Department of Science and Technology Govt. of India have declared Banasthali University as the Centre for Mathematical Sciences (CMS) in November 2007. The three years of the establishment of the centre witnessed significant increase in the academic activities of the CMS. The events had very distinguished experts from the fields from IISc Bangalore, ISI Kolkata, ISI Delhi, IIT Mumbai, TIFR Mumbai, B.H.U. Varanasi, ISI Hyderabad and ISI Coimbatore.

In this connection, to motivate the students of Mathematics and Statistics from the very beginning, we planned **Mini MTTS Programme** for under-graduate students, which would be fruitful to motivate research so far in the subject.

Topics to be covered:

The purpose of this programme is to teach the topics in an interactive way rather than the usual passive presentation. Moreover, promote the students to develop the theory based on the answers just by asking questions and some typical examples. At every level the participants are encouraged to explore, guess and formulate definitions and results.

FOUNDATIONS: Logics and Set Theory.

NUMBER THEORY: Divisibility, division algorithm, primes, fundamental theorem of arithmetic, the binomial theorem, congruences, solution of congruences, the Chinese Remainder Theorem, linear diophantine equations.

REAL ANALYSIS: Real numbers, sequences of real numbers, bounded sequences, lub and glb property, convergence of sequences, Cauchy sequences, limit of functions and their continuity.

LINEAR ALGEBRA: Vector spaces, subspaces, linearly dependent and independent vectors, basis and dimension of a vector space, linear maps, rank and nullity, rank-nullity theorem.

References:

1. M. Artin, Algebra, Prentice Hall of India, New Delhi, 2009.
2. S. Kumaresan, Linear Algebra A Geometric Approach, Prentice Hall of India, New Delhi, 2006.
3. W. Rudin, Principle of Mathematical Analysis, McGraw Hill, Auckland, 1985.
4. I. Niven, H. S. Zuckerman and H. L. Montgomery, An Introduction to the Theory of Numbers, Fifth Edition, Wiley- India P. Ltd., New Delhi, 2008.

The list of resource persons is given below:

1. Prof. B. Ramkrishnan, HRI, Allahabad.
2. Prof. G. Santhanam, IIT Kanpur, Kanpur.
3. Prof. Jayanthan, University of Goa, Goa.

IMPORTANT DATES

Programme: December 18- 24, 2010

Registration Deadline: December 05, 2010

Announcement of final list of participants: December 08, 2010

There is no registration fee. The selected participants will be informed by mail/ phone/ fax. They will be reimbursed second class train/bus fare to and from Banasthali and will be provided free lodging and boarding at Banasthali university.

The completed registration form should be mailed at **mttsbu.cms@gmail.com** (Be careful about the dot in e-mail address for correspondence) and also posted to the address given below along with recommendation letter:

Address:

The Local Coordinator
Mini MTTTS PROGRAMME,
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Banasthali University, Banasthali
Rajasthan-304 022.
Mobile: +91-9414642622, +91-9785007650.
Phone: (01438) 228647/48 Fax: (01438) 228649

(Registration form and recommendation form can be downloaded from the university website: www.banasthali.org)

How to reach Banasthali University:

Banasthali is located 72 km from Jaipur, 8 km off on Jaipur Kota road. Frequent bus service is available for Banasthali University campus/Newai from main Bus Stand (Sindhi Camp) Jaipur. Newai is 10 km from Banasthali. Conveyance is available at Banasthali Newai (WR, Jaipur Kota Broad-guage Line) Railway Station. Jaipur (Sanganer) Airport is 59 kms from Banasthali.

ADVISORY COMMITTEE

Prof. Aditya Shastri
Vice Chancellor, Banasthali University

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COORDINATOR

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