MSc in Mathematics

About the course

The MSc in Mathematics and Foundations of Computer Science, run jointly by the Mathematics Institute and focuses on the interface between pure mathematics and theoretical computer science.

The mathematical side concentrates on areas where computers are used, or which are relevant to computer science, namely algebra, general topology, number theory, combinatorics and logic. Examples from the computing side include computational complexity, concurrency, and quantum computing. Students take a minimum of five options and write a dissertation.

The course is suitable for those who wish to pursue research in pure mathematics (especially algebra, number theory, combinatorics, general topology and their computational aspects), mathematical logic, or theoretical computer science. It is also suitable for students wishing to enter industry with an understanding of the mathematical and logical design and concurrency.

The course will consist of examined lecture courses and a written dissertation. The lecture courses will be divided into two sections:

*   Section A: Mathematical Foundations
*   Section B: Applicable Theories

Each section shall be divided into schedule I (basic) and schedule II (advanced). Students will be required to satisfy the examiners in at least two courses taken from section B and in at least two courses taken from schedule II. The majority of these courses should be given in the first two terms.

During Trinity term and over the summer students should complete a dissertation on an agreed topic. The dissertation must bear regard to course material from section A or section B, and it must demonstrate relevance to some area of science, engineering, industry or commerce.

It is intended that a major feature of this course is that candidates should show a broad knowledge and understanding over a wide range of material. Consequently, each lecture course taken will receive an assessment upon its completion by means of a test based on written work. Students will be required to pass five courses, that include two courses from section B and two at the schedule II level - these need not be distinct - and the dissertation.

The course runs from the beginning of October through to the end of September, including the dissertation.

Graduate destinations

Graduates pursue careers in research into mathematics and/or computer science or industry.

Scope

Mathematics is a universal subject. If you choose to pursue an in Mathematics, there will be a lot many options that you will be able to chose from. You can work in different areas such as:

1. Mathematician - You can choose to pursue research (become a scientist) in your area of interest in Maths. And if you choose research, you can go into the teaching sector also. Check out institutes like TIFR Mumbai, IMSc Chennai, Harish Chandra Research Institute Allahabad.
2. Chartered Accountancy - If you like auditing, taxes and accounting, you can think of preparing for CA too.
3. Banking - Banking is another sector that you can get into with Mathematics.
4. Actuarial Sciences - If you love data and maths, actuarial sciences would be a great field for it.
5. Data Analysis/Operations Analysis/Project Development - If you want to work in the private sector, you can look at these profiles.
6. Military Operations - Mathematics degree would also allow you to work in the military sector, scientists are always required to work with military and development (DRDO, ISRO, NAL, SETS, etc.). You can also join the navy as a Commissioned Officer in their education or logistics branch.
7. Market Researcher - There are a lot of companies that you can work with to identify market patterns and trends, and help in analyzing these trends.

8. Teaching
9. Research
10. Engineering
11. Financial Engineering
12. Computer programming
13. Applied mathematics in different industries e.g automobile workshop mathematics