

Program Overview M.Sc. (Mathematics)

PROGRAM OVERVIEW-

Designed to strengthen student's mathematical background by in depth knowledge of mathematical concepts. The learner has to do a unique three term thesis keeping in mind the research centricity. The answer to the question of what is an MSc in Mathematics lies in understanding how different types of math are categorized. Instead of focusing on a particular type of math such as algebra or calculus, a postgraduate degree in general mathematics allows students to concentrate on number theory and advanced mathematical methods that tie together all the different forms of mathematics they have likely already learned. This degree tends to have a heavy focus on analysis and theory rather than practical uses of math, but most schools also require several application courses for completion. An MSc in Mathematics gives students who want to work in science, engineering, or computing a solid core education. Most degree programs also require a research component, so students can get a feel for how to use their new skills in the real world.

The cost of a Masters in Mathematics depends on what institution you choose to study at. Most degree programs take one to two years to complete, so the cost of tuition should be assessed accordingly. Many careers in science, engineering, technology, and computers are accessible with a Master of Mathematics. In addition, a postgraduate degree in math makes job seekers more attractive to hiring managers in the fields of business and finance who look for the kind of problem solving and analytical skills that are taught in advanced math courses.

After completing MSc in math your career will be more stable and successful. The private plus government sectors both have thousands of job options available for you. The government sector also wants a good mathematician person. Who can manage the data and business model. Every business requires financial activity and data management for better improvement and success. Various companies have a position like numerical operation and accountant. So, career after **MSc maths** is very fruitful for you.

1. **Lecturer in Mathematics:** One of the rewarded and famous profiles this is. Becoming a lecturer is not easy but if you are fully preparing for that then it can be not tough for you.
2. **Scientific Officer:** If you are very good at maths and calculation. Then MSc maths can give you the opportunity to work with the top government sector. In another word, you can apply for a scientific office job in the industry. Such as ISRO (the Indian Space research Organization). DRDO (Defense Research and Development Organization). NAL (National Aeronautics Limited).
3. **Computer & IT:** MSc math also relates to computer science. A career after MSc maths gives you a vast pathway for the computing field. ICT (information and communication technology) is playing a big role in this platform. ICT always offer a new role for math degree students.
4. **General Management:** Every industry does have this position. Because general management is basically responsible for business organizing and employee handling.
5. **Manual Testing:** In this profession, you have to do manual testing for the company. This means you have to find the defect and error.
6. **Data Science Modelers:** We all know about the data science modelers. The demand for data science specialists is huge because every company wants to convert its data into the required information.
7. **Banking – Investment Banking:** Many famous investment banks provide financial advice to the customer. These professions help you increase the equity and debt market.
8. **Statistical Research:** A career in statistical research is very interesting. It presents the company's statistical businesses at a modest and technical level.

9. **Operational Research:** You can also become operational research if you are good at mathematics. Under this profession basically, you have to solve the business profitability, improve efficiency, and complex organization problems.
10. **Junior Research Fellow:** Junior research fellow exam is now conducted by the CBSC. Normally only top candidates only get the JRF post.

Programme Outcomes (POs)

Program outcomes are narrower statements that describe what students are expected to know and be able to do by the time of graduation. These relate to the skills, knowledge, and behaviours that students acquire in their matriculation through the program.

PO-01	Scientific exploration	Capability of comprehending basic scientific principles, mathematical aptitude and theories to propose solutions.
PO-02	Conduct investigations of complex problems	Use explorative aptitude and research methods for analysis and interpretation of data and synthesis of information to provide effective conclusions.
PO-03	Ethics	Apply ethical principles and commit to professional ethics and responsibilities for societal benefits
PO-04	Communication	Communicate effectively scientific findings, and to be able to assimilate, write and present effective reports to give and receive clear instruction.
PO-05	Societal Impact	Acquire and apply advanced knowledge of concepts and participate in sustainable development.
PO-06	Individual and team work	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO--07	Life-long learning	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest

		context of upcoming scientific change.
PO-08	Professional Enhancement	In addition to core curricula, program offers subjects like communication, Technical and soft skills to enhance personality and employability.
PO-09	Innovative Pedagogy	Use of innovative pedagogical tools such as demo kits in addition to animations, simulations to impart effective teaching and learning process.
PO-10	Dissertation	Dissertation courses are incorporated in the curriculum to provide research and hands on experience to students in problem identification, laboratory work, data analysis and interpretation.
PO-11	Research Problem Solving	Ability to assimilate, evaluate and present research results objectively.

Programme Specific Outcomes (PSOs)

PSOs are statements that describe what the graduates of a specific engineering program should be able to do:

1. **PSO1:** Understand advanced level of differential equations, Complex analysis, real analysis, Functional analysis, and abstract algebra.
2. **PSO2:** Build effective conclusions through review and research gap Identifications.
3. **PSO3:** Demonstrate competence in using mathematical concepts and computational techniques for simulation and modelling.
4. **PSO4:** Exhibit the ability of comprehending the problem and building research-oriented solutions.
5. **PSO5:** Communicate concepts of Mathematics and its applications.
6. **PSO6:** Acquire analytical and logical thinking through various mathematical tools and techniques.
7. **PSO7:** Investigate real life problems and learn to solve them through formulating mathematical models.
8. **PSO8:** Attain in-depth knowledge to pursue higher studies and ability to conduct research. Work as mathematical professional.
9. **PSO9:** Achieve targets of successfully clearing various examinations/interviews for placements in teaching, banks, industries and various other organizations/services.

1. INTRODUCTION

1.1 Preamble

This ordinance governs all the rules and regulations as per the NEP 2020 for the traditional post graduate programs (M.A. / M.Sc.(Mathematics) which are not covered by any regulatory bodies (AICTE, BAR Council, PCI, NCTE etc) running in the (Department of Mathematical Sciences & Computer Applications), University campus or its affiliated colleges in Bundelkhand University, Jhansi.