



## DEPARTMENT OF MATHEMATICS

### About Department

The Department of Mathematics was established in 1959 and has always shared the vision of the institute in striving for excellence in teaching and research activities. Over the years, the department has evolved as one that provides excellent teaching and research in Applied Mathematical Sciences.

### VISION

*To be among the best Mathematics Departments in the country.*

*To be an international Centre for Mathematical Sciences.*

### MISSION

*To attract motivated and talented students to the Master's and Doctoral programs*



Head Of Department  
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# M.Sc.(Mathematics and Scientific Computing)

In the context of changing needs of the software industry, the Department is offering a Computer Oriented Mathematics course – M.Sc. (Mathematics and Scientific Computing). In addition to the regular class room instruction and laboratory course in each semester, seminar and project work are integral parts of the course. They inculcate a spirit of practical application of Mathematical Concepts and also instill enthusiasm for research activity. Special emphasis is laid on promoting team spirit and improving the oral communication skills of the students

## **INCEPTION**

- This course is offered from the year 2001 onwards, with a judicious combination of essential Mathematics, and Computer courses.

# VISION AND MISSION

## VISION

- To produce mathematicians whose
- Hands are in practice,
- Head in theory, and
- a Heart to act as a bridge between the two.

## MISSION

To equip the students with the mathematical foundations required to excel in various applied and computational streams where Math plays a major role.

# Why Mathematics and Computing @ NIT Warangal?

- ❑ Our Course content is around 84% similar to MCA and 75% similar to B.Tech (CSE).
- ❑ Apart from Computing , Students in this course have a solid background of Core Mathematics subjects , which is a need of the industry.
- ❑ Our course structure for M.Sc(M&SC) is best as compared to other IITs/NITs.
- ❑ A wide range of Computer electives that supplies the advanced concepts required for the courses in Computational Engineering.
- ❑ Math gives theoretical guarantees....so that Computing knows its bounds.
- ❑ Math shows the direction...Computing charts the path.

# COURSE STRUCTURE

## CS SUBJECTS

Problem Solving and Computer Programming

Object Oriented Programming

Data Structures & Algorithms

Design and Analysis of Algorithms

Database Management Systems(DBMS)

Java Programming

Symbolic Computing

Mathematics of Data Science

Data Mining

Data Analysis with R

Discrete Mathematics

Graph Theory and Algorithms

Algorithmic Approach to Computational Methods

## SUBJECTS HAVING APPLICATION IN CS

Numerical Linear Algebra

Probability & Statistics

Optimization Techniques

Elementary Number Theory

## CORE MATHEMATICS SUBJECTS

Real Analysis

Complex Analysis

Fluid Dynamics

Ordinary Differential Equation

Partial Differential Equation

# Expected Outcomes

- To understand the role of Math in Computer Science.
- To obtain a strong Math foundation that is both relevant and current.
- To apply such acquired knowledge to solve real-world computational problems.
- To visualize and model complex problems.
- To analyze and optimize hitherto constructed models.
- To gain proficiency in state-of-the-art computational tools.

# M.Sc.(Mathematics and Scientific Computing)

*“Separation from mathematics **no longer makes sense** ...*

*Computing advances have run their course ... Fundamental roadblocks are **only Mathematical** ... Payoffs are large and widespread –both for the society & Math.”*

*-David Donoho , Stanford University*

*Math Challenges of the 21<sup>st</sup> Century,08.08.2000*

*For more info on M.Sc.(Mathematics and Scientific Computing),please see...*

<https://www.nitw.ac.in/departament/mat/M.Sc%20%28Mathematics%20and%20Scientific%20Computing%29/>