



Savitribai Phule Pune University

(Formerly University of Pune)



Styaniketan's

**Adv. M. N. Deshmukh Arts, Science and Commerce
College Rajur**

B.Sc. in Mathematics

(Faculty of Science & Technology)

Course Outcomes

F.Y. B. Sc. Mathematics

(As Per National Education Policy-2020)

Semester-I

MTS 101-Algebra and Calculus I

Course type: Major (Theory) No. of Credits: 2

Course Outcomes

After the completion of this course, student will be able to

1. To know the concept of divisibility in integers.
2. To find Greatest Common Divisor of integers using the Euclidean algorithm.
3. To understand the concept of Fermat's theorem and Euler's phi function.
4. To understand the method of finding roots of polynomials and relationship between roots and coefficients of a polynomial.
5. To classify real numbers and recognize various properties of real numbers.
6. To understand the concept of limit and continuity.
7. To draw the graphs of algebraic and transcendental functions considering limits and continuity.
8. To apply the concept of limit and continuity for advanced study of different mathematics courses, and in physical, chemical and biological sciences.

MTS 102 - Practicals based on MTS-101

Course type: Major (Practical) No. of Credits: 2

Course Outcomes

After the completion of this course, student will be able to

1. To know the concept of divisibility in integers.
2. To find Greatest Common Divisor of integers using the Euclidean algorithm.
3. To understand the concept of Fermat's theorem and Euler's phi function.
4. To understand the method of finding roots of polynomials and relationship between roots and coefficients of a polynomial.
5. To classify real numbers and recognize various properties of real numbers.
6. To understand the concept of limit and continuity.
7. To draw the graphs of algebraic and transcendental functions considering limits and continuity.
8. To apply the concept of limit and continuity for advanced study of different mathematics courses, and in physical, chemical and biological sciences.

OE-101 MTS : Basic Mathematics- I

Course type: Open Elective (Theory) No. of Credits: 2

Medium of Teaching and Evaluation: English/Marathi

Course Outcomes

1. To understand the concepts of numbers and integers and able to develop skills in basic operations of integers to cultivate the right understanding and regain numerical aptitude.
2. To understand concepts of H.C.F. and L.C.M. of numbers, square root and cube Root and ability to apply in real-world problems.
3. To understand concepts of ratio, proportion, percentage and be able to cultivate the right understanding regaining numerical aptitude.
4. To understand concepts of average, profit and loss develop a logical approach toward analytical approach to real-world problems.
5. To provide a platform for the students to build the fundamentals of Basic Mathematics for competitive examination preparation strategy.
6. To establish a framework for the students to help acquire the knowledge and expertise necessary to secure employment opportunities in the government sector

SEC-101 MTS: Python-I

Course type: Skill Enhancement (Practical) No. of Credits: 2

Course Outcomes

After the completion of this course, student will be able to

1. To write python programs and develop a small application.
2. To develop logic for problem solving.
3. To be familiar about the basic constructs of programming such as data, operations, conditions, loops, functions etc.
4. To be familiar with string and its operation.
5. To develop basic concepts of function and terminology.
6. To determine the methods to create and develop Python programs by utilizing the data structures like lists and tuples.

Semester-II

MTS-151:Algebra and Calculus II

Course type: Major (Theory) No. of Credits: 2

Course Outcomes

After the completion of this course, student will be able to

1. Understand the various types of matrices, their properties, and how to convert matrices to echelon form using elementary row operations.
2. Learn methods to solve systems of linear equations, understand the concept of determinants, evaluate determinants by different methods, and solve problems using properties of determinants.
3. Apply the concept of matrices and determinant to the problems in chemistry, electronics, cryptography, etc.
4. Understand differentiation and fundamental theorem in differentiation.
5. Apply Mean Value Theorems and it's applications
6. Explore the combined application of algebra and calculus to various mathematical problems.

MTS 152 - Practicals based on MTS-151

Course type: Major (Practical) No. of Credits: 2

Course Outcomes

After the completion of this course, student will be able to

1. Understand the various types of matrices, their properties, and how to convert matrices to echelon form using elementary row operations.
2. Learn methods to solve systems of linear equations, understand the concept of determinants, evaluate determinants by different methods, and solve problems using properties of determinants.
3. Apply the concept of matrices and determinant to the problems in chemistry, electronics, cryptography, etc.
4. Understand differentiation and fundamental theorem in differentiation.
5. Apply Mean Value Theorems and it's applications
6. Explore the combined application of algebra and calculus to various mathematical problems.

OE-151 MTS: Basic Mathematics – II

Course type: Open Elective (Theory) No. of Credits: 2 Medium of

Teaching and Evaluation: English/Marathi

Course Outcomes

After the completion of this course, student will be able to

- 1: To understand the concepts of Time, Work and Wages also be able to logical approach towards analytical approach data of real word problem.
- 2: To understand concepts of Linear Equations and ability to solve examples in finding Age in past and future.
- 3: To understand concepts of Simple and Compound Interest and to develop Mathematical Competence.
- 4: To understand concepts of Mensuration and able to develop Mathematical competence in solving Problems.
- 5: To provide a platform for the students to build the fundamentals of Basic Mathematics for competitive examination preparation strategy.
- 6: To establish a framework for the students to help acquire the knowledge and expertise necessary to secure employment opportunities in the government sector.

SEC-151 MTS: Python-II

Course type: Skill Enhancement (Practical) No. of

Credits: 2 Course Outcomes

After the completion of this course, student will be able to

1. To write python program and develop maps using dictionary.
2. To develop logic for 2D graphics.
3. Demonstrate the use of Python in mathematics such as matrix algebra.
4. To be familiar about basic math built in functions such as sine, cosine, etc.
5. To be familiar with complex numbers.
6. To write Python programs to handle matrices and vectors using NumPy.