

Dr. Annasaheb G. D. Bendale Mahila
Mahavidyalaya, Jalgaon

Department of Mathematics

**Certificate Course on Fundamentals
of Mathematics**

(2021-22)

(Required for Competitive Exams)

Regulations

Duration	:	40 hours
Fee	:	Rs. 100/-
Eligibility	:	H.S.C. Completed in Arts, Commerce and Science
Maximum Intake	:	30 Students
Certificate	:	Awarded by the College on the basis of examination results and credits earned.
Course Structure	:	60 + 40 Pattern Internal MCQ Test 40 marks and External MCQ Test 60 marks.
Progression and Assessment	:	a) Regulation for work and attendance shall be as per College general regulations. b) Minimum 40% marks are essential for passing. c) Department will declare results Certificate duly signed by Principal shall be issued.

Aims :

The aims of teaching and learning mathematics are to encourage and enable students to :

1. understand and be able to use the language, symbols and notation of mathematics.
2. develop mathematical curiosity and use inductive and deductive reasoning when solving problems.
3. become confident in using mathematics to analyse and solve problems in real-life situations.
4. develop abstract, logical and critical thinking and the ability to reflect critically upon their work and the work of others.

Courses Objectives :

Knowledge and understanding are fundamental to studying mathematics and form the base from which to develop problem-solving skills.

Courses Outcomes :

At the end of the course students should be able to:

- explain whether their results make sense in the context of the problem
- explain the importance of their findings
- justify the degree of accuracy of their results where appropriate
- suggest improvements to the method when necessary.

Syllabus

Unit 1 : Number systems 10 Hours 25 Credit

- i) Different Type of Numbers (Rational, Irrational, Positive, Negative, Prime, Composite, Integers, Real, Imaginary)
- ii) Absolute Value
- iii) Rounding of Numbers
- iv) Addition, Subtraction, Multiplication, Division rules with Fractions, Decimal Numbers, Integers, Mixed Numbers, Exponents
- v) Numbers Divisibility Rule
- vi) Scientific Notations

Unit 2 : Operation and properties of Numbers 10 Hours 25 Credit

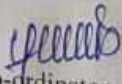
- i) Commutative, Associative, Distributive, Identity, Inverse
- ii) Greatest Common Factor (GCF), Least Common Multiple (LCM), Least Common Denominator (LCD)
- iii) Square Root, Cube Root

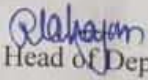
Unit 3 : Applications of Numbers 10 Hours 25 Credit

- i) Proportion and Ratio
- ii) Percentage and Average
- iii) Profit and Loss
- iv) Simple and Compound Interest
- v) Partnership
- vi) Rates, Unit Rates
- vii) Mark Up, Sales Discount, Final Cost

Unit 4 : Geometrical Approach of Numbers 10 Hours 25 Credit

- i) Distance, Time and Speed
- ii) Time and Work
- iii) Volume and Surface Area
- iv) Pipes and Cisterns
- v) Perimeter, Area, Circumference, Circle, Square, Triangle, Rectangle
- vi) Metric and Customary Unit Conversion Length, Weight, Capacity, Time
- vii) Problem on Ages and on Trains
- viii) Clocks and Calendar


Co-ordinator
(Dr. P. N. Tayade)


Head of Dept.
(Miss. R. N. Mahajan)