



**DEPARTMENT OF MATHEMATICS**  
**MUHAMMED ABDURAHIMAN MEMORIAL**  
**ORPHANAGE (MAMO) COLLEGE**

[Govt. Aided First Grade College & Affiliated to University of Calicut.  
Re-Accredited by NAAC with A Grade]

**CURRICULUM FOR CERTIFICATE COURSE**

**CERMA003: SIMPLE**  
**ARITHMETIC OPERATIONS**  
**IN VEDIC MATHEMATICS**

**OFFERED DURING THE**  
**ACADEMIC YEAR 2017-18**  
**[APPROVED BY ACADEMIC COMMITTEE, MAMO COLLEGE]**



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### CURRICULUM FOR CERTIFICATE COURSE IN SIMPLE ARITHMETIC OPERATIONS IN VEDIC MATHEMATICS [CERMA003]

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# INSTITUTIONAL VISION, MISSION & OBJECTIVES 01



**VISION:** Build Scientifically Oriented, Intellectually Accomplished, Morally Upright and Socially Committed youth who can play a constructive role in Nation Building.



**MISSION:** Intellectual, social and economic empowerment of the youth in general and women, minorities, orphans and the destitute in particular by providing quality, value-based higher-education.



**OBJECTIVES:** Pursuit of Excellence, Harnessing technology, Thrust on value-based education, Nurturing Excellence and Moulding the youth for Nation Building



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# VISION, MISSION, OBJECTIVES & CORE VALUES OF THE DEPARTMENT

# 02



VISION

**VISION:** Educating students to excel in all their endeavours for the betterment of the society and nation



MISSION

**MISSION:** Empowers students to fulfil their moral, professional, social and economic financial responsibilities



**OBJECTIVES:** (a) Develop a positive attitude towards Mathematics and to appreciate its practical applications in life, (b) Develop problem solving skills and the ability to use mathematics in everyday life, (c) Develop problem solving skills and the ability to use mathematics in everyday life and (d) Use mathematical language effectively and accurately.



VALUES

**CORE VALUES:** Practical Orientation, Intellectual Enlightenment, Social Commitment, Moral Uprightness, Ethical Self-Fashioning, Cultural Enrichment, International Outlook, Aesthetic Sensibility, Vocational Excellence and Psychological Stability.



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# B.Sc. MATHEMATICS: PROGRAMME EDUCATIONAL OBJECTIVES (PEOs) 03

After 4 to 5 years of graduation, the career and professional accomplishments attained by the B.Sc Mathematics Graduates would reflect that the programme really prepared the graduates to deal with the real world, where they could apply and use the skills and knowledge they have learned to good use

Specifically, the graduate would be able to:



**PEO1:** Have significant opportunities in various service domains at National and International levels like banking, insurance, government jobs, consultancy, teaching, defense, industry, research and entrepreneurial pursuit.



**PEO2:** Have leadership quality to handle all kind of circumstances in diversities by providing interdisciplinary and multidisciplinary learning environment.



**PEO3:** Inculcate value system while working in a team assigned with a important targets they will contribute through their critical thinking and



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mathematical competence holding the ethical values.



**PEO4:** Achieve peer recognition as an individual or as a team member having specialized knowledge and expertise to investigate, formulate, analyse and implement on the problems of pure, applied and computational mathematics to compete at global level.



**PEO4:** Have continuous learning attitude to adopt new skills and techniques to overcome the problems related with new technologies.



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# B.Sc MATHEMATICS: PROGRAMME SPECIFIC OUTCOME (PSOs) 04

On the successful completion of the B.Sc. Mathematics Programme, the graduates would be able to:



**PSO1:** Understand the mathematical concepts and applications in the field of algebra, real and complex analysis, optimization, differential equations, Vector calculus etc.



**PSO2:** Adopt changing scientific environment in the process of sustainable development by using mathematical tools



**PSO3:** Handle the advanced techniques in algebra, analysis, optimization, differential equations, engineering, finance and actuarial science to analyse and design algorithms solving variety of problems related to real life problems.



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**PSO4:** Have necessary language skills and expertise in the field of research and developments through seminar and project.



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# B.Sc MATHEMATICS: PROGRAMME OUTCOMES (POs) 05

On the successful completion of the B.Sc. Mathematics Programme, the graduates would be able to:



**PO1: KNOWLEDGE DOMAIN:** Demonstrate an understanding of the basic concepts in mathematics, statistics, operations research and their importance in the solution of some real- world problems.



**PO2: PROBLEM ANALYSIS:** Analyse and solve the well-defined problems in mathematics statistics, and operations research. Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decision. Find, analyse, evaluate and apply information systematically and shall make defensible decisions.



**PO3: PRESENTATION AND INTERPRETATION OF DATA:** Demonstrate the ability to manipulate and visualize data and to compute standard statistical summaries.



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-  **PO4: ETHICS:** Analyse relevant academic, professional and research ethical problems and commit to professional ethics and responsibilities with applicable norms of the data analysis and research practices.
-  **PO5: MODERN TOOL USAGE:** Learn, select, and apply appropriate methods and procedures, resources and computing tools with an understanding of the limitations.
-  **PO6: COMMUNICATION:** Effectively communicate about their field of expertise on their activities, with their peer and society at large. Such as, being able to comprehend and write effective reports and design documentation, make effective presentations.
-  **PO7: PROJECT MANAGEMENT:** Apply Knowledge and understanding of principles of mathematics and statistics effectively as an individual, and as a member or leader in diverse teams to manage projects in multidisciplinary environment.
-  **PO8: INDIVIDUAL AND TEAM WORK:** Work effectively as an individual, as a member or leader of various teams, and in multi-disciplinary settings.
-  **PO9: DESIGN/DEVELOPMENT OF SOLUTIONS:** Model the real-world problems in to mathematical equations and draw the inferences by finding appropriate solutions.



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**PO10: LIFE-LONG LEARNING:** Continue to acquire mathematical knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in mathematics.



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## CERTIFICATE COURSE

# CERMA003: SIMPLE ARITHMETIC OPERATIONS IN VEDIC MATHEMATICS **06**

## COURSE CURRICULUM

Course Name	Simple Arithmetic Operations in Vedic Mathematics
Course Code	CERMA003
Year	2017-18
Course Designer	Dr. P. M. Mini
Course Duration	30 Hrs
Course Schedule	November to February
Maximum Students Intake	60 Students



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#### 1. COURSE LEVEL

Foundational, skill-oriented certificate programme.

#### 2. PREREQUISITE

None.

#### 3. COURSE INTAKE & ADMISSION

Maximum 60 students will be given admission to the course based on First-Come-First-Serve basis. All the students of the MAMO College are eligible for free enrolment for the course. The enrolment notification will be issued for the course well in advance of the commencement of the course.

#### 4. COURSE COORDINATOR

Dr. P. M. Mini, Department of Mathematics

#### 5. COURSE PREAMBLE

Vedic Mathematics is a collection of Techniques/Sutras to solve Mathematical Arithmetic in easy and faster way. This is an ancient system of Indian Mathematics, which are discovered from Vedas by Sri Bharati Krsna Tirthaji. It is quick, effective and easy to learn and utilize. It helps to solve Mathematical problems 10-15 times faster. It is a magical tool to reduce scratch work and finger counting. It increases concentration.

#### 6. DURATION

Total Duration: 30 Hrs. [Contact Hrs. 6 Hrs, Course Woks: 14 and Assessment Works: 10]



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## 7. CURRICULUM FOCUS

Enhance the employability of the learners by enriching the numerical skill.

## 8. COURSE OBJECTIVES

Learners are exposed to

- Develop handling applications
- Acquire problem-solving skills that enhance the employability of the learners.

## 9. SKILL EXPECTED

On the successful completion of the course, learners will be able to:

- Various practical situations where arithmetic operations have very importance
- Perform various lengthy and complicated calculations very easily.
- Can compare the different methods to perform arithmetic operations in the modern maths and vedic maths.

## 10. COURSE OUTCOMES

Upon the successful completion of the course, learners will be able to:

CO No	Course Outcome(CO)	Skill/Knowledge Attainment Level Based on Revised Bloom's Taxonomy
CO1	Understand different arithmetic operations in Vedic Mathematics	Understand



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CO No	Course Outcome(CO)	Skill/Knowledge Attainment Level Based on Revised Bloom's Taxonomy
CO2	Compare those operations with modern methods	Compare
CO3	Apply those operations in proper situations	Apply
CO4	Numerical skill is developed	Numerical skill

## 11. MAPPING OF COs WITH PSO<sub>s</sub> AND PO<sub>s</sub>

CO <sub>s</sub>	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	PSO3	PSO4
CO1	1	1	2	1	1	2	1	1	2	2	1	1	2	1
CO2	1	1	2	1	1	2	1	2	2	2	1	1	2	2
CO3	1	1	2	1	1	1	1	1	2	1	1	1	2	1
CO4	1	1	1	1	1	2	2	1	1	2	1	1	1	2
AVG	1.0	1.0	1.8	1.0	1.0	1.8	1.3	1.3	1.8	1.8	1.0	1.0	1.8	1.5

## 12. MODULE-WISE COURSE CONTENTS

### MODULE 1: ADDITION AND SUBTRACTION-DIFFERENT METHODS

**MODULE DURATION:** 15 Hrs. [Contact Hrs. 3 Hrs. Course Work: 7 and Assessment Works: 5]

**MODULE CONTENT:** Introduction, Place value method, Rounding method, Pairing method, addition involving proper fractions, addition involving improper fractions, addition involving mixed fractions



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**MODULE OUTCOME:** On successful completion of the module learners will be familiarized with the easy methods of addition and subtraction and will be able to perform those operations very easily and quickly

### MODULE 2: MULTIPLICATION AND DIVISION – DIFFERENT METHODS

**MODULE DURATION:** 15 Hrs. [Contact Hrs. 3 Hrs., Course Work: 7 and Assessment Works: 5]

**MODULE CONTENT:** Nikhilam method (using base of 10,100,1000) - Urdhva – tiryagbhyam, Ekadhikena Purvena (shortcut to find the square of a number), Multiplication by 5, 11, 111, 12, Multiplication of any 2 digit or 3 digit numbers, Division by 5.

**MODULE OUTCOME:** On successful completion of the module learners will be familiarized with the easy methods of multiplication and division and will be able to perform those operations very easily and quickly

### REFERENCES:

1. *Bharateeya Sastra Chinta Book - 1 Ganitam*, Arshaprakasham Prasadheekarana Samithi, Calicut

## 13. DELIVERY MODE

The course employs multi-mode delivery mechanism including contact lecture, and offline course works.

## 14. DELIVERY SCHEDULE

November to February.



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#### 15. DETAILED COURSE DELIVERY PLAN

Hour	Delivery Mode and Activity	Topics to be Covered
1	Contact Hour - Classroom Discussion	Introducing the Course
2	Contact Hour - Classroom Demonstration	Methods in addition
3	Course Work	Pairing method
4	Course Work	Improper fractions
5	Assignment	Addition problems
6	Contact Hour - Classroom Demonstration	Methods in subtraction
7	Course work	Base complement method
8	Course work	More on base complement method
9	Course work	Subtraction from 1000 and 10000
10	Assignment	Subtraction Problems
11	Assignment	Subtraction problems.
12	Contact Hour - Classroom Demonstration	Multiplication methods
13	Course work	Multiplication by 5.
14	Course Work	Multiplication by 11
15	Assignment	Multiplication problems
16	Assignment	Multiplication problems
17	Coursework	Multiplication by 111
18	Course work	Multiplication of 3 digit numbers
19	Course work	Multiplication of 2 digit numbers 11-19
20	Assignment	Problems on multiplication



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Hour	Delivery Mode and Activity	Topics to be Covered
21	Assignment	Problems on multiplication
22	Contact Hour - 5: Classroom Demonstration	Square of a number
23	Assignment	Squaring problems
24	Assignment	Squaring problems 2 digits
25	Assignment	Squaring problems 2 digits
26	Contact Hour - Classroom Demonstration	Division methods
27	Course Work	Division by 5
28	Assignment	Problems on division
29	Assignment	Problems on division
30	Assessment Hour	Course End Assessment

## 16. ASSESSMENT COMPONENTS

Total Marks: 100

**CLASSROOM AND GROUP PARTICIPATION: 20 Marks.** This component aims at testing the course content understanding and the reflection skills and their attainment levels.

**COURSE WORK: 30 Marks.** This component aims at testing the skill attainment levels of the learners in analysing and implementing the real-world problem.

**MID-COURSE ASSIGNMENT: 20 Marks.** This component aims at testing the module-wise attainment levels of the course objectives and course outcome and module outcomes.



Manassery, Mukkam Post,  
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Office: 0495-2297319  
Principal: 0495-2295121

**COORDINATOR  
ACADEMIC COMMITTEE  
MUHAMMED ABDURAHIMAN MEMORIAL  
ORPHANAGE COLLEGE  
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## DEPARTMENT OF MATHEMATICS

### CURRICULUM FOR CERTIFICATE COURSE IN SIMPLE ARITHMETIC OPERATIONS IN VEDIC MATHEMATICS [CERMA003]

**END-COURSE ASSESSMENT:** 30 Marks. This component aims at testing overall attainment levels of the course with respect to course objectives, course outcome and module outcomes.

## 17. COURSE EVALUATION & GRADING

The course evaluation is done/coordinated entirely by the course coordinator. The following 10-point Indirect Grading System is used for awarding grades to students:

Percentage of Mark	Letter Grade	Interpretation	Class
95 and above	O	Outstanding	First Class with Distinction
85 to below 95	A+	Excellent	First Class with Distinction
75 to below 85	A	Very good	First Class with Distinction
65 to below 75	B+	Good	First Class
55 to below 65	B	Satisfactory	First Class
45 to below 55	C	Average	Second Class
35 to below 45	P	Pass	Third Class
Below 35	F	Failure	Fail
Incomplete	I	Incomplete	Fail
Absent	Ab	Absent	Fail

The grade is awarded by the course-coordinator by considering the overall performance of the learner in all the assessment component of the course.



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## 18. GRIEVANCE REDRESSAL

The grievances, if any, can be submitted to the Head of the Department for its redressal. Those grievances that cannot be redressed by HoD can be forwarded to Academic Council of the College for final decision on the matter.

## 19. ISSUANCE OF CERTIFICATES

The Course Completion Certificate will be issued to all the successful candidates showing the Total Marks and Grade Obtained.



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