KONGUNADU ARTS AND SCIENCE COLLEGE

(AUTONOMOUS)

COIMBATORE – 641 029

CURRICULUM AND SCHEME OF EXAMINATIONS (CBCS)
(2024 - 2025 and onwards)

for the programme

CERTIFICATE PROGRAMME ON VEDIC MATHEMATICS

Offered by

DEPARTMENT OF MATHEMATICS

CERTIFICATE PROGRAMME ON VEDIC MATHEMATICS

Curriculum and Scheme of Examinations under CBCS for the candidates
Admitted from 2024 - 2025 and onwards

Semester	Subject Code	Title of the Paper	Instructional Hrs/Cycle	Exam Marks			Duration of Exam	Credits
				CIA	ESE	Total		
I	24CVM101	Core Paper I Introduction to Vedic Mathematics	2	25	75	100	2	2
	24CVM102	Core Paper II Contribution of Bharatiya Mathematicians	2	25	75	100	2	2
	24CVM1Z1	Group Project	2	20	80	100	-	2
		Total	**6**	**-**	**-**	**300**	**-**	**6**

CBCS – Choice Based Credit System
CIA – Continuous Internal Assessment
ESE – End of Semester Examinations

*- Duration of Examination is scheduled for 2 Hours to enhance speedy calculation
Components of Continuous Internal Assessment

1. Theory Examinations

Components		Marks	Total
Theory			
CIA I	75	(75+75) converted to 15	25
CIA II	75		
Attendance		5	
Others*		5	
Project			
Review		15	20
Attendance		5	

* Class Participation, Case Studies Presentation, Field Work, Field Survey, Group Discussion, Term Paper, Workshop/Conference Participation. Presentation of Papers in Conferences, Quiz, Report/Content writing. Etc.

** Two Assignments to be given. (Each 5 marks).

BLOOM'S TAXONOMY BASED ASSESSMENT PATTERN

(**K1**-Remembering; **K2**-Understanding; **K3**-Applying; **K4**-Analyzing; **K5**-Evaluating)

Theory Examination

i) CIA I & II and ESE: 75 Marks

Knowledge Level	Section	Marks	Description	Total
K1 – K2 Q1 to 10	A (Answer all)	10 x 1 = 10	MCQ-10	
K2 – K5 Q11 to 15	B Either or Pattern	5 x 5= 25	Short Answers	75
K2 – K5 Q16 to 20	C Either or Pattern	5 x 8 = 40	Descriptive / Detailed	

ESE Project Viva Voce:

Knowledge Level	Section	Marks	Total
K3	Project Report	60	
K4		20	80
K5	Viva voce		

Programme Code: 02	Certificate Programme on Vedic Mathematics	
Course Code: 24CVM101	Introduction to Vedic Mathematics	
Duration: 6 Months	Instruction Hours/Cycle : 2	Employability/ Skill Development

Course Objectives

1. Cultivate an interest for numbers and the eliminates the math-phobia present in the students.
2. Sharpen students mind, increase mental ability and intelligence.
3. Develop left and right sides of brain by increasing visualization and concentration abilities.

Course Outcome

K1 – K5	**CO1**	Understand the various techniques in Vedic mathematics
	CO2	Recognize the meaning of mathematical sutras in Sanskrit.
	CO3	Develop the understanding of objectives and features of Vedic maths.
	CO4	Analyze the different methods available for effective calculation.
	CO5	Interpret reverse squaring to find square root of perfect square.

Syllabus

UNIT – I

History of Vedic Mathematics – salient features of Vedic Mathematics – formulae – 16 sutras, 13 sub sutras – terms and operations.

UNIT – II

High speed addition by using the concept of computing the whole and from left to right – super fast subtraction by Nikhilam sutras from basis 100,1000,10,000.
Multiplication by Urdhavtrighbhyamsutram- Multiplication by vinculum sutram.

UNIT – III

Multiplication by Nikhilamsutram – fast multiplication by 11 – multiplication of numbers consisting of all 9's – multiplication of numbers nearest to the base 10 and multiplication of sub base 50,500,5000.
Meaning of Ekadhikensutram and its applications in finding squaring of numbers ending in 5.

UNIT – IV

Squares of Anurupeyanasutram – Squares by Yavdunamtha vadunikritya vargam chayojyet sutram – Squaring by Dwandvayoga sutram – Squaring numbers nearest 50 – Square roots of perfect square – General method of square roots – Cubes by Anurupeyanasutram.

UNIT – V

Decimals and fractions – division by Nikhilamsutram – division of 1/19, 1/29 by ekadhikenpurvensutram - division by paravartyasutram – division by anurupeyanasutram – division of polynomials – factors of general second degree equation by lopsthapanabhayamsutram.

RECOMMENDED BOOKS FOR STUDY

1. Vedic Mathematics, Jagadguru Sankaracarya Swami Sri Bharati KrsnaTirthaji Maharaja,
   Motilal Banarsidass Publishers, New Delhi.
2. Vedic Ganita: Vihangama Drishti-1,Shiksha Sanskriti UtthanNyas, New Delhi.
3. Bharatiya Mathematicians, Sharda Sanskrit Sansthan, Varanasi.
4. Leelavati, ChokhambhaVidyaBhavan, Varanasi.

Mapping

PSO \ CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	H	M	M
CO2	H	M	S	S	H
CO3	M	H	M	S	S
CO4	S	S	H	M	H
CO5	S	H	M	S	H

S-Strong; H-High; M-Medium; L-Low

Programme Code: 02	Certificate Programme on Vedic Mathematics	
Course Code: 24CVM102	Contribution of Bharatiya Mathematicians	
Duration: 6 Months	Instruction Hours/Cycle : 2	Employability/ Skill Development

Course Objectives

1. Role of Mathematics in various walks of life.
2. It helps in enhancing the reputation.
3. Better understanding of the subject.

Course Outcome

	CO1	Understand Indian Mathematicians made great strides in developing arithmetic.
K1 – K5	CO2	Remember the various techniques and ideas in ancient mathematics
	CO3	Solve general equations using sutras.
	CO4	Analyze modern mathematics with Ancient mathematics.
	CO5	Apply various sutras for complex problems.

Syllabus

UNIT – I

Contribution of Indian Mathematicians in light of Arithmetic- Aryabhatt – Brahmagupta – Mahaveeracharya – Bharti Krishna Tritha.

UNIT – II

Contribution of Indian Mathematicians in light of Algebra –Varahmihir – Bhaskaracharya – NeelkanthSomayya – Bharti Krishna Tritha.

UNIT – III

Contribution of Indian Mathematicians in light of Geometry –Bhaskaracharya – Madhavan – Parameshvaran.

UNIT – IV

Contribution of Indian Mathematicians in light of Geometry - Bharti Krishna Tritha - Baudhayana.

UNIT – V

General Equations – Tips for Competitive Exams.

RECOMMENDED BOOKS FOR STUDY

1. Bharatiya Mathematicians, Sharda Sanskrit Sansthan, Varanasi.
2. Leelavati, ChokhambhaVidyaBhavan, Varanasi.
3. Vedic Mathematics Made easy ,DhavalBathia, Jaico Publication, 8th Edition 2017, Mumbai-400 001

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	M	S	M
CO2	H	S	S	M	H
CO3	H	M	S	M	S
CO4	H	S	H	M	S
CO5	S	H	M	S	H

S-Strong; H-High; M-Medium; L-Low

Programme Code: 02	Certificate Programme in Vedic Mathematics			
Course Code:24CVM1Z1	Group Project			
Batch 2024 - 2025	Hours/Cycle 2	Total Hours 30	Credits 2	Employability/ Skill Development

Course Objectives

1. To study the basic sutras related to the practical problems.
2. To know about the ancient Bharathiya Mathematicians.
3. To share our knowledge to the young buds in the modern society

Course Outcomes

K3 - K5	**CO1**	Develop the understanding of objectives and features of Vedic Mathematics
	CO2	Recognize the meaning of Mathematical sutras.
	CO3	Applying the various techniques or Sutras in real life problems.
	CO4	Analyze the result with existing result.
	CO5	Interpret the results with suitable examples.

Distribution of Marks in ESE

Project Report   :   60

Viva voce   :   20

                   Total   80

Internal

Project Review   :   15

Regularity   :   5

             Total   20

To be awarded jointly by the internal and external examiners

Mapping

PSO / CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	M	S	H	H
CO2	H	M	S	M	S
CO3	S	H	S	H	M
CO4	S	H	S	H	M
CO5	M	S	H	S	H

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DIPLOMA IN VEDIC MATHEMATICS

Curriculum and Scheme of Examinations under CBCS for the candidates
Admitted from 2024 - 2025 and onwards

Semester	Subject Code	Title of the Paper	Instructional Hrs/Cycle	Exam Marks			Duration of Exam	Credits
				CIA	ESE	Total		
I	24DVM101	Core Paper I Vedic Arithmetic	2	25	75	100	2	3
	24DVM102	Core Paper II Vedic Algebra	2	25	75	100	2	3
II	24DVM203	Core Paper III Vedic Geometry	2	25	75	100	2	3
	24DVM2Z1	Project – Viva voce	2	20	80	100	-	3
		Total	**8**	**-**	**-**	**400**	**-**	**12**

CBCS – Choice Based Credit System
CIA – Continuous Internal Assessment
ESE – End of Semester Examinations

*- Duration of Examination is scheduled for 2 Hours to enhance speedy calculation

Components of Continuous Internal Assessment

Components		Marks	Total
Theory			
CIA I	75	(75+75) converted to 15	25
CIA II	75		
Attendance		5	
Others*		5	
Project			
Review		15	20
Attendance		5	

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** Two Assignments to be given. (Each 5 marks).

BLOOM'S TAXONOMY BASED ASSESSMENT PATTERN
K1- Remembering, K2 - Understanding, K3- Applying, K4-Analyzing K5-Evaluating

Theory Examination
BLOOM'S TAXONOMY BASED ASSESSMENT PATTERN

(K1-Remembering; **K2**-Understanding; **K3**-Applying; **K4**-Analyzing; **K5**-Evaluating)

Theory Examination

i)   CIA I & II and ESE: 75 Marks

Knowledge Level	Section	Marks	Description	Total
K1 – K2 Q1 to 10	A (Answer all)	10 x 1 = 10	MCQ-10	
K2 – K5 Q11 to 15	B Either or Pattern	5 x 5= 25	Short Answers	75
K2 – K5 Q16 to 20	C Either or Pattern	5 x 8 = 40	Descriptive / Detailed	

ESE Project Viva Voce:

Knowledge Level	Section	Marks	Total
K3	Project Report	60	
K4		20	80
K5	Viva voce		

Programme Code: 02			Diploma in Vedic Mathematics		
Course Code: 24DVM101			Core Paper I Vedic Arithmetic		
Batch 2024 - 2025	Hours/Cycle 2	Total Hours 30		Credits 2	Employability/ Skill Development

Course Objectives

1. To get the knowledge of ancient arithmetic calculations.
2. To Understand the concepts of Nikhilam sutras
3. To Solve the square root problems using Ekadhiken sutram

Course Outcomes (CO)

K1 to K5	CO1	Remembering the basic 16 sutras and 13 sub sutras
	CO2	Applying the Nikhilam sutras for arithmetic calculations
	CO3	Analyzing certain sutras in vedic arithmetic
	CO4	Evaluating the concept of vedic arithmetic with modern mathematics
	CO5	Exploring the Vedic sutras in arithmetic.

Syllabus

UNIT – I

History of Vedic Mathematics – salient features of Vedic Mathematics – formulae – 16 sutras, 13 sub sutras – terms and operations. High speed addition by using the concept of computing the whole and from left to right – super fast subtraction by Nikhilam sutras from basis 100,1000,10,000.

UNIT – II

 Multiplication: Ekadhikenpurven sutram – Eknunenpurven sutram - vinculum sutram –Nikhilam Navtashchraman Dashtaha sutram

UNIT – III

Meaning of Ekadhiken sutram and its applications in finding squaring of numbers ending in 5 – squares of Anurupeyana sutram – squares by Yavdunam thavadunikritya vargamcha yojyet sutram – squaring by Dwandvayoga sutram – squaring numbers nearest 50 – square roots of perfect square – general method of square roots – cubes by Anurupeyana sutram.

UNIT – IV

Decimals and fractions – division by Nikhilam sutram – division of 1/19, 1/29 by ekadhikenpurven sutram - division by paravartya sutram – division by anurupeyana sutram – division of polynomials – factors of general second degree equation by lopsthapanabhayam sutram.

UNIT – V

Contribution of Indian Mathematicians in light of Arithmetic – Aryabhatta – Brahmagupta – Mahaveeracharya – Bharti Krishna Tirtha.

Teaching Methods

Smart ClassRoom /Powerpoint presentation /Seminar /Quiz/Discussion /Flipped Class/ peer Learning/ Experiential Learning/Blended learning

RECOMMENDED BOOKS FOR STUDY

1. Vedic Mathematics, Jagadguru Sankaracarya Swami Sri Bharati Krsna Tirthaji Maharaja,

    Motilal Banarsidass Publishers, New Delhi.

2. Vedic Ganita: Vihangama Drishti-1,Shiksha Sanskriti Utthan Nyas, New Delhi.

3. Bharatiya Mathematicians, Sharda Sanskrit Sansthan, Varanasi.

4. Leelavati, Chokhambha Vidya Bhavan, Varanasi.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	H	M	M
CO2	H	M	S	S	H
CO3	M	H	M	S	S
CO4	S	S	H	M	H
CO5	S	H	M	S	H

S-Strong; H-High; M-Medium; L-Low

Programme Code: 02		Diploma in Vedic Mathematics		
Course Code: 24DVM102		Core Paper II Vedic Algebra		
Batch 2024 - 2025	Hours/Cycle 2	Total Hours 30	Credits 2	Employability/ Skill Development

Course Objectives

1. To get the knowledge of ancient algebraic calculations.
2. To Understand the concepts of Urdhvatiragbhyam sutram
3. To Solve the factorization problems using Urdhvatiragbhyam sutram

Course Outcomes (CO)

	CO1	Remembering the basic 16 sutras and 13 sub sutras
	CO2	Applying Urdhvatiragbhyam sutram for algebraic calculations
K1 to K5	CO3	Analyzing certain sutras in vedic algebra
	CO4	Evaluating the concept of vedic algebra with modern mathematics
	CO5	Exploring the Vedic sutras in Algebra.

Syllabus

UNIT – I

Multiplication: Quadratic expressions of single variable – Urdhvatiragbhyam sutram – combined operations

UNIT – II

Division and factorization : Linear expression of single variable - Quadratic expressions of single variable.

UNIT – III

LCM AND HCF

UNIT – IV

Solution of Linear Simultaneous Equations

UNIT – V

Contribution of Indian Mathematicians in light of Algebra – Varahmihir – Bhaskaracharya – Neelkanth Somayya – Bharti Krishna Tirtha.

Teaching Methods

Smart ClassRoom /Powerpoint presentation /Seminar /Quiz/Discussion /Flipped Class/ peer Learning/ Experiential Learning/Blended learning

RECOMMENDED BOOKS FOR STUDY

1. Vedic Mathematics, Jagadguru Sankaracarya Swami Sri Bharati Krsna Tirthaji Maharaja, Motilal Banarsidass Publishers, New Delhi.

2. Vedic Ganita: Vihangama Drishti-1,Shiksha Sanskriti Utthan Nyas, New Delhi.

3. Bharatiya Mathematicians, Sharda Sanskrit Sansthan, Varanasi.

4. Beejganitam, Chokhambha Vidya Bhavan, Varanasi.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	H	M	M
CO2	H	M	S	S	H
CO3	M	H	M	S	S
CO4	S	S	H	M	H
CO5	S	M	S	M	H

S-Strong; H-High; M-Medium; L-Low

Programme Code: 02		Diploma in Vedic Mathematics		
Course Code: 24DVM203		Core Paper III Vedic Geometry		
Batch 2024 - 2025	Hours/Cycle 2	Total Hours 30	Credits 2	Employability/ Skill Development

Course Objectives

1. To get the knowledge of Bhaudhayana Number
2. To Understand the concepts of sutras in geometry
3. To Solve the complex square root problems using sutras in geometry

Course Outcomes (CO)

	CO1	Remembering the basic concept of Bhaudhayana Number
K1 to K5	CO2	Applying the ancient sutras for solving geometric problems
	CO3	Analyzing certain sutras in vedic geometry
	CO4	Evaluating the concept of vedic geometry with modern mathematics
	CO5	Exploring the Vedic sutras in Geometry.

Syllabus

UNIT – I

Concept of Bhaudhayana Number (BN) – BN of an angle – Multiplication of a constant in a BN – BN of complementary angles – BN of sum and difference (a + or – b) of an angle – BN of half angle.

UNIT – II

Trigonometry: Definitions of trigonometric ratios – trigonometric identities.

UNIT – III

Co-ordinate Geometry: Different forms of straight lines.

UNIT – IV

Complex Numbers: Multiplication, Division and Square root.

UNIT – V

Contribution of Indian Mathematicians in light of Geometry – Bhaskaracharya – Madhavan – Parmeshvaran - Baudhayana.

Teaching Methods

Smart ClassRoom /Powerpoint presentation /Seminar /Quiz/Discussion /Flipped Class/ peer Learning/ Experiential Learning/Blended learning

RECOMMENDED BOOKS FOR STUDY

1. Vedic Mathematics, Jagadguru Sankaracarya Swami Sri Bharati Krsna Tirthaji Maharaja, Motilal Banarsidass Publishers, New Delhi.

2. Vedic Ganita: Vihangama Drishti-1,Shiksha Sanskriti Utthan Nyas, New Delhi.

3. Bharatiya Mathematicians, Sharda Sanskrit Sansthan, Varanasi.

4. Beejganitam, Chokhambha Vidya Bhavan, Varanasi.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	S	H	M	M
CO2	H	M	S	S	H
CO3	M	H	M	S	S
CO4	S	S	H	M	H
CO5	S	H	H	S	M

S-Strong; H-High; M-Medium; L-Low

Programme Code: 02		Diploma in Vedic Mathematics		
Course Code: 24DVM2Z1		Project - Viva voce		
Batch 2024 - 2025	Hours/Cycle 2	Total Hours 30	Credits 2	Employability/ Skill Development

Course Objectives

1. To study the basic sutras related to the practical problems.
2. To know about the ancient Bharathiya Mathematicians.
3. To share our knowledge to the young buds in the modern society

Course Outcomes

K3 - K5	**CO1**	Applying the basic sutras in modern Problems
	CO2	Analyzing the sub sutras with basic 13 sutras
	CO3	Deducting the unsolved problems in modern techniques
	CO4	Adopting to the ancient solving technique
	CO5	Discussing an exact result in minimum time

Students can opt anyone of the following to complete the course

1. Contributions of Indian Mathematicians

2. Ancient Bharatiya Mathematical Work (Leelavati, Sulba Sutra, Ganita Kaumudi etc., or any other Ancient Indian Text)

3. The manuscript may be a review article based upon personal observations or research article giving some new idea.

4. Candidates may deliver a lecture in any educational institute (School or College) on Vedic Mathematics and feedback from head of the institute may be submitted. Feedback must be on letter head of the institute duly signed and stamped.

Distribution of marks for option 1-3

Distribution of Marks in ESE

Dissertation   :   60

Viva voce   :   20

                    Total   80

Internal

Project Review   :   15

Attendance   :   5

          Total   20

To be awarded jointly by the internal and external examiners

Distribution of marks for option 4

For producing the feedback letter from the head of the institution duly signed and stamped will be awarded 100 marks by the Internal Examiner.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	S	H	M	S	H
CO2	H	M	H	M	S
CO3	S	H	M	H	M
CO4	S	S	H	H	M
CO5	M	S	S	H	S

S - Strong;   **H**-High;   **M**-Medium;   **L**-Low