

Syllabus

For

Certificate Course

in

VEDIC MATHEMATICS

Session 2023-2024 onwards



Central University of Punjab

Bathinda, Punjab

CENTRAL UNIVERSITY OF PUNJAB, BATHINDA

Department of Mathematics and Statistics

S. No.	Headings	Particulars		
1.	Title of the Course	Certificate Course in Vedic Mathematics (CCVM)		
2.	Eligibility for Admission	Candidate who passed standard 10+2 Examination from any stream		
3.	Intake Capacity	50 students per batch		
4.	Passing Marks	The candidate must obtain 40% marks in both Internal and End Semester Examination		
5.	Selection	First Come First Served Basis		
6.	Credits	20 credits		
7.	Duration	6 months (July to December; January to June)		
8.	Number of Lectures	15 hours/Credit		
9.	Fee Structure	3510/-	9000/-	9600/-
		CUPB Students	Alumni of CUPB	Others
10.	Teaching Faculty Qualification	He / She must possess skill sets in Vedic Mathematics		
11.	Remuneration of Teacher	As per University / Government Guidelines		
12.	Level	Certificate		
13.	Teaching mode	Online / Offline		
14.	Status	To be implemented from academic year 2022-23		
15.	Evaluation Exam pattern	50% Internal + 50% End Semester Examination Internal assessment of 25 marks Midterm examination of 25 Marks And 50 marks End Semester Examination Total marks = 100 Separate heads of passing. Minimum 20 / 50 needed for passing the Internal Assessment Minimum 20/50 needed for passing the End Semester Examination.		

Central University of Punjab, Bathinda

Department of Mathematics and Statistics

Ordinance, Regulations and Syllabus related to the

CERTIFICATE COURSE IN VEDIC MATHEMATICS

Ordinance: Title of Course

'Certificate Course in Vedic Mathematics'

Ordinance: Eligibility

A candidate for being eligible at admission to the Certificate Course in Vedic Mathematics must have passed XII standard examination from any stream from any State/Central Board of School Education.

Regulation: Duration of Course

6 months (July to December; January to June)

Regulation: Intake Capacity:

50 candidates

Teachers: He / She must possess skill sets in Vedic Mathematics

Regulation: Examination

50% Internal + 50% End Semester Examination

Internal assessment of 25 marks

Midterm examination of 25 Marks

And 50 marks End Semester Examination

Total marks = 100

Regulation: Standards of Passing of Examination

The candidate must obtain 40% marks at both Internal and End Semester Examination

Separate heads of passing.

Minimum 20 / 50 needed for passing the Internal Assessment

Minimum 20/50 needed for passing the End Semester Examination.

Regulation: Pedagogy (Instructional System)

Online/Offline

Certificate Course in Vedic Mathematics:

Preamble:

Vedic Mathematics is a super-fast way of calculation whereby you can do supposedly complex calculations like 996×998 in less than five seconds flat. It is highly beneficial for school and college students and students who are appearing for their entrance examinations.

Vedic Mathematics is far more systematic, simplified, and unified than the conventional system. It is a mental tool for calculation that encourages the development and use of intuition and innovation, while giving the student a lot of flexibility, fun and satisfaction. It means giving them a competitive edge, a way to optimize their performance and gives them an edge in mathematics and logic that will help them to shine in the classroom and beyond.

Therefore, it's direct and easy to implement in schools – a reason behind its enormous popularity among academicians and students. It complements the mathematics curriculum conventionally taught in schools by acting as a powerful checking tool and goes to save precious time in examinations. The methods & techniques are based on the pioneering work of late Swami Shri. Bharati Krishna Tirthaji, Shankracharya of Puri, who established the system from the study of ancient Vedic texts coupled with a profound insight into the natural process of mathematical reasoning.

There are just 16 Sutras or Word Formulae which solve all known mathematical problems in the branches of Arithmetic, Algebra, Geometry and Calculus. They are easy to understand, easy to apply and easy to remember.

Benefits of Vedic Mathematics:

- Eliminates math-phobia.
- Increases speed and accuracy.
- More systematic, simplified, unified & faster than the conventional system.
- Gives the student flexibility, fun and immense satisfaction.
- Provides powerful checking tool.
- Saves precious time in examinations.
- Gives the student a competitive edge.
- Develops Left & Right Sides of the brains by increasing visualization and concentration abilities.
- Knowledge of Vedic Mathematics will be helpful to crack Numerical Aptitude part for students appearing for Competitive Examinations.

Objectives:

- To enable the learners to explore the power of Vedic Mathematics.
- To make learners strong in Numerical Mathematics.
- To enable learners to recognize and understand simple techniques of Arithmetic Calculations.
- To train learners to use the ideas of Vedic Mathematics in daily calculations and make those calculations with accuracy and speed.

Learning Outcomes:

By successfully completing this course, the learner will be able to:

- Perform simple arithmetic calculations with speed and accuracy
- Will be able to generate tables of any number
- To perform products of large numbers quickly
- Develop confidence in calculating square roots and cube roots of integers
- Perform difficult calculations speedily.
- Face Numerical Aptitude part of any Competitive Examination confidently.

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Draft Ordinance, Regulations and Syllabus related to the CERTIFICATE COURSE IN VEDIC MATHEMATICS

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VDM-OE-101	Vedic Arithmetic	L	T	P	C
		4	0	0	4
		Max. Marks : 100			

Internal assessment-25
Mid Sem-25
End Sem-50

Unit-I:

History and Evolution of Vedic Mathematics, Introduction of Basic Vedic Mathematics Techniques in Multiplication (Special Case, Series of 9, Series of 1 etc), Tables etc., Comparison of Standard Methods with Vedic Methods.

Multiplication

1. Ekadhikēn-purven method (multiplication of two numbers of two digits)
2. Eknunen-purven method (multiplication of two numbers of three digits)
3. Urdhvatiragbhyam method (multiplication of two numbers of three digits)
4. Nikhīlam Navtashchramam Dashtaha (multiplication of two numbers of three digits)
5. Combined Operations
6. Multiplications by numbers near base, Verifying answers by use of digital roots.

Unit-II: Division and Divisibility

Part A: Division

1. Nikhīlam Navtashchramam Dashtaha (two digits' divisor)
2. Paravartya Yojyet method (three digits' divisor)

Part B: Divisibility

1. Ekadhikēn-purven method (two digits' divisor)
2. Eknunen-purven method (two digits' divisor)
3. Divisibility tests, Division of numbers near base, Comparison of fractions.

Unit-III:

LCM and HCF

Power and Root

Power: (i) Square (two digit numbers), Applications of Vinculum, Different methods of Squares (General method, Base method, Duplex method etc.)
(ii) Cube (two digit numbers).

Root: (i) Square root (four-digit number) (ii) Cube root (six digit numbers)

General division

Unit-IV: Contribution of Indian Mathematicians (In light of Arithmetic)

1. Aryabhata
2. Brahmagupta
3. Mahaveeracharya
4. Bharti Krishna Tirtha

Recommended Books:

1. Vedic Mathematics, *Motilal Banarsi Das, New Delhi.*
2. Vedic Ganita: Vihangama Drishti-1, *Siksha Sanskriti Uthana Nyasa, New Delhi.*
3. Vedic Ganita Praneta, *Siksha Sanskriti Uthana Nyasa, New Delhi.*
4. Vedic Mathematics: Past, Present and Future, *Siksha Sanskriti Uthana Nyasa, New Delhi.*
5. Leelavati, *Chokhambba Vidya Bhavan, Varanasi.*
6. Bharatiya Mathematicians, *Sharda Sanskrit Sansthan, Varanasi.*

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VDM-OE-102	Vedic Algebra	L	T	P	C
		4	0	0	4
		Max. Marks : 100			

Internal assessment-25
Mid Sem-25
End Sem-50

Unit-I:

Various techniques to carry out basic operations covering Addition, Subtraction, Multiplication, Division, Complements and Bases, Vinculum number, General multiplication (Vertically Crosswise).

Multiplication (Quadratic expressions of single variable)

1. Urdhvatiragbhyam Method
2. Combined Operations

Unit-II: Division and Factorization

1. Division (Divisor: Linear expression of single variable)
2. Factorization (Quadratic expression of single variable)

Unit:-III:

1. LCM and HCF
2. Quadratic Equations, Solution of linear simultaneous equations
3. Use of various Vedic Techniques for answering numerical aptitude questions from Competitive Examinations.

Unit-IV: Contribution of Indian Mathematicians (In light of Algebra)

1. Varahmihir
2. Bhaskaracharya
3. Neelkanth Somayya
4. Bharti Krishna Tirtha

Recommended Books:

1. Vedic Mathematics, *Motilal Banarsi Das, New Delhi.*
2. Vedic Ganita: Vihangama Drishti-1, *Siksha Sanskriti Uthana Nyasa, New Delhi.*
3. Vedic Ganita Praneta, *Siksha Sanskriti Uthana Nyasa, New Delhi.*
4. Vedic Mathematics: Past, Present and Future, *Siksha Sanskriti Uthana Nyasa, New Delhi.*
5. Beejganitam, *Chokhambba Vidya Bhavan, Varanasi.*
6. Bharatiya Mathematicians, *Sharda Sanskrit Sansthan, Varanasi.*

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VDM-OE-103	Vedic Geometry	L	T	P	C
		4	0	0	4
		Max. Marks : 100			

Internal assessment-25
Mid Sem-25
End Sem-50

Unit-I: Concept of Baudhayana Number (BN)

1. BN of an angle
2. Multiplication of a constant in a BN
3. BN of complementary angles
4. BN of sum and difference ($\alpha \pm \beta$) of an angle.
5. BN of half angle

Unit-II: Trigonometry

1. Definitions of trigonometric ratios
2. Trigonometric Identities

Unit-III:

Co-ordinate Geometry: Different forms of straight lines.

Complex Numbers: Multiplication, Division and Square root.

Sulva Sutra: Sulva sutra given by ancient Indian mathematician.

Unit-IV: Contribution of Bharatiya Mathematicians (In the light of Geometry)

1. Bhaskaracharya
2. Madhavan

3. Parmeshvaran
4. Bharti Krishna Tirth
5. Baudhayana

Recommended Books:

1. Vedic Mathematics, *Motilal Banarsi Das, New Delhi.*
2. Vedic Ganita: Vihangama Drishti-1, *Siksha Sanskriti Uthana Nyasa, New Delhi.*
3. Vedic Ganita Praneta, *Siksha Sanskriti Uthana Nyasa, New Delhi.*
4. Vedic Mathematics: Past, Present and Future, *Siksha Sanskriti Uthana Nyasa, New Delhi.*
5. Beejganitam, *Chokhambba Vidya Bhavan, Varanasi.*
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VDM-OE-104	Project work and Seminar	L	T	P	C
		0	0	16	8
		Max. Marks : 100			

Internal assessment-25
Mid Sem-25
End Sem-50

1. Original Manuscript on any one of the following subjects:

- (i) Vedic Mathematics
- (ii) Contribution of Indian Mathematicians
- (iii) Ancient Bharatiya Mathematical Work (Leelavati, Sulba Sutra, Ganita Kaumudi etc. or any other Ancient Indian Text)

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

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