VEDIC MATHEMATICS

Course Code: VED101

CIE Marks: 50

Teaching Hours/Week (L:T:P:S): 3:0:0:0

SEE Marks: 50

Total Hours of Pedagogy: 40

Total Marks: 100

Credits: 03

Exam Hours: 3

Examination Type (SEE): Theory

Course Objectives:

1. To introduce the 16 Sutras and 13 sub-sutras of Vedic Mathematics and their application in arithmetic, algebra, and geometry.
2. To build mental calculation abilities and enable shortcut methods for faster computations.
3. To reduce math anxiety and improve confidence in solving complex problems.
4. To enhance logical reasoning, creativity, and analytical thinking through ancient Indian mathematical wisdom.
5. To equip students with skills useful for competitive exams and STEM disciplines.

Course Outcomes (Course Skill Set):

1. Demonstrate faster computational skills using Vedic Mathematics principles.
2. Apply sutras to simplify problems in multiplication, division, and algebra.
3. Solve problems mentally using digit-sum techniques and base methods.
4. Develop enhanced logical thinking and problem-solving strategies.
5. Utilize Vedic methods for calendar-based problems, cube roots, and competitive test preparation.

Module 1: Introduction and Foundational Techniques (8 Hours)

- History and origin of Vedic Mathematics.
- Importance of Vedic Maths in modern education and competitive exams.
- Basic Sutras: Ekadhikena Purvena, Nikhilam Navatashcaramam Dashatah.
- Mental Addition and Subtraction using complements.
- Practice set: Two-digit mental calculations.

Module 2: Arithmetic Operations and Sutra Applications (8 Hours)

- Multiplication using Urdhva-Tiryagbyham and Paravartya Yojayet.
- Division by 5, 9, 25, 125 – simplified approaches.
- Introduction to vinculum numbers.
- Percentages, fractions, and decimal conversions using base strategies.

- Worksheets and in-class quiz.

Module 3: Algebra and Equation Solving Using Sutras (8 Hours)
- Algebra Sutras: Sopantyadvayamantyam, Puranapuranabyham, etc.
- Solving quadratic and simultaneous equations.
- Digit sum checks for verification.
- Application to real-world word problems.

Module 4: Advanced Calculations and Mathematical Reasoning (8 Hours)
- Cube roots of perfect cubes using Vedic logic.
- Square roots of imperfect squares.
- Duplex method for squaring large numbers.
- Fourth powers and higher exponents.
- Calendar calculations and speed math puzzles.

Module 5: Application in Competitive Exams and Evaluative Practice (8 Hours)
- Vedic shortcuts for aptitude tests.
- Mock Test 1: Arithmetic focus.
- Mock Test 2: Algebra and shortcuts focus.
- Quiz on Sutra-based challenges.
- Final revision and course feedback.

Assessment Details (both CIE and SEE):
The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. CIE includes Assignments (2): 20 Marks, Class Quizzes: 10 Marks, Internal Tests (2): 20 Marks. SEE will be conducted with 2 questions from each module, 5 questions to be answered in total.

Suggested Learning Resources:
Textbooks:

- Tirthaji, Bharati Krishna (1992). Vedic Mathematics. Motilal Banarsidass.
- Rajesh Kumar Thakur (2017). High-Speed Vedic Mathematics. Rupa Publications.

Reference Books:

- Williams, Kenneth (2005). Discover Vedic Mathematics. Inspiration Books.
- Cutler, A., & McShane, R. (1960). The Trachtenberg Speed System of Basic Mathematics.
- Atreya, A. (2012). Vedic Mathematics Made Easy. Jaico Publishing.
- Krishna Prasad K(2025). How to Crack Competitive Examinations using Vedic Mathematics Tricks, Geh Press.

Web Links and e-Learning Resources:

- https://www.vedicmaths.org
- https://www.youtube.com/user/VedicMathsIndia
  https://nptel.ac.in/courses/111/106/111106134/