RBU – RAMDEOBABA UNIVERSITY, NAGPUR, INDIA

INDIAN KNOWLEDGE SYSTEM (IKS)

VEDIC MATHEMATICS

Session 2024 - 2025

SYLLABUS - BASIC, ADVANCED AND APPLIED VEDIC MATHEMATICS

- **Credit distribution, Eligibility and Pre-requisites of the Course:**

Name of the Course	VEDIC MATHEMATICS
Name of the Faculty	INDIAN KNOWLEDGE SYSTEM (IKS)
Examination Type	Semester
Course Duration	01 Year (Two Semesters)
Total Hours	45 + 45 = 90 Hours
Total Credits	
Eligibility	The candidates must have Passed XII State Board examination or equivalent or higher. They should have sound knowledge of Basic Mathematics.
Total Marks	100 (Semester I) + 100 (Semester II) Examination: 80 + 80 Marks Internal Assessment: 20 + 20 Marks
Mode of Teaching	Hybrid
Mode of Examination	

- **Learning Objectives:**

The Learning Objectives of the course are

- ✓ Foster love for math and remove its fear through Vedic Mathematics
- ✓ Enhance computation skills in students through Vedic Mathematics ·
- ✓ Develop logical and analytical thinking
- ✓ Promote joyful learning of mathematics
- ✓ Discuss the rich heritage of mathematical of Ancient India
- ✓ Apply Vedic Mathematics in different field such as Finance, Engineering, Research, etc.
- ✓ Develop interest and capable for solving problems and challenges of Future in varied field

- **Learning outcomes:**

The Learning Outcomes of the course are

- ✓ Overcome the fear of math

✓ Improved critical thinking

✓ Familiarity with the mathematical underpinnings and techniques

✓ Ability to do basic math faster and with ease.

✓ Appreciate the Mathematical advancements of Ancient India.

✓ Practical use of Vedic mathematics at advance level in the field of Science and Technology and Commerce in Current modern world.

Syllabus (Course Curriculum):

The Vedic Mathematics course is designed to cater to students at different academic levels. The course is divided into different modules:

- **Basic Vedic Mathematics** – Suitable for beginners and those new to the concept. Designed for students with a basic understanding of Vedic Mathematics, aiming to deepen their knowledge.
- **Advanced Vedic Mathematics** – Tailored for students who are looking to master Vedic Mathematics techniques and apply them in complex problem-solving scenarios.
- **Application of Vedic Mathematics in Modern Fields:** Vedic Mathematics offers a range of benefits tailored to various professional fields, including computer science, data science, engineering, and management.
- **With Problem - solving Sessions:** Practical sessions and exercises to enhance learning.

Vedic Mathematics offers a holistic approach to improving both personal and professional life through enhanced cognitive abilities, increased confidence, and superior analytical skills. Whether you're a student, a professional, or someone looking to sharpen your mind, the benefits of Vedic Mathematics are vast and impactful.

Part A	SEMESTER I	(Total: 45 Hours)

Module – I

(Basic Vedic Mathematics)   15 Hours

- **Introduction to Vedic Maths:** History of Vedic Maths and its Features
- **Vedic Formulae**: Sutras and Upsutras
- **Vinculum Number Conversion**
- **Vedic Addition, Subtraction**
- **Answer Checking Method**
- **Multiplication methods**
- **Multiplication Tables**

Module – II

(Basic to Intermediate Vedic Mathematics)   15 Hours

- **Division**
- **Squares**
- **Square - Roots**
- **Cubes**
- **Cube - Roots**
- **Ancient Mathematician and their notable work gifted to the World**

Module – III

(Intermediate to Advanced Vedic Mathematics)   15 Hours

- **Algebra**
- **Multiplication of Polynomials**
- **Highest Common Factor of Polynomials**
- **Division of Polynomials**
- **Linear equations one variable**
- **Linear equations two variables**
- **Quadratic equation**

Part B   SEMESTER II   (Total: 45 Hours)

Module – IV

(Advanced Vedic Mathematics)   15 Hours

- **Beginning of Mathematics and Applications of Mathematics before Vedic Civilization**
- **Coordinate geometry**
- **Vedic Geometry**
- **Triplets**
- **Trigonometry**

Module – V

(Advanced to Applied Vedic Mathematics)   15 Hours

- **Determinant**
- **Calculus**
  - **Differentiation**
  - **Integration**
  - **Inverse function**

- **Factorisation of cubic Polynomial**
- **Harder Factor**

Module – VI

(Applied Vedic Mathematics)   15 Hours

- **Applications of Vedic Mathematics for Competitive Examinations**
- **Applied Advanced Multiplier**
- **Algorithm**
- **Vedic Coding**
- **Pie**
- **Cryptography**
- **Numerals**

Practical:

- ✓ **Contributions of Ancient Indian Mathematician – Seminar**
- ✓ **Research Paper on Indian Mathematics and Mathematician**

Books:

Text Book:

- **Bharati Krishna Tirthaji Maharaja,** (1994). Vedic Mathematics. Delhi: **Motilal Banarasidas**

Reference Books:

- Bhartiya Ganiti, (Marathi Edition) by Dr. Anant W. Vyawahare, Nachiket Prakashan, Nagpur
- Leelavati, Chokhambba Vidya Bhavan, Varanasi.
- Bharatiya Mathematicians, Sharda Sanskrit Sansthan, Varanasi.
- Bidder G.P. (1856) On Mental Calculation. Minutes of Proceedings, Institution of Civil Engineers (1855-56), 15, 251-280
- Beejganitam, Chokhambba Vidya Bhavan, Varanasi.
- 'Maths Sutra: The art of vedic speed calculation', George Gratzer, 2007
- Scripture E.W. (1891) American Journal of Psychology. Vol. IV 1-59
- Mitchell F.D. (1907) American Journal of Psychology. Vol. XVIII 61-143
- Aitken A.C. (1954) The Art of Mental Calculation: With Demonstrations. Transactions of the Society of Engineers. 45, 295-309
- Dow A. (1991) A Unified Approach to Developing Intuition in Mathematics, Scientific Research on the Transcendental Meditation and TM-Sidhi Program Vol 5, 3386-3398

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Date: 24/08/2024