

UNIVERSITY OF DELHI

CNC-II/093/1(23)/2022-23/

Dated: 21.03.2023

NOTIFICATION

Sub: Amendment to Ordinance V

Following addition be made to Appendix-II-A to the Ordinance V (2-A) of the Ordinances of the University;

Add the following:

**Value Addition Course (VACs)
Under UGCF-2022 listed under Appendix-II -A to the Ordinance V (2-A) of the Ordinances of the University
(With effect from academic year 2022-23)**

The following two courses are being added under the Pool of Value Addition Courses, which are in progression of the courses (i) Vedic Mathematics-I and (ii) National Cadet Corps-I respectively :

1. Vedic Mathematics-II
2. National Cadet Corps-II

VAC :Vedic Mathematics - II

| Course Title and Code | Credits | Credit Distribution of the Course | | | Eligibility Criteria | Prerequisite of the Course |
|-----------------------|---------|-----------------------------------|----------|--------------------|--------------------------------|----------------------------|
| | | Lecture | Tutorial | Practical/Practise | | |
| Vedic Mathematics- II | 02 | 1 | 0 | 1 | Pass in Class 12 th | VAC-Vedic Mathematics -I |

Course Objectives:

- Foster the love for mathematics by creating a positive attitude through Vedic and Ancient Indian Mathematics
- Help students appreciate ancient Indian Mathematics and its contribution to the world.
- Enhance computational proficiency by involving procedures in Linear and Matrix Algebra

- Improve geometrical thinking by understanding the basic tenets of geometry such as construction of line segments, angles, triangles and circles as used in Ancient India
- Develop conceptual knowledge of mathematical concepts
- Appreciate the need of conceptual knowledge over procedural processes

Learning Outcomes:

After completion of the course, students shall be able to

- think critically
- Find mathematical solution of algebraic expressions
- Solve system of linear equations and matrices faster and with ease.
- Appreciate the Mathematical advancements of Ancient India.

Syllabus of Vedic Mathematics - II

| | Sessions/Lectures |
|---|-------------------|
| Unit I: Contribution of Indian Mathematicians | |
| <ul style="list-style-type: none"> ● Varahmihir ● Brahmagupta ● Srinivasa Ramanujan ● Neelkanth Somayya ● Bharti Krishna Tirtha | 3 |
| Unit II: Easy Solution of linear equations | |
| <ul style="list-style-type: none"> ● Introduction of simple equation ● Solutions of simple equations ● Solutions of linear equations in two variables ● Practical application of linear equations in two variables | 4 |
| Unit III: High Speed Matrix Algebra | |
| <ul style="list-style-type: none"> ● Introduction and history of Matrices and Determinants ● Matrices and Determinants of third order ● Inverse of Matrices | 4 |
| Unit IV: Vedic Geometry | |
| <ul style="list-style-type: none"> ● Different forms of straight lines ● The Triangle ● The Cyclic Quadrilateral, Squares, and the Circle ● Geometrical constructions (such as <i>Altars</i>) ● Transformation of simple shapes ● Kalpa Sutras-<i>Srautha Sutras</i> and <i>Sulbha Sutras</i> | 4 |

Note: Some of the theoretical concepts would be dealt with during practice hours.

Practical/ Practice Component

(15 sessions of 2 hours each= 30 hours)

The students are expected to demonstrate the application of Vedic Maths through various *Sutras*

- Conduct workshops under the supervision of the course teacher to spread awareness on the utility of Vedic Mathematics.
- Students may share their experience with the class teacher in the form of audio-video presentations of 15 minutes.
- If required, students can share their experiences in the form of a Project Report.
- Any other Practical/Practice as decided from time to time

Essential Readings

- Vedic Mathematics, Swami Bharati Krishna Trithaji, *Motilal Banarsidas, New Delhi.*
- The Essential of Vedic Mathematics, Rajesh Kumar Thakur, *Rupa Publications, New Delhi*
- Vedic Mathematics For All Ages, Vandana Singhal, *Motilal Banarsidas Publishers.*
- Elements of Vedic Mathematics, Udayan S. Patankar, Sunil M. Patankar, TTU Press.
- Vedic Mathematics: The Problem Solver, Ronak Bajaj, *Black Rose Publications.*
- Vedic Geometry Course, S. K. Kapoor, *Lotus Press*
- Gardner, Robert and J.F. Staal. *Altar of Fire.* Documentary. The Film Study Center at Harvard University, 1976

Suggested Readings

- A Modern Introduction to Ancient Indian Mathematics, T S Bhanumurthy, *Wiley Eastern Limited, New Delhi*
- Magical World of Mathematics, VG Unkalkar, *Vandana publishers, Bangalore*
- Vedic Mathematics - Modern Research Methods, Tiwari P., *Cumpus Books International*
- Learning Vedic Mathematics, S. K. Kapoor, *Lotus Press Publications*
- Vedic Mathematics Made Easy, DahavalBathia, *Jaico Publishing, New Delhi*
- Vedic Mathematics New Horizons Advance Lessons, S. K. Kapoor, *Lotus Press*

Examination scheme and mode: Subject to directions from the Examination Branch/University of Delhi from time to time.