# ARSD College, University of Delhi

## Model Course Handout/Lesson Plan

| Semester | Course Code | Course Title | Lecture (L) | Tutorial (T) | Practical (P) | Credit (C) |
|---|---|---|---|---|---|---|
| I | VAC-I | Vedic Mathematics-I | 1 | 0 | 1 | 2 |
| Teacher/Instructor(s) | | Dr. Anshul Gopal | | | | |
| Session | | 2022-23 | | | | |

**Course Objective:** Conduct workshops under the supervision of the course teacher to spread awareness on the utility of Vedic Mathematics

The Learning Objectives of the course are:
1) Foster love for maths and remove its fear through Vedic Mathematics
2) Enhance computation skills in students through Vedic Mathematics ·
3) Develop logical and analytical thinking
4) Promote joyful learning of mathematics
5) Discuss the rich heritage of mathematical temper of Ancient India

**Course Learning Outcomes:**

The Learning Outcomes of the course are
1) Overcome the fear of maths
2) Improved critical thinking
3) Familiarity with the mathematical underpinnings and techniques
4) Ability to do basic maths faster and with ease.
5) Appreciate the Mathematical advancements of Ancient India.

**Lesson Plan:**

| Unit No. | Learning Objectives | Lecture No. | Topics to be covered |
|---|---|---|---|
| I | **Vedic Maths- High Speed Addition and Subtraction** | 1 | Vedic Maths: History of Vedic Maths and its Features |
| | | 2 | Vedic Maths formulae: Sutras and Upsutras |
| | | 3 | Addition in Vedic Maths: Without carrying, Dot Method |
| | | 4 | Subtraction in Vedic Maths: Nikhilam Navatashcaramam Dashatah |
| | | | Fraction -Addition and Subtraction |

| | | 5 | Revision and Exercise Questions |
|---|---|---|---|
| II | **Vedic Maths-Miracle Multiplication and Excellent Division** | 6 | Multiplication in Vedic Maths: Base Method (any two numbers upto three digits) |
| | | 7 | Multiplication by Urdhva Tiryak Sutra |
| | | 8 | Miracle multiplication: Any three-digit number by series of l's and 9's |
| | | 9 | Division by Urdhva Tiryak Sutra (Vinculum method) |
| | | | Discussion of Doubts |
| III | **Vedic Maths-Lightening Squares and Rapid Cubes** | 10 | Squares of any two-digit numbers: Base method |
| | | | Square of numbers ending in 5: Ekadhikena Purvena Sutra |
| | | 11 | Easy square roots: Dwandwa Yoga (duplex) Sutra |
| | | | Square root of 2: Baudhayana Shulbasutra |
| | | 12 | Cubing: Yavadunam Sutra |
| | | | Revision |
| IV | **Vedic Maths-Enlighten Algebra and Geometry** | 13 | Factoring Quadratic equation: Anurupyena, Adyamadyenantyamanty Sutra |
| | | | Concept of Baudhayana (Pythagoras) Theorem |
| | | 14 | Circling a square: Baudhayana Shulbasutra |
| | | | Concept of pi: Baudhayana Shulbasutra |
| | | | Concept angle ($\theta$) $0^o$, $30^0$, $45^0$, $60^0$ and $90^0$: Baudhayana number |
| | | 15 | Revision and Test |

**Practical Plan**

| Practical No | Practical to be covered |
|---|---|
| 1 | The students are expected to demonstrate the application of Vedic Maths: Sutra and Upsutra. |
| 2 | Conduct workshops under the supervision of the course teacher to spread awareness on the utility of Vedic Mathematics. |

| 3 | Students are required to visit nearby retail shops/local vendors to purchase stationery/vegetables/bread and butter and use tricks of Vedic maths of addition and subtraction to calculate the amount to pay and receive the difference. |
|---|---|
| 4 | Students may share their experience with the class teacher in the form of audio video presentations of 15 minutes. |
| 5 | Students can share their experiences in the form of a Project Report. |

**Evaluation Scheme:**

| No. | Component | Duration | Marks |
|---|---|---|---|
| 1. | Internal Assessment<br>⬜ Quiz<br>⬜ Class Test<br>⬜ Attendance<br>⬜ Assignment | | 25 |
| 2 | Practical Examination | | 50 |
| 3. | End Semester Examination | 1 hr | 25 |

| Details of the Course | | |
|---|---|---|
| **Unit** | **Contents** | **Contact Hours** |
| 1 | **Vedic Maths- High Speed Addition and Subtraction**<br>Vedic Maths: History of Vedic Maths and its Features, Vedic Maths formulae: Sutras and Upsutras, Addition in Vedic Maths: Without carrying, Dot Method, Subtraction in Vedic Maths: Nikhilam Navatashcaramam Dashatah, Fraction -Addition and Subtraction. | 5 |
| 2 | **Vedic Maths- Miracle Multiplication and Excellent Division**<br>Multiplication in Vedic Maths: Base Method (any two numbers upto three digits), Multiplication by Urdhva Tiryak Sutra, Miracle multiplication: Any three-digit number by series of I's and 9's, Division by Urdhva Tiryak Sutra (Vinculum method). | 4 |
| 3 | **Vedic Maths-Lightening Squares and Rapid Cubes**<br>Squares of any two-digit numbers: Base method, Square of numbers ending in 5: Ekadhikena Purvena Sutra, Easy square roots: Dwandwa Yoga (duplex) Sutra, Square root of 2: Baudhayana Shulbasutra, Cubing: Yavadunam Sutra. | 3 |
| 4 | **Vedic Maths-Enlighten Algebra and Geometry**<br>Factoring Quadratic equation: Anurupyena, Adyamadyenantyamanty Sutra, Concept of Baudhayana (Pythagoras) Theorem, Circling a square: Baudhayana Shulbasutra, Concept of pi: Baudhayana Shulbasutra, Concept angle ($\theta$) $0^o$, $30^0$, $45^0$, $60^0$ and $90^0$: Baudhayana number. | 3 |

|  |  | Total | 15 |
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**Suggested Books:**

| Sl. No. | Name of Authors/Books/Publishers | Year of Publication/Reprint |
| --- | --- | --- |
| 1 | The Essential of Vedic Mathematics, Rajesh Kumar Thakur, Rupa Publications, New Delhi | 2019 |
| 2 | Vedic Mathematics Made Easy, Dahaval Bathia, Jaico Publishing, New Delhi | 2011 |
| 3 | Vedic Mathematics: Sixteen Simple Mathematical formulae from the Vedas, Jagadguru Swami Sri Bharati Krishna Trithaji, Motilal Banarasidas, New Delhi | 2015 |
| 4 | Learn Vedic Speed Mathematics Systematically, Chaitnaya A. Patil | 2018 |
| **Mode of Evaluation:** | Internal Assessment / End Semester Exam / Practical | |

**Progress Report:**

| Unit No. | Learning Objectives | Lecture No. | Topics to be covered |
| --- | --- | --- | --- |
| I | **Vedic Maths-High Speed Addition and Subtraction** |  | Vedic Maths: History of Vedic Maths and its Features |
|  |  |  | Vedic Maths formulae: Sutras and Upsutras |
|  |  |  | Addition in Vedic Maths: Without carrying, Dot Method |
|  |  |  | Subtraction in Vedic Maths: Nikhilam Navatashcaramam Dashatah |
|  |  |  | Fraction -Addition and Subtraction |
|  |  |  | Revision and Exercise Questions |
| II | **Vedic Maths-Miracle Multiplication and Excellent Division** |  | Multiplication in Vedic Maths: Base Method (any two numbers upto three digits) |
|  |  |  | Multiplication by Urdhva Tiryak Sutra |
|  |  |  | Miracle multiplication: Any three-digit number by series of I's and 9's |

| | | | Division by Urdhva Tiryak Sutra (Vinculum method) |
|---|---|---|---|
| | | | Discussion of Doubts |
| III | **Vedic Maths-Lightening Squares and Rapid Cubes** | | Squares of any two-digit numbers: Base method |
| | | | Square of numbers ending in 5: Ekadhikena Purvena Sutra |
| | | | Easy square roots: Dwandwa Yoga (duplex) Sutra |
| | | | Square root of 2: Baudhayana Shulbasutra |
| | | | Cubing: Yavadunam Sutra |
| | | | Revision |
| IV | **Vedic Maths-Enlighten Algebra and Geometry** | | Factoring Quadratic equation: Anurupyena, Adyamadyenantyamanty Sutra |
| | | | Concept of Baudhayana (Pythagoras) Theorem |
| | | | Circling a square: Baudhayana Shulbasutra |
| | | | Concept of pi: Baudhayana Shulbasutra |
| | | | Concept angle $(\theta)$ $0^o$, $30^0$, $45^0$, $60^0$ and $90^0$: Baudhayana number |
| | | | Revision and Test |