

Govt. Nagarjuna PG College of Science, Raipur (CG)
Certificate Course 2026



CURRICULUM & SYLLABUS

For
Certificate Course
In
Vedic Mathematics

Session: 2025-26

| | | |
|---------------------|-------------------------|-------------------------|
| Approved by: | Board of Studies | Academic Council |
| Date: | 4/4/2026 | |

GOVT. NAGARJUNA PG COLLEGE OF SCIENCE, RAIPUR (CG)

| Program | Eligibility Criteria | Credit | Duration |
|--------------------|--|--------|----------|
| Certificate Course | 10+2 or Equivalent (UG/PG Students) | 2 | 30 Hours |

Course Structure

| Course | T/P | ESE | CIA | M.M. | P.M. | Credit |
|---|-----|-----|-----|------|------|--------|
| Certificate course in Vedic Mathematics | T | 60 | 40 | 100 | 40 | 2 |

Scheme of Evaluation

Total Marks:100

| Components | Marks |
|---------------------|-------|
| Internal Assessment | 40 |
| Final Assessment | 60 |
| Total | 100 |

Internal Assessment(40 Marks)

- ❖ Assignment / Practical Work-20 Marks
- ❖ Quiz / Test-10 Marks
- ❖ Participation / Attendance-10 Marks

Final Assessment (60 Marks)

- ❖ Written Examination

OR

- ❖ Project Report+Viva Voce

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Dr. V. S. K. Nagarjuna
4/4/26
Dr. B. S. Dipathi
04/04/26
Dr. G. S. S. S.
8/4/26
Dr. Ashok

OR

❖ Practicle Demonstration (for skill-based courses)

Pattern of the Final Assessment-Written Examination OR Project Report+Viva Voce OR

Practicle Demonstration will be as per the attached (Annexure-I).

Passing Criteria

❖ Minimum 40% in internal Assessment

❖ Minimum 40% in Final Assessment

❖ Minimum 40% in Aggregate

Grades shall be awarded as per the grading norms of the Autonomous College.

| Percentage | Grade |
|-------------|-------|
| 75% & above | A |
| 60-74% | B |
| 50-59% | C |
| 40-49% | D |
| Below 40% | Fail |

Detailed Syllabus:

| Unit No. | Topics | No. of Lectures | LO |
|----------|---|-----------------|--|
| I | Introduction & Fundamentals: Brief History and Origin of Vedic Mathematics <ul style="list-style-type: none">• Concept of Sutras and Sub-Sutras• Overview of 16 Sutras and 13 Sub-Sutras• Introduction to basic techniques and mental calculation• Understanding the concept of Bijank | 6 | Students will understand the foundation and philosophy behind Vedic Mathematics. |
| II | Basic Arithmetic Operations using Sutras: Addition Techniques <ul style="list-style-type: none">• Ekadhikena Purvena• Sankalana-Vyavakalanabhyam• Puranapurabhyam• Anurupyena Subtraction Techniques <ul style="list-style-type: none">• Sankalana-Vyavakalanabhyam• Nikhilam Navatashcaramam Dashatah• Puranapurabhyam | 10 | Students will perform fast calculations mentally using Vedic Sutras. |

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| | | | |
|-----|--|---|--|
| | <p>Multiplication Techniques</p> <ul style="list-style-type: none"> • Urdhva–Tiryagbhyam (Vertically & Crosswise) • Nikhilam Navatashcaramam Dashatah • Anurupyena • Ekadhikena Purvena <p>Division Techniques</p> <ul style="list-style-type: none"> • Paravartya Yojayet • Nikhilam Method • Sankalana–Vyavakalanabhyam | | |
| III | <p>Advanced Calculations</p> <p>Squares and Square Roots</p> <ul style="list-style-type: none"> • Urdhva–Tiryagbhyam method for squaring • Ekadhikena Purvena (numbers ending in 5) • Square root using Vilokanam (observation method) <p>Cubes and Cube Roots</p> <ul style="list-style-type: none"> • Cube calculation using Urdhva–Tiryagbhyam • Concept of $(a + b)^2$, $(a + b)^3$ mentally • Cube root using Vilokanam <ul style="list-style-type: none"> ○ Last digit pattern ○ Nearest perfect cube ○ Digit grouping <p>Concept of</p> <ul style="list-style-type: none"> • Rinank (Viniculum) (negative numbers concept) <ul style="list-style-type: none"> ○ Converting subtraction into addition ○ Simplifying large calculations | 8 | Students will master higher-order calculations quickly and accurately. |
| IV | <p>Applications & Algebraic Concepts</p> <p>Bijaganita (Algebra)</p> <ul style="list-style-type: none"> • Meaning and introduction (use of variables x, y) • Simple algebraic operations using Vedic methods <p>Meru Prastara</p> <ul style="list-style-type: none"> • Concept of triangular arrangement • Relation to binomial expansion • Pattern recognition and applications <p>Practical Applications</p> <ul style="list-style-type: none"> • Speed math tricks for competitive exams <p>Real-life calculation techniques</p> | 6 | Students will master higher-order calculations quickly and accurately. |

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Books Recommended:

1. Bharati Krsna Tirthaji Maharaja, Vedic Mathematics, Motilal Banarsidass Publishers, 1965.
2. Dr. S. K. Kapoor, Vedic Mathematics For All, Locus Press,

Reference Books:

1. Dhaval Bathia, Vedic Mathematics Made Easy, Jaico Publishing House 2006.
2. Rajesh Kumar Thakur, The Essentials of Vedic Mathematics, Rupa Publications, 2013.
3. Atul Gupta, The Essentials of Vedic Mathematics, Jaico Publishing House, 2004.
4. Pankaj Sharma & Neetu Sharma, Vedic Math Demystified: Math Made Simple, CreateSpace Independent Publishing Platform, 2012.
5. T. S. Bhanu Murthy, A Modern Introduction to Ancient Indian Mathematics, New Age International Publishers, 1992.
6. Lammatha Srinivasa Rao, Simplifications Made Easy with Vedic Mathematics, Vijaya Narasimha Publications, 2013.
7. Mahesh Maheshwari, Vedic Mathematics, Taxmann Publications Pvt. Ltd., 2007.
8. T. Satyanarayana Raju, Vedic Mathematics, T. Satyanarayana Raju, 1996.
9. Daljeet Bharucha, Vedic Mathematics, Edukeen Publisher, 2023.



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Regulations for 2-Credit Certificate Courses

1. Short Title and Commencement

- 1.1 These regulations shall be called the Regulations for 2-Credit Certificate Courses of the Autonomous College.
- 1.2 They shall come into force from the date of approval by the Academic Council of the College.

2. Statutory Framework

These courses shall be governed by:

- ❖ The provisions of autonomous status granted by the affiliating University.
- ❖ Guidelines issued by the University Grants Commission.
- ❖ Academic reforms aligned with the National Education Policy-2020.
- ❖ Rules of the State Government / Directorate of Higher Education.
- ❖ Internal academic regulations of the Autonomous College.

3. Nature and Scope of the Course

- 3.1 A 2-Credit Certificate Course shall be a short-term academic or skill-oriented programme carrying **2 Credits (30 Contact Hours)**.
- 3.2 The course may be:
 - ❖ Skill-based
 - ❖ Value-added
 - ❖ Add-on
 - ❖ Interdisciplinary
 - ❖ Industry-linked
 - ❖ Community-oriented
- 3.3 The course may be offered:
 - ❖ To regular students of the college
 - ❖ To external participants (subject to approval)
- 3.4 Such courses shall not replace core curriculum credits unless specifically approved by the Academic Council.

4. Credit Structure and Duration

- ❖ Total Credits: **2 Credits**
- ❖ 1 Credit = **15 Contact Hours**
- ❖ Total Contact Hours: **30 Hours**
- ❖ Duration: **4-8 Weeks**



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- ❖ Mode: Offline / Online / Blended

Practical components may be included within the 30-hours structure.

5. Objectives

The course shall aim to:

- ❖ Enhance academic enrichment beyond regular curriculum
- ❖ Develop employability and entrepreneurial skills
- ❖ Promote experiential and interdisciplinary learning
- ❖ Strengthen community engagement (where applicable)

6. Eligibility Criteria

6.1 The courses are open to:

- ❖ Undergraduate Students
- ❖ Postgraduate Students
- ❖ External Participants (subject to infrastructure capacity)

6.2 Minimum qualification:

- ❖ 10+2 or equivalent (for general courses)
- ❖ As prescribed by the concerned Department (for advanced courses)

7. Proposal and Approval Mechanism

7.1 The concerned Department shall submit a detailed proposal including:

- ❖ Title and Rationale
- ❖ Course Objectives & Learning Outcomes
- ❖ Detailed Syllabus (30 Hours)
- ❖ Scheme of Evaluation
- ❖ Faculty Resource Details
- ❖ Financial Implications (if any)
- ❖ Infrastructure Requirements

7.2 The proposal shall be placed before:

- ❖ Departmental Committee
- ❖ Board of Studies
- ❖ Academic Council

7.3 Financial approval, if required, shall be obtained from the Governing Body.

8. Admission Procedure

- ❖ Submission of application form
- ❖ Payment of prescribed fee (if applicable)
- ❖ Approval by Course Coordinator and Principal

Priority may be given to enrolled students of the college.



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9. **Fee Structure**

9.1 Fees shall be determined by the academic committee of the college in compliance with State Government norms.

9.2 Fee concession or waiver may be provided for:

- ❖ SC/ST/OBC/EWS students
- ❖ Differently-abled students
- ❖ Economically weaker sections

9.3 Fees once paid shall ordinarily not be refundable.

10. **Attendance Requirements**

- ❖ Minimum 75% attendance is mandatory.
- ❖ Relaxation up to 10% may be granted by the Principal for genuine reasons.
- ❖ Students failing to meet attendance criteria shall not be eligible for final assessment.

11. **Scheme of Evaluation**

Total Marks: 100

| Components | Marks |
|---------------------|------------|
| Internal Assessment | 40 |
| Final Assessment | 60 |
| Total | 100 |

Internal Assessment (40 Marks)

- ❖ Assignment / Practical Work – 20 Marks
- ❖ Quiz / Test – 10 Marks
- ❖ Participation / Attendance – 10 Marks

Final Assessment (60 Marks)

- ❖ Written Examination

OR

- ❖ Project Report + Viva Voce

OR

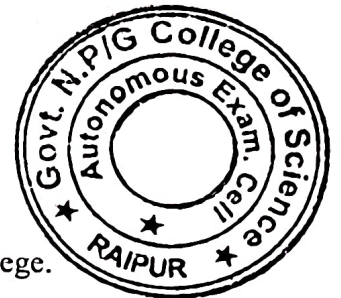
- ❖ Practical Demonstration (for skill-based courses)

Pattern of the Final Assessment - Written Examination OR Project Report + Viva Voce OR Practical Demonstration will be as per the attached (Annexure-I).

12. **Passing Criteria**

- ❖ Minimum 40% in Internal Assessment
- ❖ Minimum 40% in Final Assessment
- ❖ Minimum 40% in Aggregate

Grades shall be awarded as per the grading norms of the Autonomous College.



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| Percentage | Grade |
|-------------|-------|
| 75% & above | A |
| 60 – 74% | B |
| 50 – 59% | C |
| 40 – 49% | D |
| Below 40% | Fail |

13. Certification

13.1 Certificate shall be issued by the Autonomous College.

13.2 The Certificate shall include:

- ❖ Title of the Course
- ❖ Duration
- ❖ Credits (2 Credits)
- ❖ Grade / Marks
- ❖ Certificate Number

13.3 The Certificate shall be signed by:

- ❖ Course Coordinator
- ❖ Controller of Examinations
- ❖ Principal

The Head of the Department of the concerned subject will be the Course Coordinator

13.4 The template of the certificate will be as per the attached (Annexure –II)

14. Record Maintenance

The Department shall maintain:

- ❖ Attendance Register
- ❖ Assessment Records
- ❖ Question Papers
- ❖ Result Register
- ❖ Financial Statement (if fee-based)
- ❖ Feedback & Course Report

Records shall be preserved for minimum three years for audit and accreditation purposes.

15. Academic Integrity

- ❖ Plagiarism shall be dealt with as per College Research & Examination Policy.
- ❖ Use of unfair means shall attract disciplinary action under College Examination Rules.

16. Quality Assurance and NAAC Compliance

- ❖ Student feedback shall be collected.

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- ❖ Outcome attainment shall be documented.
- ❖ Course report shall be submitted to IQAC for quality review.
- ❖ Documentation shall support accreditation and audit processes.

17. **Audit and Financial Compliance**

- ❖ Accounts related to course fee (if any) shall be subject to internal and statutory audit.
- ❖ Utilization of funds shall comply with Government-aided institutional norms.

18. **Interpretation and Amendment**

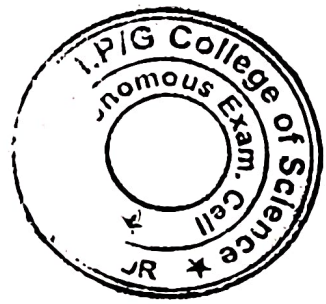
- ❖ Any matter not covered shall be referred to the Principal.
- ❖ The Academic Council may amend these regulations from time to time.

Approved by Committee-

- (i) Malik 25/2/2026
- (ii) Dr. S.G. HUSH. Ghosh 25.02.2026.
- (iii) Dr. Sadhana Jaiswal - Sadhana
- (iv) Deepak Rajwade - Deepak
- (v) Dr. B.R. Verma - B.R. Verma

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A. For written examination Pattern of Question Paper-

Table-I

| No. of Units | Section | No. of Questions | Marks per Question | Marks | Remarks |
|--------------|-----------------------|------------------|----------------------|-----------|---------------------------------|
| 04 | A (MCQs/Objective) | 08 | 01 | 08 | 02 Ques. from each unit. |
| | B (Short Answer Type) | 04 | 05 | 20 | Each Ques. with internal choice |
| | C (Long Answer Type) | 04 | 08 | 32 | Each Ques. with internal choice |
| Total | | 16 | Maximum Marks | 60 | Minimum P.M. 24 |

Table-II

| No. of Units | Section | No. of Questions | Marks per Question | Marks | Remarks |
|--------------|-----------------------|------------------|----------------------|-----------|---------------------------------|
| 05 | A (MCQs/Objective) | 10 | 01 | 10 | 02 Ques. from each unit. |
| | B (Short Answer Type) | 05 | 04 | 20 | Each Ques. with internal choice |
| | C (Long Answer Type) | 05 | 06 | 30 | Each Ques. with internal choice |
| Total | | 20 | Maximum Marks | 60 | Minimum P.M. 24 |

B. For Project Report + Viva Voce-

| Particulars | - | Marks Allotment |
|---------------------------|---|-----------------|
| Project Report | - | 30 |
| Presentation | - | 20 |
| Comprehensive viva-voce | - | 10 |
| Maximum Marks | - | 60 |
| Min. Passing Marks | - | 24 |

C. Practical Demonstration (for skill-based courses)-

| Particulars | - | Marks Allotment |
|---------------------------|---|-----------------|
| Practical Demonstration | - | 30 |
| Written work/Report | - | 20 |
| Comprehensive viva-voce | - | 10 |
| Maximum Marks | - | 60 |
| Min. Passing Marks | - | 24 |



**GOVT. NAGARJUNA PG COLLEGE OF SCIENCE,
RAIPUR (CG)**

Accredited with Grade 'B' by NAAC

(Autonomous College affiliated to Pt. Ravishankar Shukla University, Raipur)

Certificate No.....

CERTIFICATE OF COMPLETION

This is to certify that Mr./Ms.....

Registration Number: has successfully completed the **Certificate**
Course in organized by the
Department of during the period from
..... to

The course comprised **30 Contact Hours** carrying **2 Academic Credits**,
conducted in accordance with the academic regulations of the Autonomous College.

The candidate has fulfilled all requirements of attendance and evaluation
prescribed by the College and has secured **Grade**.....

Date of Issue:.....

Place:



Course Coordinator

Controller of Examination

Principal

Handwritten signatures and dates:
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14/11/22

