

|                      |                        |
|----------------------|------------------------|
| <b>VAC130</b>        | <b>ANCIENT SCIENCE</b> |
| <b>Contact Hours</b> | <b>30 Hours</b>        |
| <b>Prerequisite</b>  | <b>Nil</b>             |

### Course Description

In this course the students shall embark on a journey through the profound wisdom of Indian Knowledge Systems. They shall explore the rich heritage of India's scientific traditions and the intricate interplay of mathematics, physics and chemistry. They shall engage in captivating discussions and immersive learning to uncover the hidden gems of Indian science and connect with the ancient minds that laid the foundation for contemporary scientific thought.

### Course Objectives

Students will be able to:

- Gain proficiency in utilizing Vedic mathematics principles and techniques in contemporary time.
- Comprehend the evolution of Indian astronomy.
- Apply Ancient Knowledge to present day challenges.
- Cultivate the spirit of Interdisciplinary Learning.
- Develop appreciation for cultural and heritage preservation.

### Course Outcomes

On completion of this course, students will be able to:

- CO 1: Undertake the basic Scientific knowledge about the Indian Knowledge Systems.  
CO 2: Exhibit thoughtfulness of ancient Indians and their role in the development in Mathematics, Physics and Chemistry.  
CO 3: Demonstrate knowledge and awareness of Major Chemical Products used in Earliest Civilizations.  
CO 4: Appreciate the contribution of Ancient Indian Scientists in the field of science & technology.  
CO 5: undertake research writings in ancient sciences and Indian Knowledge Systems.

### Course Content

#### Module I

**7 hours**

#### Techniques of Vedic Mathematics

Introduction of Vedic Mathematics, Base and Complements, Instant/Mental Subtraction  
General Subtractions, Magic with 11, Multiplication by 11 – 19, General/Random Multiplication  
, Multiplication with 99999 in less than 04 seconds (Type 1, 2 and 3).

## Module II

7 hours

### Rapid operations using Vedic Mathematics

Multiplication of any number by 111, Multiplication of Numbers near Bases (Type 1, 2 and 3), General Squares/ Finding Squares in One Line, Faster Addition, Mental Addition.

## Module III

8 hours

### Vedic Astronomy

Astronomical Facets of Vedic Era, Works of Rig Veda and Surya Sidhanta, mention of other unknown astronomers of Vedic era, Famous vedic stories linked with Astronomy

## Module IV

### Evolution of Chemistry in Ancient India

8 hours

History of the science of chemistry; Evolution of Chemistry in Ancient India-Vedic period, Indus Valley civilization, Harappan Culture, Mohanjodaro era, Gupta Empire and Rajputs Period; Contribution of Indian ancient Chemists, metallurgists, scholars; Modern Chemistry and its comparison to early chemistry in ancient time.

## Practicum

1. Assignments
2. Group Discussions
3. Presentations
4. Research article writing

## Texbooks

1. Datta, B., & Singh, A. N. (1935). History of Hindu mathematics I, II. *Delhi: Bharatiya Kala Prakashan. (Reprinted (2001)).*
2. Flood, G. (Ed.). (2008). *The blackwell companion to hinduism.* John Wiley & Sons.
3. Mohan, Chander. (2015). The story of astronomy in india.
4. L. Satpathy, Ancient Indian Astronomy and Contributions of Samanta Chandra Sekha, Publisher: Narosa Publishing House, 2003, ISBN 8173194327, 9788173194320
5. G. R. KAYE, (1998), HINDU ASTRONOMY, Publisher : Archaeological survey of india.

## References

[http://www.ms.uky.edu/~sohum/ma330/files/chennai\\_talks/Emch\\_Sridharan\\_Srinivas%20%20Contributions%20ot%20the%20History%20of%20Indian%20Mathematics%20\(2005\).pdf](http://www.ms.uky.edu/~sohum/ma330/files/chennai_talks/Emch_Sridharan_Srinivas%20%20Contributions%20ot%20the%20History%20of%20Indian%20Mathematics%20(2005).pdf)

<https://www.youtube.com/watch?v=T0gCkyKVQUg>

Hayashi, T. (1994). Indian mathematics. *Companion Encyclopedia of the History and Philosophy of the Mathematical Sciences*, 1, 118-130.

[https://www.sanskritimagazine.com/vedic\\_science/surya-siddhanta-the-oldest-book-known-to-man-on-astro&#8230](https://www.sanskritimagazine.com/vedic_science/surya-siddhanta-the-oldest-book-known-to-man-on-astro&#8230)

"A history of Hindu chemistry from the earliest times to the middle of the 16th century, A.D.," by Acharya P. C. Roy;

"Rasa Ratnakararam," by Siddha Nitya Nath, with volumes "Rasa," "Rasayana," and "Ridhi";

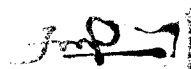
"Rasaratna Samuccaya of 13th, 14th, or 16th century A.D.," by Baghbhatta;

"Ayurveda Prakasa," by Sri Madhava Upadhyaya;

A brief history of indian alchemy covering transitional and tantric periods (Circa 800 A.D. - 1300 A.D.) Momin AL

Inducting Rasayana Therapy in our Daily Routine by Dr. Krishna R.S.

|   | Evaluation Component | Weightage (%) |
|---|----------------------|---------------|
| 1 | Activities           | 20            |
| 2 | Project/Presentation | 20            |
| 3 | Attendance           | 10            |
| 4 | End Term Examination | 50            |



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Sector Road, Gurugram (Haryana)



**K.R. MANGALAM UNIVERSITY**  
E D U C A T I O N F O R L I F E  
(Recognized by UGC and a member of AIU)

Ref.No.:KRMU/Admin./Notice/2022-2023/ 30710 B

Dated: 04<sup>th</sup> August, 2022

**NOTICE**

This is to put for information that School of Basic & Applied Sciences is offering Value-Added Course (VAC) for all interested students during Odd Semester as per the following specifications.

| Course Code | Course Title    | Coordinating Department / School | Duration |
|-------------|-----------------|----------------------------------|----------|
| VAC130      | Ancient Science | SBAS                             | 30 Hrs.  |

*Maximum 100 seats are available for the course.*

**Course Start Date: 05 September 2022**

**Course End Date: 29 December 2022**

All interested students are required to confirm their registration with the Dean-School of Basic & Applied Sciences latest by **24<sup>th</sup> August, 2022**

Registrar  
K R Mangalam University  
Copy to Sohna Road, Gurugram (Haryana)

- Vice Chancellor
- Dean (Academics Affairs)
- Controller of Examinations
- All Deans/ School Coordinators
- All Faculty Members/ Mentors
- Notice Board
- Office Copy

For kind information

Registrar  
K R Mangalam University  
(Haryana)



## ATTENDANCE SHEET

VAC COURSE FOR ACADEMIC YEAR 2022-23

COURSE CODE: VAC130

COURSE TITLE: ANCIENT SCIENCE

| ROLL NO    | NAME         | PROGRAMME             | SEMESTER   | 5-Sep-22 | 8-Sep-22 | 10-Sep-22 | 12-Sep-22 | 15-Sep-22 | 17-Sep-22 | 22-Sep-22 | 22-Sep-22 | 24-Sep-22 | 26-Sep-22 | 29-Sep-22 | 1-Oct-22 |
|------------|--------------|-----------------------|------------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| 2003240001 | ABHAY BARWAL | B.Sc Program          | Semester-V | P        | P        | P         | P         | P         | P         | P         | P         | P         | P         | P         | P        |
| 2013820004 | HARISH YADAV | B.Sc. (H) Agriculture | Semester-V | P        | P        | P         | P         | P         | P         | P         | P         | P         | P         | P         | P        |
| 2003110014 | HEMA YADAV   | B.Sc (H) Math         | Semester-V | P        | P        | P         | P         | A         | P         | P         | P         | P         | P         | A         | P        |

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School of Basic & Applied Sciences (SAS)  
K.R. Mangalam University  
Sohna road, Gurugram  
Haryana 122103

COURSE INCHARGE



ATTENDANCE SHEET

VAC COURSE FOR ACADEMIC YEAR 2022-23

COURSE CODE: VAC130

COURSE TITLE: ANCIENT SCIENCE

| 3-Oct-22 | 6-Oct-22 | 8-Oct-22 | 10-Oct-22 | 13-Oct-22 | 15-Oct-22 | 17-Oct-22 | 20-Oct-22 | 22-Oct-22 | 23-Oct-22 | 24-Oct-22 | 27-Oct-22 | 29-Oct-22 | 31-Oct-22 | 1-Nov-22 |
|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| P        | P        | P        | P         | P         | P         | P         | P         | P         | P         | A         | P         | A         | P         | P        |
| P        | P        | P        | P         | P         | P         | P         | P         | A         | P         | P         | P         | P         | A         | P        |
| P        | A        | P        | P         | P         | P         | P         | P         | P         | P         | A         | P         | P         | P         | P        |



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School of Basic & Applied Science (AS)  
K.R. Mangalam University  
Sohna road, Gurugram  
Haryana 122103  
DEAN



ATTENDANCE SHEET

VAC COURSE FOR ACADEMIC YEAR 2022-23

COURSE CODE: VAC130

COURSE TITLE: ANCIENT SCIENCE

| 5-Nov-22 | 7-Nov-22 | 10-Nov-22 | 12-Nov-22 | 14-Nov-22 | 17-Nov-22 | 19-Nov-22 | 21-Nov-22 | 24-Nov-22 | 26-Nov-22 | 28-Nov-22 | 1-Dec-22 | 3-Dec-22 |
|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|----------|
| P        | P        | P         | P         | P         | P         | A         | P         | P         | P         | P         | P        | P        |
| P        | P        | P         | P         | P         | P         | P         | P         | P         | A         | P         | P        | P        |
| P        | P        | P         | P         | P         | P         | A         | P         | P         | P         | A         | A        | P        |

*[Signature]*

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## ATTENDANCE SHEET

VAC COURSE FOR ACADEMIC YEAR 2022-23

COURSE CODE: VAC130

COURSE TITLE: ANCIENT SCIENCE

| 5-Dec-22 | 8-Dec-22 | 10-Dec-22 | 12-Dec-22 | 15-Dec-22 | 17-Dec-22 | 19-Dec-22 | 22-Dec-22 | 24-Dec-22 | 26-Dec-22 | 29-Dec-22 | Total | Present | Percentage |
|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|---------|------------|
| A        | A        | P         | P         | P         | A         | P         | P         | P         | P         | P         | 51    | 44      | 86.27      |
| P        | P        | A         | P         | P         | A         | P         | P         | P         | A         | P         | 51    | 43      | 84.31      |
| P        | P        | P         | P         | P         | P         | P         | P         | P         | P         | P         | 51    | 44      | 86.27      |

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COURSE INCHARGE

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**K.R. MANGALAM UNIVERSITY**  
**THE COMPLETE WORLD OF EDUCATION**

**VALUE ADDED COURSE (VAC)**

**ACADEMIC YEAR 2022-23**

**COURSE CODE: VAC130**

**COURSE TITLE: ANCIENT SCIENCE**

**COURSE OFFERED BY: SCHOOL OF BASIC AND APPLIED SCIENCES (SBAS)**

**LIST OF STUDENTS COMPLETING THE COURSE**

| S.NO | SESSION | ROLL NO    | NAME         | PROGRAMME             | SEMESTER   | COURSE CODE | COURSE TITLE    | SCHOOL                                  |
|------|---------|------------|--------------|-----------------------|------------|-------------|-----------------|-----------------------------------------|
| 1    | 2022-23 | 2003240001 | ABHAY BARWAL | B.Sc Program          | Semester-V | VAC130      | ANCIENT SCIENCE | SCHOOL OF BASIC & APPLIED SCIENCE(SBAS) |
| 2    | 2022-23 | 2013820004 | HARISH YADAV | B.Sc. (H) Agriculture | Semester-V | VAC130      | ANCIENT SCIENCE | SCHOOL OF AGRICULTURE SCIENCE(SOAS)     |
| 3    | 2022-23 | 2003110004 | HEMA YADAV   | B.Sc (H) Math         | Semester-V | VAC130      | ANCIENT SCIENCE | SCHOOL OF BASIC & APPLIED SCIENCE(SBAS) |

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## **CERTIFICATE OF COMPLETION**

This is to certify that **ABHAY BARWAL**, University Enrolment No **2003240001** of **B.Sc**  
**Program** programme has successfully qualified **VALUE ADDED COURSE VAC130**  
**(ANCIENT SCIENCE)** during Academic Session **2022-23 (Odd Semester)**.

Date: 20.02.2023

*hahajan*

Controller of Examination

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**K. R. MANGALAM UNIVERSITY**

**THE COMPLETE WORLD OF EDUCATION**

**CERTIFICATE OF COMPLETION**

This is to certify that **HARISH YADAV**, University Enrolment No **2013820004** of **B.Sc. (H) Agriculture** programme has successfully qualified **VALUE ADDED COURSE VAC130 (ANCIENT SCIENCE)** during Academic Session **2022-23 (Odd Semester)**.

Date: 20.02.2023

*h. rajan*

Controller of Examination

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**CERTIFICATE OF COMPLETION**

This is to certify that **HEMA YADAV**, University Enrolment No **2003110004** of **B.Sc (H) Math** programme has successfully qualified **VALUE ADDED COURSE VAC130 (ANCIENT SCIENCE)** during Academic Session **2022-23 (Odd Semester)**.

Date: 20.02.2023

*hrajjan*

Controller of Examination

*Jmf-*

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