

**Course: IKS
Ancient Indian Mathematics**

Semester: I	Credits: 2	Subject Code: CIKS12301	Lectures: 30
--------------------	-------------------	--------------------------------	---------------------

Course Outcomes:

At the end of this course, the learner will be able to:

- CO1- Describe the Mathematical discoveries of Ancient India.
- CO2- Correlate ancient mathematical methods with modern Mathematics.
- CO3- Interpret the landmark problems that lead to breakthroughs in mathematical practices.
- CO4- Solve modern day problems using ancient Mathematical tools.

Unit 1: Ancient Indian Mathematicians and their contributions	15
<ul style="list-style-type: none"> ● History of Ancient Indian Mathematics ● Works of great Indian Mathematicians from Bodhyana, the first known geometer of India (800 BC) to Bhaskaracharya II (1114-1185) ● Indian decimal system and the names of place values from ancient times to modern times 	


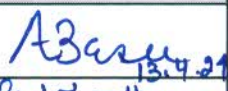
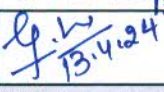
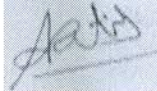
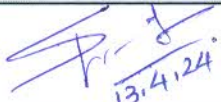
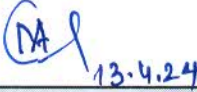

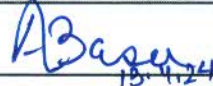
Unit 2: Arithmetic , Geometry and Algebra	15
<ul style="list-style-type: none"> ● Arithmetic (Bhaskaracharya's Bijaganita): The 6 rules for positive and negative numbers, the 6 rules of zeros, the 6 rules for Algebraic numbers, six laws of surds, Equations of the form $ax+c=by$, a device to solve a quadratic equation ● Geometry: Bodhayana Theorem (Pythagoras Theorem), results in Geometry in Bodhayana Shulvasutras ● Aryabhata's Ganitpada: Decimal number systems of Aryabhata and Bhaskaracharya, Areas and volumes, Progressions, Squares and cubes, Rule of three, Names of Days (Aryabhatiya) 	




Board of Studies	Department	Name	Signature
Chairperson (HoD)	Mathematics and Statistics	Dr. Deepa Krishnamurthy	<i>Deepa</i> 13/9/24

Reference Books:

- Ganitpada of Aryabhata I
- Lilavati of Bhaskaracharya
- Bhaskaracharya's Bijaganita and its translation, Prof. S. K. Abhyankar, Bhaskaracharya Pratisthana, Pune
- Aryabhatiya of Aryabhata

Board of Studies	Name	Signature	
Chairperson (HoD)	Dr. Deepa Krishnamurthi	 13.4.24	
Faculty	Prof. Amrita Basu		 13.4.24
Faculty	Mrs. Geetika Bhati		 13.4.24
Subject Expert (Outside SPPU)	Dr. Avinash Patil		
Subject Expert (Outside SPPU)	Dr. Prashant Malavadkar		 13.4.24
VC Nominee (SPPU)	Dr. Manish Agalave	 13.4.24	
Industry Expert	Ms. Amruta Patil		 13.4.24
Alumni	Ms. Janhavi Katkar	 13.4.24	



Board of Studies	Department	Name	Signature
Chairperson (HoD)	Mathematics and Statistics	Dr. Deepa Krishnamurthy	 13/4/24