AC –
Item No. –

As Per NEP 2020

Tolani College of Commerce (Autonomous)

Title of the Course: The Dynamic Evolution of Indian Science and Technology: A Journey through Time (IKS)

Programme: B.Sc. (Information Technology)
Semester V

Syllabus for 2 Credits

From the Academic Year: 2025-2026

Name of the Course: The Dynamic Evolution of Indian Science and Technology: A Journey through Time (IKS).

Sr. No.	Heading	Particulars
1	**Description of the course :**	This course explores into the historical contributions of ancient Indian mathematics and logic, highlighting key innovations like the concept of zero and algorithms. By connecting ancient principles to contemporary technologies, the course emphasizes the lasting impact of Indian thought on future innovations.
2	**Vertical :**	Major
3	**Type :**	Theory
4	**Credit**:	2 credits
5	**Hours Allotted :**	30 Hours
6	**Marks Allotted**:	50 Marks
7	**Course Objectives:** 1) To understand the historical perspective in Indian Mathematics. 2) To examine influence of Indian Knowledge Systems in Modern Computing.	
8	**Course Outcomes**: Learner will be able to : 1) understand how ancient Indian mathematical and logical systems have influenced the development of modern computing and computational theory. 2) apply insights from Indian Knowledge Systems (IKS) to contemporary fields like quantum computing, artificial intelligence, and big data.	

9	**Modules**:-
	Module 1: Ancient Contributions in Mathematics (15 Hours)
	• Foundations of Indian mathematics, Aryabhata's innovations in algorithms, Historical engineering marvels and mathematical systems in ancient India. • Development of binary systems and zero in ancient India, and their significance in modern digital computing. • Indian logic and its role in shaping modern computational theory: From Nyaya philosophy to the development of formal systems and programming languages.
	Module 2: Evolution of Indian Logic in Modern Computing (15 Hours)
	• Introduction of computers in India, IT outsourcing in the 1990s, role of Indian engineers in the global IT workforce, rise of India's IT sector: Key drivers of growth (1990s liberalization, Y2K crisis, outsourcing boom). • Turing Machines and Computability Theory: Connections between ancient Indian notions of computation and algorithmic logic. • How Indian Knowledge Systems (IKS) can influence future technologies like quantum computing, big data, and biotechnology.
10	**Text Books:** **Not Applicable**

11	**Reference Books:** **1.** Mathematics in India by Kim Plofker, First Edition, 2009. **2.** India and the IT Revolution: Networks of Global Culture Hardcover by A.Greenspan, October 2004.	
12	**Internal Continuous Assessment: 40%**	**Semester End Examination : 60%**
13	**Continuous Evaluation through:**	

Sub-components	Maximum Marks	Conditions for passing
1) Assignment	10	A learner must be present for each of the sub- components
2) MCQ	10	
Total	20	

14

Question Paper Pattern for Semester End Examination

Maximum Marks: 30 **Duration: 1 Hr.**

Note: All questions are compulsory. Each question has an internal choice.

[Refer to Next Page]

Question Number		Nature of Questions	Maximum Marks
1)		**Attempt any 3**	
	a)		15
	b)		
	c)		
	d)		
	e)		
2)		**Attempt any 3**	
	a)		15
	b)		
	c)		
	d)		
	e)		

Signatures of Team Members

Sr.No	Name	Signature
1.	Mr. Deepak Sharma	
2.		
3.		
4.		
5.		