

Semester-I

Course Code: IKS

Course Title: Fundamentals of Indian Knowledge System

Pre- requisite: Creating awareness among the youths about the true history and past rich culture of India.

Rationale: India has very rich and versatile knowledge system and cultural heritage since antiquity. The Indian Knowledge systems was developed on life science, medical science, literature, drama, art, music, dance, astronomy, mathematics, architecture (Shapatyaveda), chemistry, aeronautics etc, during ancient period. In this basic course, a special attention is given to the ancient and historical perspective of ideas occurrence in the ancient society, and implication to the concept of material world and religious, social and cultural beliefs. On the closer examination, religion, culture and science have appeared epistemological very rigidly connected in the Indian Knowledge System. This land of Bharat Bhumi has provided invaluable knowledge stuff to the society and the world in all sphere of life.

Course Outcomes:

CO- IKS. 1: To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.

CO- IKS.II: Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.

CO- IKS.III: Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovasu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.

CO- IKS. IV: Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.

CO- IKS. V: Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda andYoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Scheme of Studies:

Category of Course	Course Code	Course Title	Scheme of studies(Hours/Week)				Total Study Hours CI+LI+SW+SL	Total Credits (C)
			CI	LI	SW	SL		
VAC	IKS	Indian Knowledge System	2		1	1	4	2

Legend:

CI: Classroom Instruction (Includes different instructional strategies i.e. Lecture (L) and Tutorial (T) and others),

LI: Laboratory Instruction (Includes Practical performances in laboratory workshop, field or other locations using different instructional strategies)

SW: Session Work (includes assignment, seminar, mini project etc.),

SL: Self Learning,

C: Credits.

Proposed examination scheme (Marking) as per the recommendation of University Grant Commission (UGC) for Under Graduate Courses in Fundamentals of Indian Knowledge Systems 2022-23 onwards

S. No.	Category of Course/Subject	Components of Marks				Total
		Semester End Examination (External)	Mid Term exam (Internal)	Assignment (Internal)	Practical Exam (Internal)	
1	Only Theory Subject Course					
2	Subject/ Course with theory and Practical					
3	Subject/ Course only Practical					

Course-Curriculum Detailing:

This course syllabus illustrates the expected learning achievements, both at the course and session levels, which students are anticipated to accomplish through various modes of instruction including Classroom Instruction (CI), Laboratory Instruction (LI), Sessional Work (SW), and Self Learning (SL). As the course progresses, students should showcase their mastery of Session Outcomes (SOs), culminating in the overall achievement of Course Outcomes (COs) upon the course's conclusion.

IKS. 1. To understand Indian Civilization and Indian Knowledge Systems

Approximate Hours	
Item	Approximate Hours
CI	6
LI	
SW	2
SL	1
Total	9

Session Outcomes (SOs)	Laboratory Instruction (LI)	Class room Instruction (CI)	Self Learning (SL)
SO 1.1. Understand Overview of Indian Knowledge Systems (IKS) SO 1.2. Understand Classification of Ancient IKS texts SO 1.3. Understand Introduction to Panch Mahabhutas (Earth, Water, Fire, Sky and Air) SO 1.4. Understand Origin of the name Bharatvarsha: the Land of Natural Endowments SO 1.5. Understand Rivers of ancient India (The Ganga, Yamuna, Godawari, Saraswati, Narmada, Sindhu and Kaveri) SO 1.6. Understand Ancient Agriculture and ancient Universities: Takshashila and Nalanda, Gurukul system		Unit-1. Indian Civilization and Indian Knowledge Systems 1.1. Overview of Indian Knowledge Systems (IKS) 1.2 Classification of Ancient IKS texts 1.3 Introduction to Panch Mahabhutas (Earth, Water, Fire, Sky and Air) 1.4 Origin of the name Bharatvarsha: the Land of Natural Endowments 1.5 Rivers of ancient India (The Ganga, Yamuna, Godawari, Saraswati, Narmada, Sindhu and Kaveri) 1.6 Agriculture system in ancient India, Ancient Universities: Takshashila and Nalanda, Gurukul system	Golden era of ancient India

SW-1 Suggested Sessional Work (SW):

a. Assignments:

- i. Concepts of Panch Mahabhuta, Classification of ancient texts, origin of ancient rivers

b. Mini Project:

- i. Ancient Universities: Takshashila and Nalanda,

c. Other Activities (Specify):

IKS. 2: Students will have the ability to apply the knowledge gained about Indian Art, Literature and Religious Places

Approximate Hours

Item	Approximate Hours
CI	6
LI	
SW	2
SL	1
Total	9

Session Outcomes (SOs)	Laboratory Instruction (LI)	Class room Instruction (CI)	Self Learning (SL)
<p>SO 2.1. Understand the Ancient Indian Books: Vedas, Puranas, Shastras, Upanishads, Mahakavyas (Ramayana & Mahabharata), Smrities, Samhitas</p> <p>SO 2.2. Understand the Religious places: Puries, Dhams, Jyotirlinga, Shaktipeeths, Kumbha Mela</p> <p>SO 2.3. Understand the Legendary places of Madhya Pradesh: Ujjain, Chitrakoot, Omkareshwar, Bharhut, Maihar</p> <p>SO 2.4. Understand the Basic concept of Indian Art, Music and Dance, Indian Musical Instruments</p> <p>SO 2.5. Understand the Fundamental aspects of Sangeeta and Natya shastra</p> <p>SO 2.6. Understand the different schools of music, dance and painting in different regions of India</p>		<p>Unit-2. Indian Art, Literature and Religious Places</p> <p>2.1. Ancient Indian Books: Vedas, Puranas, Shastras, Upanishads, Mahakavyas (Ramayana & Mahabharata), Smrities, Samhitas</p> <p>2.2. Religious places: Puries, Dhams, Jyotirlinga, Shaktipeeths, Kumbha Mela</p> <p>2.3. Legendary places of Madhya Pradesh: Ujjain, Chitrakoot, Omkareshwar, Bharhut, Maihar</p> <p>2.4. Basic concept of Indian Art, Music and Dance, Indian Musical Instruments</p> <p>2.5. Fundamental aspects of Sangeeta and Natya shastra</p> <p>2.6. Different schools of music, dance and painting in different regions of India</p>	<p>1. Indian Art, Music and Dance</p>

SW-2 Suggested Sessional Work (SW):**a. Assignments:**

- i. Visit of Chitrakoot, Maihar and Bharhuta

b. Mini Project:

- ii. Kumbhmela, Story of Ramayana and Mahabharata

c. Other Activities (Specify):**IKS. 3: Student will be able to understand Ancient Science, Astronomy and Vedic Mathematics****Approximate Hours**

Item	Approximate Hours
CI	6
LI	
SW	2
SL	1
Total	9

Session Outcomes (SOs)	Laboratory Instruction (LI)	Class room Instruction (CI)	Self Learning (SL)
SO 3.1. Understand Vedic Cosmology SO 3.2. Understand the Astronomy, Astrovastu, Vedang Jyotish, Nakshatras, Navagraha, Rashis, Vastushastra and their related plants SO 3.3. Understand the Time and Calendar, Panchang SO 3.4. Understand the Concept of Zero, Point, Pi -number system, Pythagoras SO 3.5. Understand the Vedic Mathematics, Vimana-Aeronautics, Basic idea of planetary model of Aryabhata SO 3.6. Understand the Varanamala of Hindi		Unit-3. Ancient Science, Astronomy, Mathematics 3.1. Vedic Cosmology 3.2. Astronomy, Astrovastu, Vedang Jyotish, Nakshatras, Navagraha, Rashis, Vastushastra and their related plants 3.3. Time and Calendar, Panchang 3.4. Concept of Zero, Point, Pi -number system, Pythagoras 3.5. Vedic Mathematics, Vimana-Aeronautics, Basic idea of planetary model of Aryabhata 3.6. Varanamala of Hindi language based on classification of sounds	1. Ancient Science, Astronomy and Vedic Mathematics

language based on classification of sounds on the basis of their origin, Basic purpose of science of Vyakarana		on the basis of their origin, Basic purpose of science of Vyakarana.	
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SW-2 Suggested Sessional Work (SW):

a. Assignments:

1. Varanamala of Hindi language based on classification of sounds on the basis of their origin

b. Mini Project:

1. Nakshatras, Navagraha and their related plants

c. Other Activities (Specify):

IKS. 4: Understand the Engineering, Technology and Architecture

Approximate Hours	
Item	Approximate Hours
CI	6
LI	
SW	2
SL	1
Total	9

Session Outcomes (SOs)	Laboratory Instruction (LI)	Class room Instruction (CI)	Self Learning (SL)
SO 4.1. Understand the Engineering Science and Technology in Vedic and Post Vedic Era SO 4.2. Understand the Town and Home planning, Sthapatyaveda SO 4.3. Understand the Chemistry and Metallurgy as gleaned from archeological artifacts SO 4.4. Understand the Chemistry of Dyes, Pigments used in Paintings, Fabrics, Potteries and Glass		Unit-4. Engineering, Technology and Architecture 4.1.Engineering Science and Technology in Vedic and Post Vedic Era 4.2.Town and Home planning, Sthapatyaveda 4.3.Chemistry and Metallurgy as gleaned from archeological artifacts 4.4 Chemistry of Dyes, Pigments used in Paintings, Fabrics,	2. Ancient Science, Astronomy and Vedic Mathematics

SO 4.5. Understand the Temple Architecture: Khajuraho, Sanchi Stupa, Chonsath Yogini temple		Potteries and Glass 4.5.Temple Architecture: Khajuraho, Sanchi Stupa, Chonsath Yogini temple	
SO 4.6. Understand the Mining and manufacture in India of Iron, Copper, Gold from ancient times		4.6.Mining and manufacture in India of Iron, Copper, Gold from ancient times	

SW-2 Suggested Sessional Work (SW):

a. Assignments:

- i. Varanamala of Hindi language based on classification of sounds on the basis of their origin

b. Mini Project:

- i. Nakshatras, Navagraha and their related plants

c. Other Activities (Specify):

IKS. 5: Understand about the Life, Nature and Health

Approximate Hours	
Item	Approximate Hours
CI	6
LI	
SW	2
SL	1
Total	9

Session Outcomes (SOs)	Laboratory Instruction (LI)	Class room Instruction (CI)	Self Learning (SL)
SO 5.1. Understand the Fundamentals of Ayurveda (Charaka & Shushruta) and Yogic Science (Patanjali), Ritucharya and Dinacharya SO 5.2. Understand the Traditional system of Indian medicines (Ayurveda, Siddha, Unani and Homoeopathy) SO 5.3. Understand Fundamentals of		Unit-5. Life, Nature and Health 5.1.Fundamentals of Ayurveda (Charaka & Shushruta) and Yogic Science (Patanjali), Ritucharya and Dinacharya 5.2. Traditional system of Indian medicines (Ayurveda, Siddha, Unani and Homoeopathy)	1. Concept of Ayurveda and Yoga 2. Traditional system of Indian medicines 3. Ethnobotany and Ethnomedicines of India

Ethnobotany and Ethnomedicines of India SO 5.4. Understand the Nature Conservation in Indian ancient texts SO 5.5. Understand the Introduction to Plant Science in Vrikshayurveda SO 5.6. Understand the World Heritage Sites of Madhya Pradesh: Bhimbetka, Sanchi, Khajuraho		5.3.Fundamentals of Ethnobotany and Ethnomedicines of India 5.4.Nature Conservation in Indian ancient texts 5.5 Introduction to Plant Science in Vrikshayurveda 5.6.World Heritage Sites of Madhya Pradesh: Bhimbetka, Sanchi, Khajuraho	4. World Heritage Sites
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SW-2 Suggested Sessional Work (SW):

a. Assignments:

- i. Visit to world Heritage Site Khajuraho

b. Mini Project:

- i. Ritucharya and Dincharya, Ethnomedicinal plants

c. Other Activities (Specify):

Brief of Hours suggested for the Course Outcome

Course Outcomes	Class Lecture (Cl)	Sessional Work (SW)	Self Learning (Sl)	Total hour (Cl+SW+Sl)
IKS. 1: To understand Indian Civilization and Indian Knowledge Systems	6	2	1	9
IKS. 2: Students will have the ability to apply the knowledge gained about Indian Art, Literature and Religious Places	6	2	1	9
IKS. 3: Student will be able to understand the Ancient Science, Astronomy and Vedic Mathematics	6	2	1	9
IKS. 4: Understand the Engineering, Technology and Architecture	6	2	1	9
IKS. 5: Understand about the Life, Nature and Health	6	2	1	9
Total	30	10	5	45

Suggestion for End Semester Assessment

Suggested Specification Table (For ESA)

CO	Unit Titles	Marks Distribution			Total Marks
		R	U	A	
CO 1	Indian Civilization and Indian Knowledge	2	5	1	8

	Systems				
CO 2	Indian Art, Literature and Religious Places	2	6	2	8
CO 3	Ancient Science, Astronomy and Vedic Mathematics	2	6	5	13
CO 4	Engineering, Technology and Architecture	2	4	4	10
CO 5	Life, Nature and Health	2	5	2	9
Total		10	26	14	50

Legend: R: Remember, U: Understand, A: Apply

The end of semester assessment for **Indian Knowledge Systems** will be held with written examination of 50 marks

Note. Detailed Assessment rubric need to be prepared by the course teacher for above tasks. Teacher can also design different tasks as per requirement, for end semester assessment.

Suggested Instructional/Implementation Strategies:

1. Improved Lecture
2. Tutorial
3. Case Method
4. Group Discussion
5. Role Play
6. Visit to Religious places, World Heritage Sites
7. Demonstration
8. ICT Based Teaching Learning (Video Demonstration/Tutorials CBT, Blog, Facebook, Twitter, Whatsapp, Mobile, Online sources)
9. Brainstorming

Suggested Learning Resources:

(a) Books:

S. No.	Title	Author	Publisher	Edition & Year
1	<i>An Introduction of Indian Knowledge Systems: Concept and Applications</i>	Mahadevan, B.; Bhat V. R. and Pavana, Nagendra R. N.	Prentice Hall of India.	2022
2	<i>Indian Knowledge Systems: Vol. I and II.</i>	Kapoor, Kapil and Singh, A. K.	D.K. Print World Ltd	2005
3	<i>Science of Ancient Hindus: Unlocking Nature in Pursuit of Salvation</i>	Kumar, Alok	Create pace Independent Publishing	2014
4	<i>A History of Agriculture in India</i>	Randhava, M.S.	ICAR, New Delhi	1980

5	<i>Panch Mahabhuta,</i>	Yogcharya, Jnan Dev	Yog Satsang Ashram	2021
6	<i>The Indian Rivers</i>	Singh, Dhruv Sen	Springer	2018
7	<i>The Wonder That Was India</i>	Basam, Arthue Llewllyn	Sidgwick & Jackson	1954
8	<i>Ancient Cities, Sacred Skies: Cosmic Geometries and City Planning in Ancient India</i>	Malville, J. MacKim & Gujaral, Lalit M.	IGNCA & Aryan Books International, New Delhi	2000
9	<i>The Natya Shastra of Bharat Muni</i>	Jha, Narendra	Innovative Imprint, Delhi	2023
10	<i>Astronomy in India: A Historical Perspective</i>	Padmanabhan, Thanu	Indian National Science Academy, New Delhi & Springer (India).	2010
11	<i>History of Astronomy in India 2nd Ed.</i>	Sen, S.N. and Shukla, K.S.	INSA New Delhi	2001
12	<i>History of Indian Astronomy A Handbook</i>	Ramasubramanian, K.; Sule, Aniket and Vahia, Mayank	Science and Heritage Initiative, I.I.T. Mumbai and Tata Institute of Fundamental Research, Mumbai	2016
13	<i>Indian Mathematics and Astronomy: Some Landmarks</i>	Rao, Balachandra S.	Jnana Deep Publications, Bangalore, 3 rd Edition	. 2004
14	<i>Vedic Mathematics and Science in Vedas</i>	Rao, Balachandra S.	Navakarnataka Publications, Bengaluru	2019
15	<i>A History of Hindu Chemistry</i>	Ray, Acharya Prafulla Chandra	Repbl Shaibya Prakashan Bibhag, Centenary Edition, Kolkata	1902
16	<i>Early Indian Architecture: Cities and City Gates</i>	Coomeraswamy, Anand	Munciram Manoharlal Publishers	2002
17	<i>Theory and Practices of Temple Architecture in Medieval India: Bhojas samrangasutradhar and the Bhojpur Line Drawings</i>	Hardy, Adams	Dev Publishers & Distributors.	2015
18	<i>Indian Science and Technology in Eighteenth Century</i>	Dharpal	Academy of Gandhian Studies, Hyderabad.	1971
19	<i>Science in India: A Historical Perspective</i>	Subbarayappa, B.V.	Rupa New Delhi	2013

20	<i>Fine Arts & Technical Sciences in Ancient India with special reference to Someswvara's Manasollasa</i>	Mishra, Shiv Shankar	Krishnadas Academy, Varanasi	1982
21	<i>Fundamental Principles of Ayurveda, Volume One</i>	Lad, Vasant D.	The Ayurvedic Press, Albuquerque, New Mexico.	2002
22	<i>Charak Samhita</i> , Chaukhamba	Pandey, Kashinath and Chaturvedi Gorakhnath	Vidya Bhawan, Varanasi	
23	<i>Ayurveda: The Science of Self-Healing</i>	Lad, Vasant D.	Lotus Press: Santa Fe	1984
24	<i>Ayurveda: Life, Health and Longevit</i>	Svoboda, Robert E	Penguin: London	1992
25	<i>Plants in the Indian Puranas</i>	Sensarma, P.	Naya Prokash, Calcutta	1989
26	<i>Indian Cultural Heritage Perspective for Tourism</i>	Singh, L. K.	Gyan Publishing House, Delhi	2008
27	<i>Glimpses of Indian Ethnobotany</i>	Jain, S.K.	Oxford & IBH Publishing Company Private Limited, New Delhi	1981
28	Manual of Ethnobotany	Jain, S.K.	Scientific Publishers, Jodhpur	2010

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