



**SOPHIA COLLEGE FOR WOMEN  
(EMPOWERED AUTONOMOUS)**

Affiliated to

**UNIVERSITY OF MUMBAI**

**Syllabi for the Common Courses**

**Based on the National Education Policy 2020**

**Indian Knowledge System**

**Course Code: IKS**

F.Y.B.A. & F.Y.B.Sc.

2023-24 (NEP)

**Programme Outline : Indian Knowledge System  
FYBA & FYBSc (SEMESTER I)**

Course Code	Name of the Course	Credits
IKS101	Indian Epics	2
IKS102	Indian Folktales	2
IKS103	Kautilya's Arthasastra : Statecraft, Spies and Subterfuge	2
IKS104	The Idea of Bharat : Elements of Political Thought and Structures in Ancient India	2
IKS105	Minerals and metals in ancient India	2
IKS106	Indian Ecology	2
IKS107	Animal Husbandry in Ancient India	2
IKS108	Nanotechnology in Ancient India	2

**ASSESSMENT DETAILS:**

**Continuous Assessment (50 marks)**

1. A minimum of two activities will be given in each semester.
2. Each will be for 20 marks.
3. The nature of the activities will be decided by the Examiner and may include Assignment/ MCQs/ Short notes and/or any other type of /combination of objective or descriptive type activity.
4. 10 marks will be given for Class participation.

<b>NAME OF THE COURSE</b>	<b>Indian Epics</b>
<b>CLASS</b>	FYBA & FYBSc
<b>COURSE CODE</b>	<b>IKS101</b>
<b>NUMBER OF CREDITS</b>	2
<b>NUMBER OF LECTURES PER WEEK</b>	2
<b>TOTAL NUMBER OF LECTURES PER SEMESTER</b>	30
<b>EVALUATION METHOD</b>	<b>CONTINUOUS ASSESSMENT</b>
<b>TOTAL MARKS</b>	50
<b>PASSING MARKS</b>	20

### **COURSE OBJECTIVES:**

CO 1.	The course aims to help students critically analyse the link between Indian epics and the cultural contexts in which they are produced and consumed.
CO 2.	The course aims to enable students to interrogate the politics of representation, morality and language in the prescribed selections from the <i>Mahabharata</i> .
CO 3.	The course aims to enable students to analyse Nina Paley's <i>Sita Sings the Blues</i> as a postmodern retelling of Valmiki's <i>Ramayana</i> .
CO 4.	The course aims to train students to apply contemporary theoretical approaches to the study of cultural texts.

### **COURSE LEARNING OUTCOMES:**

CLO 1.	The learner will be able to critically analyse the link between Indian epics and the cultural contexts in which they are produced and consumed.
CLO 2.	The learner will be able to interrogate the politics of representation, morality and language in the prescribed selections from the <i>Mahabharata</i> .
CLO 3.	The learner will be able to analyse Nina Paley's <i>Sita Sings the Blues</i> as a postmodern retelling of Valmiki's <i>Ramayana</i> .
CLO 4.	The learner will be able to apply contemporary theoretical approaches to the study of cultural texts.

UNIT 1	
1.1	Selections from <i>The Mahābhārata</i> , translated and edited by J. A. B. van Buitenen
1.2	Sally J. Sutherland: "Sita and Draupadi: Aggressive Behavior and Female Role-Models in the Sanskrit Epics"
1.3	Komal Agarwal: "Draupadi Jeopardizing Jurisprudence: A Critical Analysis of Dharma as Law in the Light of Draupadi's Question(s) in the Sabha"

UNIT 2	
2.1	Nina Paley: <i>Sita Sings the Blues</i>
2.2	Rashmi Luthra: “Clearing Sacred Ground: Women-Centered Interpretations of the Indian Epics”
2.3	Sharmila Lodhia: “Deconstructing Sita's Blues: Questions of Mis/representation, Cultural Property, and Feminist Critique in Nina Paley's <i>Ramayana</i> ”
2.4	Ipshita Chanda: “An Intermedial Reading of Paley's <i>Sita Sings the Blues</i> ”
2.5	Amardeep Singh: “Animating a Postmodern Ramayana: Nina Paley's <i>Sita Sings the Blues</i> ”

#### REFERENCES:

1. Agarwal, Komal: “Draupadi Jeopardizing Jurisprudence: A Critical Analysis of Dharma as Law in the Light of Draupadi’s Question(s) in the Sabha” *Rupkatha Journal on Interdisciplinary Studies in Humanities*, Vol. IX, No. 1, 2017 0975-2935 DOI: <https://dx.doi.org/10.21659/rupkatha.v9n1.14>
2. Chanda, Ipshita. "An Intermedial Reading of Paley's Sita Sings the Blues." *CLCWeb: Comparative Literature and Culture* 13.3 (2011): <<https://doi.org/10.7771/1481-4374.1798>>
3. Debroy, Bibek, trans.. *The Valmiki Ramayana 1*. India Penguin Classics, 2017.
4. Lodhia, S. (2015). *Deconstructing Sita's Blues: Questions of Mis/representation, Cultural Property, and Feminist Critique in Nina Paley's Ramayana*. *Feminist Studies*, 41(2), 371-408.
5. Luthra, Rashmi. “Clearing Sacred Ground: Women-Centered Interpretations of the Indian Epics.” *Feminist Formations*, vol. 26, no. 2, 2014, pp. 135–61. *JSTOR*, <http://www.jstor.org/stable/43860745>. Accessed 20 Feb. 2024.
6. Paley, Nina. *Sita Sings the Blues*. Directed by Nina Paley, 2008.
7. Singh, Amardeep. *Animating a Postmodern Ramayana: Nina Paley's Sita Sings the Blues*, *South Asian Review*, 30:1, 167-180, DOI: [10.1080/02759527.2009.11932664](https://doi.org/10.1080/02759527.2009.11932664)
8. Sutherland, Sally J. “Sītā and Draupadī: Aggressive Behavior and Female Role-Models in the Sanskrit Epics.” *Journal of the American Oriental Society*, vol. 109, no. 1, 1989, pp. 63–79. *JSTOR*, <https://doi.org/10.2307/604337>. Accessed 20 Feb. 2024.
9. van Buitenen, J. A. B., trans. and ed. *The Māhābharata. 1. The Book of the Beginning*. Chicago: The University of Chicago Press, 1973.
10. van Buitenen, J. A. B., trans. and ed. *The Māhābharata. 2. The Book of the Assembly Hall 3. The Book of the Forest*. Chicago: The University of Chicago Press, 1975.

<b>NAME OF THE COURSE</b>	<b>Indian Folktales</b>
<b>CLASS</b>	<b>FYBA &amp; FYBSc</b>
<b>COURSE CODE</b>	<b>IKS102</b>
<b>NUMBER OF CREDITS</b>	2
<b>NUMBER OF LECTURES PER WEEK</b>	2
<b>TOTAL NUMBER OF LECTURES PER SEMESTER</b>	30
<b>EVALUATION METHOD</b>	<b>CONTINUOUS ASSESSMENT</b>
<b>TOTAL MARKS</b>	50
<b>PASSING MARKS</b>	20

### **COURSE OBJECTIVES:**

CO 1.	The course aims to help students critically analyse the link between Indian folktales and the cultural contexts in which they are produced and consumed.
CO 2.	The course aims to enable students to interrogate the politics of representation, morality and language in the prescribed texts.
CO 3.	The course aims to train students to apply contemporary theoretical approaches to the study of cultural texts.

### **COURSE LEARNING OUTCOMES:**

CLO 1.	The learner will be able to critically analyse the link between Indian folktales and the cultural contexts in which they are produced and consumed.
CLO 2.	The learner will be able to interrogate the politics of representation, morality and language in the prescribed texts.
CLO 3.	The learner will be able to apply contemporary theoretical approaches to the study of cultural texts.

UNIT 1	
1.1	Defining folk tales
1.2	Analysing folk tales: Selections <i>from Collected Essays of A.K. Ramanujan</i> edited by Vinay Dharwadker
UNIT 2	
2.1	Film adaptations of Folk Tales: Amol Palekar: <i>Paheli</i> (2005)

## REFERENCES:

1. Beck, Brenda EF, et al., eds. *Folktales of India*. University of Chicago Press, 1999.
2. Krämer, Lucia. "Adaptation in Bollywood." *The Oxford Handbook of Adaptation Studies* (2017): 251-266.
3. Upadhyaya, K. D. "A General Survey of Indian Folk Tales." *Midwest Folklore* 10.4 (1960): 181-196.
4. Hasan, Seemin. "A Comparative Study of Folk Tales of UP Tribes and European Fairy Tales." *Indian Literature* 53.2 (250 (2009): 202-208.
5. Jose, Chiramel P. "AK Ramanujan: Anglicising and Poetizing the Indian Folktales." *Akshara*: 34.
6. Tiwari, Aparna. "Charisma of Figurative Language in Folklore Adaptations: A Case Study of Dilemma And Paheli." *International Journal of English Language, Literature and Humanities* 5.1 (2013): 75-87.
7. Ramanujan, Attipat Krishnaswami. *Who needs folklore?: The relevance of oral traditions to South Asian Studies*. Center for South Asian Studies, School of Hawaiian, Asian, and Pacific Studies, University of Hawaii at Manoa, 1990.
8. Ramanujan, A. K. "Who needs folklore?." *The Collected Essays of AK Ramanujan* (1999): 532-552.
9. Ramanujan, A. K. "A Flowering Tree: a Woman's Tale." (1997).

<b>NAME OF THE COURSE</b>	<b>Kautilya's Arthasastra : Statecraft, Spies and Subterfuge</b>
<b>CLASS</b>	<b>FYBA &amp; FYBSc</b>
<b>COURSE CODE</b>	<b>IKS103</b>
<b>NUMBER OF CREDITS</b>	2
<b>NUMBER OF LECTURES PER WEEK</b>	2
<b>TOTAL NUMBER OF LECTURES PER SEMESTER</b>	30
<b>EVALUATION METHOD</b>	<b>CONTINUOUS ASSESSMENT</b>
<b>TOTAL MARKS</b>	50
<b>PASSING MARKS</b>	20

### **COURSE OBJECTIVES:**

<b>CO 1.</b>	To gain an insight into Kautilyas's life , historical background and influences
<b>CO 2.</b>	To gain an insight into the main ideas of the Kautilya's political ideas, as well as his socio- economic outlook.

### **COURSE LEARNING OUTCOMES:**

<b>CLO 1.</b>	Students should be able to personally engage with and analyse the political ideas of the Arthasastra
<b>CLO 2.</b>	Students should be able to develop a critical and objective assessment of Kautilya's contributions and significance to political philosophy, especially on Realism.

<b>UNIT 1</b>	<b>Kautilya : Historical Background and Basic Views</b>
1.1	Kautilya: the Man, his times, his Works
1.2	Kautilya's Views on Social Structure & (Socialist Monarchy?)/ add Views on caste
1.3	Kautilya's Views on Revenue, Finance, and Economy
<b>UNIT 2</b>	<b>Kautilya : Theory of State in Arthasastra</b>
2.1	Kautilya's Saptang Theory of State (Views on Nature of State, Surveillance/ Internal Security/Spy State), Rajmanadala Theory of State)
2.2	Kautilya's Views on Administration
2.3	Kautilya's Views on Foreign Policy; Kautilya and Machiavelli –Realisms compared

## REFERENCES:

- K. P. Jayaswal, Hindu Polity : A Constitutional History of India in Hindu Times. 2 vols. (in one), Calcutta, 1924.
- Published online by Cambridge University Press: 15 March 2011
- A.S. Atekar, State and Government in India, Delhi, 1958
- L.K. Rangarajan, Kautilya The Arthashastra, New Delhi, 1992
- R.P.Kangle, The Kautilya Arthashastra, Bombay, 1965
- S.C. Mishra, Evolution of Kautilya's Arthashastra, Delhi, 1997
- Roger Boesche, Kautilya: The First Great Political Realist, Noida, U.P., 2017



<b>NAME OF THE COURSE</b>	<b>THE IDEA OF BHARAT: ELEMENTS OF POLITICAL THOUGHT AND STRUCTURES IN ANCIENT INDIA</b>
<b>CLASS</b>	FYBA & FYBSc
<b>COURSE CODE</b>	<b>IKS104</b>
<b>NUMBER OF CREDITS</b>	2
<b>NUMBER OF LECTURES PER WEEK</b>	2
<b>TOTAL NUMBER OF LECTURES PER SEMESTER</b>	30
<b>EVALUATION METHOD</b>	<b>CONTINUOUS ASSESSMENT</b>
<b>TOTAL MARKS</b>	50
<b>PASSING MARKS</b>	20

### **COURSE OBJECTIVES:**

CO 1.	To acquaint students with the vast repository of ideas and institutions produced by ancient Indian philosophers on politics and management.
CO 2.	To make students understand the ideas, key sources like Vedas, Mahabharat, Ramayan, Puranas and also gain an insight into the forms, structures and processes of the political institutions that existed in ancient India.
CO 3.	To encourage students to critically engage with key distinctions in Indian political thought, such as the difference between the concepts of "nation" (nationhood) and "Rashtra" (a larger cultural and spiritual community), and between "culture" and "Sanskriti" (cultural heritage).
CO 4.	To explore the concept of Dharmanirpekshata (secularism) and its relevance in political governance, as well as how the idea of Panthnirpekshata (religious neutrality) influenced the social and political structure in ancient India.

### **COURSE LEARNING OUTCOMES:**

CLO 1.	Students will be able to identify and explain the unique characteristics of political thought in ancient India, including the concepts of governance, justice, society and secularism.
CLO 2.	Students will have a comprehensive understanding of the political forms, structures, and processes in ancient India, such as Sabha, Samiti, Janapadas, and the roles of Amatyas, Senapatis, and other officials.
CLO 3.	Students will be able to critically compare and contrast the concepts of "nation" vs. "Rashtra", as well as "culture" vs. "Sanskriti", understanding their implications in the context of ancient Indian political thought.
CLO 4.	Students will evaluate the concepts of secularism and religious tolerance (Dharmanirpekshata) in relation to political thought and governance in ancient India.

UNIT 1	<b>Elements of Political Thought in Ancient India</b>
1.1	Features of Ancient Indian Political Thought
1.2	Political Forms, Structure, and Processes: Sabha, Samiti, Vidatha, Rajana, Janapada, Mahajanapadas, Ganasanghas, Rajya, Amatyas/Mahamatyas, Purohita, Senapati, Mantri/Mantriparishada
1.3	Nation vs Rashtra, India or Bharat, Culture vs Sanskriti, Dharmanirpekshata or Panthnirpekshata
UNIT 2	The Idea of Bharat
2.1	Geographical, Cultural and Territorial Conception of Bharat
2.2	Depiction of Bharat in Puranas
2.3	Shanti Parva in Mahabharata

#### REFERENCES:

- Altekar, A S. (1955). State and Government in Ancient India. Delhi: Motilal Banarasi Dass.
- Ghoshal, U. N. (1959). A History of Indian Political Ideas; the Ancient Period and the Period of Transition to Middle Ages. Oxford University Press.
- Kosambi, D.D. (1980). Culture and Civilization in Ancient India. Vikas Publishing House. Delhi.
- Mazumdar, R. C. (2003). Ancient India. Delhi: Motilal Banarasi Dass.
- Rao, K. S. S. (2007). Vedic Ideals and Indian Political Thought. 68(1). pp. 5-14.
- Rao, K. (2005). Manu's ideas on administration. The Indian Journal of Political Science, 66(3), pp. 489-502.
- Shamashastry, R. (1915). Kautilya's Arthashastra- translated by R. Shamashastry with an introductory note by Dr. J.F. Fleet. Bangalore. Government Press.

- Sharma, R. S. (2015). Aspects of Political Ideas and Institutions in Ancient India. Paperback.
- Varma, V. P. (1974). Hindu Political Thought and its Metaphysical Foundations. Motilal Banarsi Dass. New Delhi: Motilal Banarasi Dass.
- Basham, A. L. (1981). The wonder that was India. Delhi: Rupa Paperback.
- Feuerstein, G. et al. (1999). In search of the cradle of civilization. Delhi: Motilal Banarsi Dass.
- Verma, S. R. (2005). Vedas: The Source o/Ultimate Science. Delhi: Nag Publishers.
- Mookerji, R. (2004). The Fundamental Unity of India, Orient Blackswan, Hyderabad.
- Bhandarkar, D.R. (1929). Some Aspects of Ancient Indian Hindu Polity. Varanasi: Banaras Hindu University.
- Prasad, B. (1928). The State in Ancient India: A Study in the Structure and Practical Working of Political Institutions. Allahabad: Indian Press Limited.
- Prasad, B. (1927). The Political Theory in Ancient India. Allahabad: Indian Press Limited.
- Sarkar, B. (1921). The Hindu Theory of the State. Political Science Quarterly, 36(1), pp. 79-90.
- Roy, H. & Singh, M. P. (2017). Indian Political Thought, Pearson, Delhi.
- Altekar, A. S. (1955). State and Government in Ancient India. Delhi: Motilal Banarasi Dass.
- Drekmeir, C. (1962). Kingship and Community in Early India. California: Stanford University Press.
- Jayaswal, K. P. (1967). Hindu Polity. Bangalore: Bangalore Printing Press.
- Rao, K. (2005). Manu's Ideas on Administration. The Indian Journal of Political Science, 66(3), pp. 489-502.

- Saletore, B. A. (1963). Ancient Indian Political Thought and Institutions. Bombay: Asia Publishing House.
- Kosambi, D. D. 1996. An Introduction to the Study of Indian History. Mumbai: Popular Prakashan Private Limited.
- Mahajan, V. D. 2010. Ancient India. New Delhi: S. Chand & Company Ltd.
- Majumdar, R.C. 1971. The History and Culture of the Indian People, Volume I. Mumbai: Bharatiya Vidya Bhavan.
- Sastri, K. A. N. 1988. Age of Nandas and Mauryas. Delhi: Motilal Banarsidas.
- Sharma, R. S. 1995. Perspectives in Social and Economic History of Early India. New Delhi: Munshiram Manoharlal Publishers.
- Thapar, Romila. 1997. Asoka and the Decline of the Mauryas. USA: Oxford University Press.
- Ghosh, N. N. 1948. Early History of India. Allahabad: Indian Press.
- Majumdar, R.C. 1971. The History and Culture of the Indian People, Volume I. Mumbai: Bharatiya Vidya Bhavan.
- Thapar, Romila. 1990. A History of India: Volume 1. New Delhi: Penguin Books.
- Tripathi, R.S. 1999. History of Ancient India. Delhi: Motilal Banarsidas.

<b>NAME OF THE COURSE</b>	<b>MINERALS AND METALS IN ANCIENT INDIA</b>
<b>CLASS</b>	FYBA & FYBSc
<b>COURSE CODE</b>	<b>IKS105</b>
<b>NUMBER OF CREDITS</b>	2
<b>NUMBER OF LECTURES PER WEEK</b>	2
<b>TOTAL NUMBER OF LECTURES PER SEMESTER</b>	30
<b>EVALUATION METHOD</b>	<b>CONTINUOUS ASSESSMENT</b>
<b>TOTAL MARKS</b>	50
<b>PASSING MARKS</b>	20

### **COURSE OBJECTIVES :**

CO 1.	To have knowledge and understanding about the minerals and metals that were used in Ancient India.
CO 2.	To learn about the richness of ancient Indian metallurgy.
CO 3.	To understand how the use of metals and minerals evolved in Pre-Harappan and Harappan era

### **COURSE LEARNING OUTCOMES:**

The learner will be able to:

CLO 1.	Appreciate and discuss the evolution of the use of metals in ancient India.
CLO 2.	Acquire knowledge of how metals and minerals played an important role in evolution.
CLO 3.	Apply the acquired knowledge in understanding archaeological discoveries, ancient art and cultures.

UNIT 1	<b>Minerals and Metals in the Rigveda and Vedic literature</b>
1.1	<b>Minerals and Metals in the Rigveda</b> 1.1.1 Transition from Neolithic to Chalcolithic age 1.1.2 Fire in Metallurgy 1.1.3 The meaning of Ayas 1.1.4 Some metallic objects 1.1.5 Ornaments and gems
1.2	<b>Minerals and metals in the vedic literature</b> 1.2.1 Minerals and metals 1.2.2 Different kinds of ayas 1.2.3 Use of Tin 1.2.4 Use of Lead 1.2.5 Ornamental and Barter metals 1.2.6 Iron implements 1.2.7 Potteries and other inorganic materials 1.2.8 Mani in vedic literature
UNIT 2	<b>Pre- Harappan Era and Project work</b>
2.1	<b>Pre- Harappan Era</b> 2.1.1 Introduction 2.1.2 Mehargarh, Mundigak 2.1.3 Other pre-harappan site of west of Indus 2.1.4 Nuclear zones east of Indus 2.1.5 Pre-harappan culture in Rajasthan 2.1.6 Ganeshwar-Jodhpura culture 2.1.7 Sothi culture on the Sarasvati valley
2.2	<b>Project work</b> 2.2.1 Review on Documentaries 2.2.2 Report on visit to museums (Physical/virtual)

#### REFERENCES:

1. Minerals and metals of Ancient India - Arun Kumar Biswas, DK Print world Ltd, 1st edition
2. <http://eprints.nias.res.in/374/1/B8-2013%20Minerals%20and%20Metals%20Heritage%20of%20India.pdf>
3. [https://www.tf.unikiel.de/matwis/ammat/def\\_en/articles/metallurg\\_heritage\\_india/metallurgical\\_heritage\\_india.html#:~:text=The%20commonly%20used%20metals%20in,achievements%20of%20ancient%20Indian%20metallurgists.](https://www.tf.unikiel.de/matwis/ammat/def_en/articles/metallurg_heritage_india/metallurgical_heritage_india.html#:~:text=The%20commonly%20used%20metals%20in,achievements%20of%20ancient%20Indian%20metallurgists.)
4. <https://eprints.nmlindia.org/5802/1/1-24.PDF>
5. <https://vedicheritage.gov.in/vedic-heritage-in-present-context/metallurgy>

<b>NAME OF THE COURSE</b>	<b>History of Forests and Agriculture in India</b>
<b>CLASS</b>	FYBA & FYBSc
<b>COURSE CODE</b>	<b>IKS106</b>
<b>NUMBER OF CREDITS</b>	2
<b>NUMBER OF LECTURES PER WEEK</b>	2
<b>TOTAL NUMBER OF LECTURES PER SEMESTER</b>	30
<b>EVALUATION METHOD</b>	CONTINUOUS ASSESSMENT
<b>TOTAL MARKS</b>	50
<b>PASSING MARKS</b>	20

### **COURSE OBJECTIVES:**

CO 1.	To explore the historical and ecological evolution of forests and agriculture in India across various periods, emphasizing their socio-economic impacts.
CO 2.	To provide a comprehensive understanding of ancient Indian forest and agricultural practices and their relevance to modern times.
CO 3.	To analyze key historical legislations and policies concerning forest and agricultural management in India.
CO 4.	To develop critical thinking skills through case studies highlighting the interplay between environment, governance, and cultural history.

### **COURSE LEARNING OUTCOMES:**

CLO 1.	Demonstrate an understanding of the historical timeline and key developments in Indian forestry and agriculture.
CLO 2.	Analyze the impact of policies and laws on forest ecology and agricultural practices in different eras.
CLO 3.	Evaluate traditional Indian ecological and agricultural methods for their relevance to contemporary environmental challenges.
CLO 4.	Apply critical thinking to real-world scenarios through the study of case examples such as British forestry and ancient agricultural practices.

<b>Unit 1</b>	<b>History of Forests in India</b>
1.1	Indian Forests in different period <ul style="list-style-type: none"> <li>1. Ancient Period, Kautilya classification of forests</li> <li>2. Gupta Period: history of forestry in the reign of Chandra Gupta Maurya</li> <li>3. Medieval Period</li> <li>4. British Period</li> </ul>

	5. Modern Period
1.2	Establishment of Forest Department in India <ol style="list-style-type: none"> <li>1. British Imperial Forestry Service in Colonial India</li> <li>2. Forest department in colonial India in 1864 and the formulation of Indian Forest Act in 1865</li> </ol>
1.3	Forest policies and laws related to Indian Forest Ecology <ol style="list-style-type: none"> <li>1. The Indian Forest Act, 1927</li> <li>2. National Forest Policy 1952</li> <li>3. The Forest Conservation Act, 1980</li> </ol>
1.4	Ecology of Indian Forest <ol style="list-style-type: none"> <li>1. Introduction to forest ecosystem</li> <li>2. India's biodiverse regions</li> </ol>
1.5	Effect of environment and socioeconomic status on forests
1.6	Case studies on Indian Forestry <ol style="list-style-type: none"> <li>1. Thana Forests in Bombay</li> <li>2. Impact of British Forestry in Karnataka State</li> <li>3. The Timberlands of Assam</li> <li>4. The forests of the Western Himalayas</li> </ol>
Unit 2	<b>History of Agriculture in India</b>
2.1	Beginning of Agriculture in India across ages <ol style="list-style-type: none"> <li>1. Vedic period</li> <li>2. Early Common Era – High Middle Ages</li> <li>3. Late Middle Ages – Early Modern Era.</li> <li>4. Colonial British Era</li> <li>5. Earliest Agrarian Settlements</li> </ol>
2.2	Ancient agricultural practices <ol style="list-style-type: none"> <li>1. Soil classification and Conservation</li> <li>2. Water harvesting and irrigation developments during different periods – water storage – distribution and relevance to modern agriculture.</li> </ol>
2.3	Farming practices <ol style="list-style-type: none"> <li>1. Indus Valley Civilization</li> <li>2. Harappa and Chanhu-daro, Mohenjo-daro.</li> </ol>
2.4	Ancient farming methods of seed storage and pest management practices in India.



## REFERENCES:

1. Chaubey, O. P., Sharma, A., Prakash, R. (2014). Forest Ecology in India. India: Aavishkar Publishers, Distributors.
2. Forest Environment and Biodiversity Mahesh Prasad Singh, J. K. Singh, Reena Mohanka Daya Books, 2007 - Biodiversity
3. A Forest History of India: Richard P Tucker, Publisher: SAGE Publications Published: November 2011; Copyright: 2012, ISBN: 9788132109280

<b>NAME OF THE COURSE</b>	<b>IKS: Animal husbandry in ancient India</b>
<b>CLASS</b>	<b>FYBA &amp; FYBSc</b>
<b>COURSE CODE</b>	<b>IKS107</b>
<b>NUMBER OF CREDITS</b>	2
<b>NUMBER OF LECTURES PER WEEK</b>	2
<b>TOTAL NUMBER OF LECTURES PER SEMESTER</b>	30
<b>EVALUATION METHOD</b>	<b>CONTINUOUS ASSESSMENT</b>
<b>TOTAL MARKS</b>	50
<b>PASSING MARKS</b>	20

### **COURSE OBJECTIVES:**

CO 1.	Understand the perspective of animal husbandry in ancient India
CO 2.	Gain knowledge of animal husbandry practices in Indus Valley Civilization

### **COURSE LEARNING OUTCOMES:**

CLO 1.	The learner will be able to understand the history of animal husbandry in ancient India
CLO 2.	The learner will be able to relate animal husbandry with farming and domestication practices from Indus Valley Civilization

UNIT 1	Human-animal interactions (1Credit)
1.1	Transition from ancient prey-predator interaction to balanced co-existence
1.2	Archeo-faunal data recovered from the palaeolithic and mesolithic sites in the Indian subcontinent
1.3	Understand the changing human relation with animals and the long-term and far-reaching consequences thereof for human society
UNIT 2	Domestication & Farming Practices (1 Credit)
2.1	The animals in the Indus Valley Civilisation
2.2	Different processes of domestication of animals in ancient India
2.3	The early farming cultures and animal husbandry in ancient India

## REFERENCES:

1. Animal Husbandry and Allied Technologies in Ancient India, P.P. Joglekar, Pankaj Goyal Pentagon Press, 2015
2. Traditional Knowledge System In India, Amit Jha. Atlantic Publishers and Distributors (P) Ltd.
3. Indian Knowledge Systems: <https://iksindia.org/>

<b>NAME OF THE COURSE</b>	<b>NANOTECHNOLOGY IN ANCIENT INDIA</b>
<b>CLASS</b>	F Y BSc & FYBA
<b>COURSE CODE</b>	<b>IKS108</b>
<b>NUMBER OF CREDITS</b>	2
<b>NUMBER OF LECTURES PER WEEK</b>	2
<b>TOTAL NUMBER OF LECTURES PER SEMESTER</b>	30
<b>EVALUATION METHOD</b>	<b>CONTINUOUS ASSESSMENT</b>
<b>TOTAL MARKS</b>	50
<b>PASSING MARKS</b>	20

### **COURSE OBJECTIVES:**

CO 1.	Understand the interpretation of nanotechnology in ancient India
CO 2.	Gain knowledge of nano technology practices in ancient India

### **COURSE LEARNING OUTCOMES:**

CLO 1.	Demonstrate & explain the properties of Nanoparticles.
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UNIT 1	Introduction to Nanoparticles (15 LECTURES)
1.1	Nature as the first fabricator of nanoparticles
UNIT 2	Nanoparticles in ancient time (15 LECTURES)
2.1	Abiotic and biotic nanoparticles of ancient time

### References:

1. History of Nanotechnology: From Prehistoric to Modern Times (Advances in Nanotechnology & Applications) Edited by Madhuri Sharon, Scrivener Publishing Wiley
2. Nanotechnology: Understanding Small Systems" by Ben Rogers, Sumita Pennathur, and Jesse Adams
3. Nanotechnology: A Gentle Introduction to the Next Big Idea" by Mark A. Ratner and Daniel Ratner
4. Nanotechnology: An Introduction" by Jeremy Ramsden
5. The Lost River: On The Trail of the Sarasvati" by Michel Danino