

## Indian Knowledge System : 7 sem

Unit No	Contents	Sub Topics	Video links
		IKS_Engineering _INTRO IKS_CH01_C02 : Why do we need IKS IKS_CH01_C03 : IKS in Action IKS_CH01_C06 : Salient Aspects of IKS Discover IKS : Indian Knowledge Systems: IIT Alumni Event, Washington DC #1	<a href="https://www.youtube.com/watch?v=mjtJDIOZ-h8&amp;t=21s">https://www.youtube.com/watch?v=mjtJDIOZ-h8&amp;t=21s</a> <a href="https://www.youtube.com/watch?v=DrsI1veFJag&amp;t=206s">https://www.youtube.com/watch?v=DrsI1veFJag&amp;t=206s</a> <a href="https://www.youtube.com/watch?v=2MaTbV_18uM&amp;t=320s">https://www.youtube.com/watch?v=2MaTbV_18uM&amp;t=320s</a> <a href="https://www.youtube.com/watch?v=Vwm43welg64">https://www.youtube.com/watch?v=Vwm43welg64</a>  <a href="https://www.youtube.com/watch?v=MKbLFvDd4xo&amp;t=5s">https://www.youtube.com/watch?v=MKbLFvDd4xo&amp;t=5s</a> <a href="https://www.youtube.com/watch?v=D-WdswoSVc&amp;t=1s">https://www.youtube.com/watch?v=D-WdswoSVc&amp;t=1s</a> <a href="https://www.youtube.com/watch?v=2WYZtS_LLog">https://www.youtube.com/watch?v=2WYZtS_LLog</a>
1	<b>Introduction of Indian Knowledge Systems (IKS):</b> Perception and prologue, Historicity of IKS, Indian Traditional Knowledge, Nature and scope, kinds of traditional knowledge, Transition from traditional to western knowledge. <b>The IKS Corpus, Vedic Corpus, Indian Philosophical Systems.</b>	IKS_CH01_C05 : Historicity of IKS	<a href="https://www.youtube.com/watch?v=MKbLFvDd4xo&amp;t=5s">https://www.youtube.com/watch?v=MKbLFvDd4xo&amp;t=5s</a>
		IKS_CH01_C04 : The IKS Corpus- A Classification Framework	<a href="https://www.youtube.com/watch?v=Vwm43welg64">https://www.youtube.com/watch?v=Vwm43welg64</a>
2	<b>Foundational Concepts of Mathematics and Science &amp; Technology:</b> Linguistics; Pānini's work on Sanskrit Grammar, Phoenetics, Ashtadhyayi's vyakarana. Number System and Units of Measurement: concept of zero, Pingala and the Binary system.  <b>Knowledge:</b> Framework & Classifications:  Prameya, Pramana, Samsaya.	Mod-01 Lec-4 Panini's Astadhyayi	<a href="https://www.youtube.com/watch?v=qZsdAXF9DTE">https://www.youtube.com/watch?v=qZsdAXF9DTE</a>
		IKS_CH08_C07 : Binary mathematics and combinatorial problems in Chandaḥ Śāstra	<a href="https://www.youtube.com/watch?v=s_RbFa9Z0y0">https://www.youtube.com/watch?v=s_RbFa9Z0y0</a>
		IKS_CH07_C01 : Indian scheme of knowledge	<a href="https://www.youtube.com/watch?v=n0OQggDmumg&amp;t=447s">https://www.youtube.com/watch?v=n0OQggDmumg&amp;t=447s</a>
		IKS_CH07_C02 : The knowledge triangle	<a href="https://www.youtube.com/watch?v=N05kLLpg-AI">https://www.youtube.com/watch?v=N05kLLpg-AI</a>
		IKS_CH07_C03 : Prameya – A vaiśeṣikan approach to physical reality	
		IKS_CH07_C07 : Pramāṇa – the means of valid knowledge	

**Indian Knowledge System : 7 sem**

	<p><b>IKS_CH07_C06 : Sāmānya, viśeṣa, samavāya</b></p> <p><b>IKS_CH07_C08 : Samśaya – ambiguities in existing knowledge</b></p> <p><b>IKS_CH07_C09 : Framework for establishing valid knowledge</b></p> <p><b>IKS_CH07_C13 : Summary of the chapter</b></p>	<a href="https://www.youtube.com/watch?v=f_Tq8TCDTgo">https://www.youtube.com/watch?v=f_Tq8TCDTgo</a> <a href="https://www.youtube.com/watch?v=x5CZXEWCoYF">https://www.youtube.com/watch?v=x5CZXEWCoYF</a> <a href="https://www.youtube.com/watch?v=gWKt9mz270s">https://www.youtube.com/watch?v=gWKt9mz270s</a> <a href="https://www.youtube.com/watch?v=0T8P2j9-sM0&amp;t=5s">https://www.youtube.com/watch?v=0T8P2j9-sM0&amp;t=5s</a>
	<p><b>IKS_CH07_C04 : Dravyas – the constituents of the physical reality</b></p> <p><b>IKS_CH07_C05 : Attributes – the properties of substances and Action – the driver of conjunction and disjunction</b></p> <p><b>IKS_CH07_C10 : Deductive or inductive logic framework</b></p> <p><b>IKS_CH07_C11 : Potential fallacies in the reasoning process</b></p> <p><b>IKS_CH07_C12 : Siddhānta: established tenets in a field of study</b></p>	<a href="https://www.youtube.com/watch?v=K-YhEdIPHuM">https://www.youtube.com/watch?v=K-YhEdIPHuM</a> <a href="https://www.youtube.com/watch?v=55P_9yKzXlo">https://www.youtube.com/watch?v=55P_9yKzXlo</a> <a href="https://www.youtube.com/watch?v=KnQXok1SPuA">https://www.youtube.com/watch?v=KnQXok1SPuA</a> <a href="https://www.youtube.com/watch?v=DtQV53ZHf-U">https://www.youtube.com/watch?v=DtQV53ZHf-U</a> <a href="https://www.youtube.com/watch?v=ii9iodV7a-w&amp;t=1s">https://www.youtube.com/watch?v=ii9iodV7a-w&amp;t=1s</a>
3	<p><b>Science, Engineering &amp; Technology in IKS:</b> Mathematics; Arithmetic, geometry, trigonometry and algebra, Chanda Sastra of Pingala.</p> <p><b>Astronomy: Elements of the Indian Calendar, Āryabhaṭīya and the Siddhāntic Tradition, Panchanga,</b></p>	
	<p><b>IKS_CH08_C05 : Geometry</b></p>	<a href="https://www.youtube.com/watch?v=py-m1BLthy4">https://www.youtube.com/watch?v=py-m1BLthy4</a>
	<p><b>IKS_CH08_C06 : Trigonometry</b></p>	<a href="https://www.youtube.com/watch?v=hcsWFycLOrc">https://www.youtube.com/watch?v=hcsWFycLOrc</a>
	<p><b>IKS_CH09_C01 : Introduction to Indian astronomy</b></p> <p><b>IKS_CH09_C02 : Indian contributions in astronomy</b></p> <p><b>IKS_CH09_C03 : The celestial coordinate system</b></p> <p><b>IKS_CH09_C04 : Elements of the Indian calendar</b></p> <p><b>IKS_CH09_C05 : Notion of years and months</b></p> <p><b>IKS_CH09_C06 : Pañcāṅga – The Indian calendar system</b></p>	<a href="https://www.youtube.com/watch?v=B8jblvZsl_M">https://www.youtube.com/watch?v=B8jblvZsl_M</a> <a href="https://www.youtube.com/watch?v=KgTS5gbYM60">https://www.youtube.com/watch?v=KgTS5gbYM60</a>  <a href="https://www.youtube.com/watch?v=lFtkoQ4OWNU&amp;t=4s">https://www.youtube.com/watch?v=lFtkoQ4OWNU&amp;t=4s</a> <a href="https://www.youtube.com/watch?v=X2gsGVp_F6g&amp;t=1s">https://www.youtube.com/watch?v=X2gsGVp_F6g&amp;t=1s</a> <a href="https://www.youtube.com/watch?v=zUOTtBgKozQ&amp;t=3s">https://www.youtube.com/watch?v=zUOTtBgKozQ&amp;t=3s</a> <a href="https://www.youtube.com/watch?v=dqvEyopkuxk&amp;t=2s">https://www.youtube.com/watch?v=dqvEyopkuxk&amp;t=2s</a>  <a href="https://www.youtube.com/watch?v=OluGRsheDtw&amp;t=1s">https://www.youtube.com/watch?v=OluGRsheDtw&amp;t=1s</a>

**Indian Knowledge System : 7 sem**

<b>Astronomical Instruments (Yantras) and Jyotish.</b> Engineering & Technology: Metals & Metal Working; Wootz Steel,  <b>Iron and Steel in India,</b> Metals and Metal working Technology,  <b>Lost-wax casting of idols and artefacts,</b>  <b>Dyes and Painting Technology, The art of making perfumes.</b>	<b>IKS_CH09_C07 : Astronomical Instruments (Yantras)</b> <b>IKS_CH09_C08 : Jantar Mantar of Rājā Jai Singh Sawai</b> <b>DISCOVER IKS ACTIVITIES :</b> Conversation with Prof RN Iyengar : Ancient indian astronomy and engineering (Recorded July 2017)	<a href="https://www.youtube.com/watch?v=l3JyINVtun8">https://www.youtube.com/watch?v=l3JyINVtun8</a> <a href="https://www.youtube.com/watch?v=UeaXs1O9qGw">https://www.youtube.com/watch?v=UeaXs1O9qGw</a>
	<b>IKS_CH10_C01 : The rise and fall of a great Indian technology</b> <b>IKS_CH10_C02 : Mining and ore extraction</b> <b>IKS_CH10_C03 : Zinc Extraction</b> <b>IKS_CH10_C04 : Copper and its alloys</b> <b>IKS_CH10_C05 : Iron and steel in India</b> <b>IKS_CH10_C06 : Lost wax casting of idols and artefacts</b> <b>IKS_CH10_C07 : Apparatuses used for extraction of metallic components</b> <b>DISCOVER IKS ACTIVITIES :</b> Ancient India's Contributions to the World (Full Documentary)	<a href="https://www.youtube.com/watch?v=r5yN0IWJHBw">https://www.youtube.com/watch?v=r5yN0IWJHBw</a> <a href="https://www.youtube.com/watch?v=Y38mh2ArHrA&amp;t=2s">https://www.youtube.com/watch?v=Y38mh2ArHrA&amp;t=2s</a> <a href="https://www.youtube.com/watch?v=1bwYf8Y0Zag&amp;t=1s">https://www.youtube.com/watch?v=1bwYf8Y0Zag&amp;t=1s</a> <a href="https://www.youtube.com/watch?v=eX3j7qV5WSw">https://www.youtube.com/watch?v=eX3j7qV5WSw</a> <a href="https://www.youtube.com/watch?v=xqrwZlpUbWU">https://www.youtube.com/watch?v=xqrwZlpUbWU</a> <a href="https://www.youtube.com/watch?v=5EPwREihhCU">https://www.youtube.com/watch?v=5EPwREihhCU</a>  <a href="https://www.youtube.com/watch?v=v5Bn-Ju_aJE">https://www.youtube.com/watch?v=v5Bn-Ju_aJE</a>  <a href="https://www.youtube.com/watch?v=QxgK0dX872k">https://www.youtube.com/watch?v=QxgK0dX872k</a>
	<b>IKS_CH11_C06 : Dyes Painting and Perfumes</b>	<a href="https://www.youtube.com/watch?v=LW_IwEM_ZxY">https://www.youtube.com/watch?v=LW_IwEM_ZxY</a>
<b>4 Humanities &amp; Social Sciences in IKS:</b> <b>Yoga and Ayurveda:</b> Tridoṣas, Triguna System, Body-Mind-Intellect-Consciousness Complex, Sixty-four art forms and occupational skills (64 Kalas). <b>Irrigation Systems and Water management Practices Town Planning &amp; Architecture:</b>		

**Indian Knowledge System : 7 sem**

	Indian Architecture in India, Vāstu Śāstra;  Eight limbs of Vāstu,  Town Planning;  Temple Architecture	<b>IKS_CH12_C02 : Vāstu-śāstra – The science of architecture</b>  <b>IKS_CH12_C03 : Eight limbs of Vāstu</b>	<a href="https://www.youtube.com/watch?v=Ff0xXpHhkA&amp;t=2s">https://www.youtube.com/watch?v=Ff0xXpHhkA&amp;t=2s</a>  <a href="https://www.youtube.com/watch?v=CTO4ShQRR1o&amp;t=1s">https://www.youtube.com/watch?v=CTO4ShQRR1o&amp;t=1s</a>
		<b>IKS_CH12_C01 : Perspective of Arthaśāstra on town planning</b>  <b>IKS_CH12_C04 : Town planning</b>  <b>IKS_CH12_C05 : Temples in India: marvelous stone architecture for eternity</b>  <b>IKS_CH12_C06 : Temple architecture in India</b>  <b>IKS_CH12_C07 : Iconography</b>	<a href="https://www.youtube.com/watch?v=LADsmE0k75Y&amp;t=3s">https://www.youtube.com/watch?v=LADsmE0k75Y&amp;t=3s</a>  <a href="https://www.youtube.com/watch?v=0xR5ZBq6H2A&amp;t=1s">https://www.youtube.com/watch?v=0xR5ZBq6H2A&amp;t=1s</a>  <a href="https://www.youtube.com/watch?v=L5zJgaiHgSc">https://www.youtube.com/watch?v=L5zJgaiHgSc</a>  <a href="https://www.youtube.com/watch?v=bnGKt2ey9zQ">https://www.youtube.com/watch?v=bnGKt2ey9zQ</a>  <a href="https://www.youtube.com/watch?v=Jh4e_MJBcUE">https://www.youtube.com/watch?v=Jh4e_MJBcUE</a>
5	<b>Governance, Public Administration &amp; Management:</b> Rāmāyaṇa on great attributes, Arthaśāstra – Governance & Administration, Janapada, Durga, Kosa, Danda, Mitra. IKS & United Nations Sustainable development goals. Safeguarding traditional Indian Knowledge.	<b>Bharatiya Management: Management and Ancient Indian Wisdom by Dr. Mahadevan</b>  <b>Arthashastra: Modern Relevance</b>  01   Introduction and a bird's eye view   02 : 7 components of Kautilayan state  Management Paradigms from Bhagavad Gita	<a href="https://www.youtube.com/watch?v=gSXUYhJu3Ok">https://www.youtube.com/watch?v=gSXUYhJu3Ok</a>  <a href="https://www.youtube.com/watch?v=XJCwYCY1bP0">https://www.youtube.com/watch?v=XJCwYCY1bP0</a> <a href="https://www.youtube.com/watch?v=6R24qZ1ZSRc">https://www.youtube.com/watch?v=6R24qZ1ZSRc</a>  <a href="https://www.youtube.com/watch?v=PMrQZfXhGjk">https://www.youtube.com/watch?v=PMrQZfXhGjk</a>

Semester:					
<b>INDIAN KNOWLEDGE SYSTEM</b>					
<b>Course Code</b>	:		<b>CIE</b>	:	<b>100 Marks</b>
<b>Credits: L:T:P</b>	:	3:0:0	<b>SEE</b>	:	<b>100 Marks</b>
<b>Total Hours</b>	:	45 Hrs	<b>SEE Duration</b>	:	<b>3 Hours</b>
<b>Unit-I</b>					<b>10 Hrs</b>
<b>Introduction of Indian Knowledge Systems (IKS):</b> Perception and prologue, Historicity of IKS, Indian Traditional Knowledge, Nature and scope, kinds of traditional knowledge, Transition from traditional to western knowledge. The IKS Corpus, Vedic Corpus, Indian Philosophical Systems.					

**Indian Knowledge System : 7 sem**

<b>Unit – II</b>	<b>09 Hrs</b>
<b>Foundational Concepts of Mathematics and Science &amp; Technology:</b> Linguistics; Pānini's work on Sanskrit Grammar, Phoenetics, Ashtadhyayi's vyakarana. Number System and Units of Measurement: concept of zero, Piṅgala and the Binary system. Knowledge: Framework & Classifications: Prameya, Pramana, Samsaya.	
<b>Unit –III</b>	<b>10 Hrs</b>
<b>Science, Engineering &amp; Technology in IKS:</b> Mathematics; Arithmetic, geometry, trigonometry and algebra, Chanda Sastra of Pingala. Astronomy: Elements of the Indian Calendar, Āryabhaṭīya and the Siddhāntic Tradition, Panchanga, Astronomical Instruments (Yantras) and Jyotiḥ. Engineering & Technology: Metals & Metal Working; Wootz Steel, Iron and Steel in India, Metals and Metal working Technology, Lost-wax casting of idols and artefacts, Dyes and Painting Technology, The art of making perfumes.	
<b>Unit –IV</b>	<b>08 Hrs</b>
<b>Humanities &amp; Social Sciences in IKS:</b> <b>Yoga and Ayurveda:</b> Tridoṣas, Triguṇa System, Body-Mind-Intellect-Consciousness Complex, Sixty-four art forms and occupational skills (64 Kalas). <b>Irrigation Systems and Water management Practices Town Planning &amp; Architecture:</b> Indian Architecture in India, Vāstu Śāstra; Eight limbs of Vāstu, Town Planning; Temple Architecture	
<b>Unit –V</b>	<b>08 Hrs</b>
<b>Governance, Public Administration &amp; Management:</b> Rāmāyaṇa on great attributes, Arthaśāstra – Governance & Administration, Janapada, Durga, Kosa, Danda, Mitra. IKS & United Nations Sustainable development goals. Safeguarding traditional Indian Knowledge.	
<b>Course Outcomes: After completing the course, the students will be able to:-</b>	
<b>CO1</b>	Provide an overview on the concept of Indian Knowledge System and its importance.
<b>CO2</b>	Appreciate the need and importance and assets of Indian Knowledge System.
<b>CO3</b>	Recognize the relevance of Traditional knowledge in different domains.
<b>CO4</b>	Establish the significance of Indian Knowledge systems in contemporary world.
<b>CO5</b>	Understand the utility of deep rooted culture and its significance in engineering and technology and develop a route to accomplish goals in their work environment.
<b>Reference Books</b>	

**Indian Knowledge System : 7 sem**

1.	Introduction to Indian Knowledge System Concepts & Applications, B Mahadevan, Vinayaka Rajat Bhat, R N Nagendra Pavana, PHI Learning publishers, ISBN-13: 978-9391818203
2.	Traditional Knowledge System in India, Amit Jha, 2009, Atlantic Publishers and Distributors (P) Ltd., ISBN-13: 978-8126912230
3.	Knowledge Traditions and Practices of India, Kapil Kapoor, Avadesh Kumar Singh, Vol. 1, 2005, DK Print World (P) Ltd., ISBN 81-246-0334,
<b>Suggested Web Links:</b>	
1.	<a href="https://www.youtube.com/watch?v=LZP1StpYEPM">https://www.youtube.com/watch?v=LZP1StpYEPM</a>
2.	<a href="http://nptel.ac.in/courses/121106003/">http://nptel.ac.in/courses/121106003/</a>
3.	<a href="http://www.iitkgp.ac.in/department/KS;jsessionid=C5042785F727F6EB46CBF432D7683B63">http://www.iitkgp.ac.in/department/KS;jsessionid=C5042785F727F6EB46CBF432D7683B63</a> ( <u>Centre of Excellence for Indian Knowledge System</u> , IIT Kharagpur)
4.	<a href="https://www.wipo.int/pressroom/en/briefs/tk_ip.html">https://www.wipo.int/pressroom/en/briefs/tk_ip.html</a>
5.	<a href="https://unctad.org/system/files/official-document/ditcted10_en.pdf">https://unctad.org/system/files/official-document/ditcted10_en.pdf</a>
6.	<a href="http://nbaindia.org/uploaded/docs/traditionalknowledge_190707.pdf">http://nbaindia.org/uploaded/docs/traditionalknowledge_190707.pdf</a>
7.	<a href="https://unfoundation.org/what-we-do/issues/sustainable-development-goals/?gclid=EAIaIQobChMInp-Jtb_p8gIVTeN3Ch27LAmPEAYASAAEgIm1vD_BwE">https://unfoundation.org/what-we-do/issues/sustainable-development-goals/?gclid=EAIaIQobChMInp-Jtb_p8gIVTeN3Ch27LAmPEAYASAAEgIm1vD_BwE</a>