

Indian Institute of Technology Kanpur

Proposal for a new course

1. Course No: PHI 4xx
2. Course Title: Indian Logic
3. Per Week Lectures: 3
Tutorial:
Laboratory:
Additional Hours[0-2]:
Credits (3*L): 9
Duration of Course: Full Semester
4. Proposing Department/IDP : Department of Humanities and Social Science
5. Other Departments/IDPs which may be interested in the proposed course:
6. Other faculty members interested in teaching the proposed course:
7. Proposing Instructor(s): A. V. Ravishankar Sarma

8. Course Description:

Indian Logic (in Sanskrit anviksiki, nyaya, or tarka) is the tradition of systematic reasoning of the Indian subcontinent, evolved over nearly two millennia from roughly the sixth century BCE onward. It is distinctive in that it examines not only the forms of acceptable arguments, but also the sources of valid cognition (pramanas), namely perception, inference, comparison and verbal testimony. Hence logic, epistemology and language are viewed as one continuous study. Validity is analyzed in connection with justified belief and reliable sources (including testimony, a category that Western analytic philosophy has only recently considered respectable). The tradition matured in public deliberative assemblies with formalized rules of debate, and it produced a rich technical apparatus: the five-membered syllogism of the Nyaya school, the three-condition doctrine of the Buddhist logicians, the sevenfold predication of Jainism (saptabhengi), sophisticated theories of truth and error, a precise taxonomy of fallacies (hetvabhengi), and even explicitly non-classical, many-valued modes of reasoning such as the Buddhist four-cornered analysis (catuskoti). This course aims to provide students with the skills to understand, systemize, evaluate, and compare the primary Indian logical frameworks, while recognizing their continued importance in contemporary intellectual debate.

9. Course Objectives:

1. Introduce Indian logic: explain its nature and scope, and show how it is a distinct discipline that can be compared with Western logic.
2. Define and use the Pramana framework. Reconstruct and test the Nyaya five-membered syllogism and the Buddhist trairupya conditions.
3. Identify fallacies with the hetvabhengi classification. Show how the catuskoti and the saptabhengi work as principled non-classical valuation schemes.
4. Compare Indian theories of truth, validity, and causation with classical and non-classical Western theories.
5. Relate these ideas to current research in non-classical logic, artificial intelligence, knowledge representation, linguistics, and the epistemology of testimony.

A) Contents (*preferably in the form of 5 to 10 broad titles*):

S. No	Broad Title	Topics	No. of Lectures
1.	Introduction and Motivation: Nature and scope of Indian Logic	1. Overview of Indian philosophical traditions - The role of logic (nyaya, tarka) in Indian philosophy 2. Brief Survey of six orthodox (astika) and heterodox (nastika) systems. 3. Nature of Logical Inquiry in Indian Logic 4. Core logical concepts: Truth, Vaidity, and Soundness, Some parallels with western Logic (Modern Logic).	3
2.	Charvaka Philosophy – Foundations, Logical analysis in Charvaka	Introduction to the materialist school, Charvaka logic and its implications. The criterion of meaningfulness (arthavada) - Rejection of unobservable entities (atman, ishvara) - The role of negation in Charvaka reasoning.	3
3.	Vaisesika Categories, Vaisesika Logic	Substances (dravya), qualities (guna), motion (karma) - Universals (samanya), particulars (vishesha) - Inherence (samavaya), non-existence (abhava) - Kanada's atomic theory, Theory of causation (karya-karana) - Inherent relation (samavaya) - From non-existence to existence (abhava-sambhava) - Formal analysis of ontological claims, the problem of Universals	6
4.	Nyaya Logical System, Theory of inference	1. Perception (pratyaksha) - Inference (anumana) - Comparison (upamana) - Testimony (shabda) - Gautama's sixteen categories. 2. Theory of inference (I): Proposition (pratijna) - Reason (hetu) - Example (udaharana) - Application (upanaya) - Conclusion (nigamana) The Theory of Inference - Part II: Content Coverage: - Inference for oneself (svarthanumana) - Inference for others (pararthanumana) - Classification of reasons: valid and fallacious – The three conditions of valid reason. 3. Material fallacies (hetvabhasa) - Formal fallacies - Self-deception and cognitive bias - Correct and incorrect reasoning. 4. Nyaya Logic and Modern Formal Logic: Propositional forms in Nyaya - Conditional reasoning, Counterfactual reasoning - Formalization of Indian logic	12

5.	Budhist and Jaina Logic	Buddhist Logic: A brief overview of The four noble truths - Dependent origination (pratitya-samutpada) - Emptiness (shunyata) and no-self (anatman), Nagarjuna and the Madhyamaka tradition, Refutation through reduction to absurdity - The tetralemma (catushkoti) - Neither-this-nor-that, The function of negation. Samvrti-satyam (conventional truth) - Paramarthika-satyam (ultimate truth) - Their logical relationship - Implications for language and meaning in Buddhist epistemology - Apoha (exclusion) theory of meaning - The three conditions (trividha-hetu) Jaina's Logic: Anekanta-vada (non-one-sidedness) - Syadvada (conditionals), Seven-point predication - From certainty to cautious assertion - Logical analysis of qualified statements - Modern parallels: many-valued logic, Rejection of excluded middle (modified) - Dialetheism (true contradictions) - Paraconsistent logic - Implications for belief systems	12
6.	Logic of illusion, Advaita vedanta and comparative study of logic in the six schools of thought	The rope-snake analogy - The three levels of reality , Logic of appearance and reality, error theory in Advaita. Comparing all six systems - Common logical structures Unique contributions - Future directions, A brief overview of relevance of Indian Logic to artificial intelligence , Logic in computer science - Applications in legal reasoning	6
		Total Number lectures	40

B) Pre-requisites, if any: None

C) Short summary for including in the Courses of Study Booklet:

Indian logic (known in Sanskrit as anviksiki, nyāya, or tarka) is a tradition of systematic reasoning that emerged in the Indian subcontinent and evolved over roughly two millennia, beginning around the sixth century BCE. This course introduces Indian traditions of logic and reasoning. The course surveys key schools—Nyāya and Vaiśeṣika, Sāṃkhya and Yoga, Pūrva Mīmāṃsā, Advaita Vedānta, Cārvāka, Jainism, and Buddhist logic—emphasizing theories of knowledge (pramāṇa), inference (anumāna), perception (pratyakṣa), testimony (śabda), and negation (abhāva). No prior background in philosophy, Sanskrit, or logic is required. How do we come to know what we know, and what makes an argument sound? It addresses both questions by exploring India's rigorous traditions of inquiry, ranging from the Cārvāka skeptics and the realist logicians of Nyāya to the Buddhist epistemologists and the Jain philosophers who embrace many-valued truth, and by engaging them in a careful dialogue with

modern symbolic logic. The course culminates in a balanced assessment of five questions: Where do Indian traditions resemble classical logic? Which are better compared with epistemic, modal, many-valued, or defeasible frameworks? Why is Jaina syādvāda not simply many-valued logic? Is Indian logic "epistemic logic"? And how do pramā-based accounts of knowledge compare with Plato's and with the modern justified-true-belief model?

Recommended books:

1. Barlingay, Surendra Shedas (1965). A modern introduction to Indian logic. Delhi: National Pub. House.
2. Matilal, B. K. (1998). *The character of logic in India*. State University of New York Press (edited by J. Ganeri and H. W. K. Siderits)
3. Ganeri, Jonardon (2001). *Indian Logic: A Reader*. Psychology Press.

Reference Books:

1. Ganeri, J. (2004). "Indian logic," in *Handbook of the History of Logic* (Vol. 1)
2. Matilal, B. K. (1986). *Perception: An essay on classical Indian theories of knowledge*. Clarendon Press.
3. Phillips, S. H. (2012). *Epistemology in classical India: The knowledge sources of the Nyāya school*. Routledge. Open access: <https://philpapers.org/rec/PHIEIC>
4. Mohanty, J. N. (2000). *Classical Indian philosophy: An introductory text*. Rowman & Littlefield.
5. Chattopadhyaya, D. (1959). *Lokāyata: A study in ancient Indian materialism*. People's Publishing House
6. Mohanty, J. N. (1992). *Reason and tradition in Indian thought: An essay on the nature of Indian philosophical thinking*. Clarendon Press
7. Priest, G. (2008). *An introduction to non-classical logic: From if to is* (2nd ed.). Cambridge University Press.
8. Raju, P. T. (1985). *Structural depths of Indian thought*. State University of New York Press.
9. Larson, G. J., & Bhattacharya, R. S. (Eds.). (1987). *Encyclopedia of Indian philosophies: Vol. 4. Sāṃkhya: A dualist tradition in Indian philosophy*. Motilal Banarsidass.
10. Halbfass, W. (1992). *On being and what there is: Classical Vaiśeṣika and the history of Indian ontology*. State University of New York Press.
11. Ingalls, D. H. H. (1951). *Materials for the study of Navya-nyāya logic*. Harvard University Press.
12. Hamilton, S. (2001). *Indian philosophy: A very short introduction* (Vol. 48). OUP Oxford.
13. Perrett, R. W. (2016). *An introduction to Indian philosophy*. Cambridge University Press.

Essential Readings:

1. Akṣapāda Gautama. Nyāya-sūtra (G. Jha, Trans., in *The Nyāyasūtras of Gautama with the Bhāṣya of Vātsyāyana and the Vārttika of Uddyotakara*). Poona Oriental Book Agency, 1939;
2. Annambhaṭṭa. Tarkasaṃgraha with Dīpikā (Y. V. Athalye & M. R. Bodas, Trans.). Bombay Sanskrit and Prakrit Series 55
3. Īśvarakṛṣṇa. Sāṃkhyakārikā (G. J. Larson, Trans.). In G. J. Larson & R. S. Bhattacharya (Eds.), *Encyclopedia of Indian philosophies: Vol. 4. Sāṃkhya* (1987), pp. 116–124
4. Śāṅkara. Vivekacūḍāmaṇi (J. Grimes, Trans., Motilal Banarsidass, 2004).
5. Nāgārjuna. Mūlamadhyamakakārikā (J. L. Garfield, Trans., *The fundamental wisdom of the middle way*, Oxford University Press, 1995).
6. Stcherbatsky, T. (2008). *Buddhist Logic* (2 vols.) (Vol. 1). Motilal Banarsidass.

8. Any other remarks:



Dated: 01 October 2026

Proposer(s): A. V. Ravishankar Sarma

Dated:

DUGC/DPGC Convener:

The course is approved / not approved

Chairman, SUGC/SPGC

Dated: