



Savitribai Phule Pune University

(Formerly University of Pune)

Revised Syllabus for

SYBA Logic

[Semester III & IV]

NEP 2020

To be implemented from Academic Year 2025-26

COURSE STRUCTURE

[UG Degree, Year-2]

(w.e.f. academic year 2025-26)

LOGIC

Semester - III

Level/ Year/ Sem.	Course Type	Course Code	Course Title	Credits	Theory / Practical
L-5.0 Year-II Sem. III	Minor	LOG-241-MN	Propositional Logic	02	Theory
	Minor	LOG-242-MNP	Propositional Logic	02	Practical
	GE/OE	OE-201-LOG	Logic and Methodology of Science – I	02	Theory
Semester - IV					
L-5.0 Year-II Sem. IV	Minor	LOG-291-MN	Predicate Logic and Set Theory	02	Theory
	Minor	LOG-292-MNP	Predicate Logic and Set Theory	02	Practical
	GE/OE	OE-251-LOG	Logic and Methodology of Science – II	02	Practical

Assessment and Examination Pattern

Examination Pattern :

2 Credits Course Examination Pattern			
Evaluation Details	Total Marks	Internal Examination (Continuous Internal Evaluation)	External Examination (End Semester University Examinations)
Total Marks	50	15	35
Marks for Passing	20	06	14
Examination Evaluation Pattern	---	<ul style="list-style-type: none"> ▪ Class test/examination Short Questions, MCQs : Marks - 10 ▪ Home assignment/Tutorial /Oral examination/ Students seminar/ presentation/field visit : Marks – 05 	<p>Q.1 Answer the following questions in one and two sentence each (any 5 out of 7) Marks - 10</p> <p>Q.2 Answer the following questions in about 100 words (any 2 out of 3) Marks - 10</p> <p>Q.3 Answer the following questions in about 150 words (any 1 out of 2) Marks - 10</p> <p>Q. 4. Write Short Note (any 1 out of 2) 5 Marks</p>
2 Credits Practical Pattern			
Total Marks	50	15	35
Marks for Passing	20	06	14
Examination Evaluation Pattern	-	<p>Internal Assessment-</p> <ul style="list-style-type: none"> • Practical/Project proposal - 10 Marks • Practical/Project-presentation - 5 Marks 	<p>External Assesment-</p> <ul style="list-style-type: none"> • Practical/Project file/book - 20 Marks • Practical/Project presentation - 15 Marks

S. Y. B. A 4.5/ 100 (III)		
Third Semester: Logic		
Minor		
Title: Propositional Logic Subject Code: LOG-241-MN Credits: 2 (Theory)		
Course Outcomes		
CO1	To comprehend the nature and scope of symbolic logic	
CO2	To define the concept modern understanding of propositions	
CO3	To acquire student with concept of decision procedure	
CO4	To differentiate between tautologous, contradictory and contingent forms.	
Unit No.	Title and Contents	Hours
Theory		
Unit 1.	Symbolic logic: 1. Concept of symbolic logic: nature, scope and applications 2. Modern understanding of propositions: a) Simple and compound propositions b) Truth-functionally and non-truth-functionally compound propositions. 3. Prepositional variables, Prepositional constants, Logical constants and basic truth functions 4. Symbolizing propositions using the above.	15
Unit 2.	Decision Procedure 1. Concept of decision procedure 2. Truth Table as Decision Procedure to identify propositional forms as a) Tautologous, b) Contradictory, c) Contingent	15
Prescribed Reading <ul style="list-style-type: none"> • Irving Copi, Karl Cohen and Kenneth M'cmohan, <i>Introduction to Logic</i>, 15th Edition, Pearson • Kawale. S. R. and Gole Leela; <i>Sugama Akarika Tarkasastra</i> Vidya Prakashan, Griha Pune 1972. • More, Hema; <i>Tarkasastra</i> Nimitta Prakashan Pune 1995 • Daryapurkar, <i>Paramparik Tarkshastra</i>, Bhupali Daryapurkar, Solapur, 1978 • Santosh Thakare, <i>Tarkshastra</i>, Kumbh Prakashan, Amravati, 2001 • Sunil Bhoite, <i>Tarkshastra: Paramparik ani Symbolic</i>, Success Publication, Pune, 2023. • डॉ. डी. वाय. देशपांडे, तर्कशास्त्र प्रवेश, विद्या प्रकाशन नागपूर, 1998. • केदारनाथ तिवारी, तर्कशास्त्र एवं वैज्ञानिक पद्धती, मोतीलाल बनारसीदास, दिल्ली, 2006. • अशोक कुमार वर्मा, सरल निगमन तर्कशास्त्र, मोतीलाल बनारसीदास, दिल्ली, 2005. • पं. द. वा. जोग, तर्कसंग्रह, कॉन्टीनेंटल प्रकाशन, पुणे, 1914. 		

S. Y. B. A 4.5/ 100 (III)		
Third Semester: Logic		
Minor		
Title: Propositional Logic Subject Code: LOG-242-MNP Credits: 02 (Practical)		
Course Outcomes		
CO1	To comprehend the nature and scope of inference identify the types and structure of inference	
CO2	To define the concept like conversion, obversion and opposition	
CO3	To acquire student with nature and structure of opposition	
CO4	To differentiate between induction and deduction	
Unit No.	Title and Contents	Hours
Practical		
Unit 1.	Inference: Immediate inference and mediate inference a) Conversion b) Obversion c) Opposition (Rules and deductions based on these types)	30
Unit 2	Deductive Proof: 1. The relation between induction and deduction 2. Concept of deductive proof 3. Rules of Inference; The Rule of Replacement. 4. Direct proof	30
Prescribed Reading <ul style="list-style-type: none"> Irving Copi, Karl Cohen and Kenneth M'cmohan, <i>Introduction to Logic</i>, 15th Edition, Pearson sKawale. S. R. and Gole Leela; <i>Sugama Akarika Tarkasastra</i> Vidya Prakashan, Griha Pune 1972. More, Hema; <i>Tarkasastra</i> Nimitta Prakashan Pune 1995 Daryapurkar, <i>Paramparik Tarkshastra</i>, Bhupali Daryapurkar, Solapur, 1978 Santosh Thakare, <i>Tarkshastra</i>, Kumbh Prakashan, Amravati, 2001 Sunil Bhoite, <i>Tarkshastra: Paramparik ani Symbolic</i>, Success Publication, Pune, 2023. डॉ. डी. वाय. देशपांडे, तर्कशास्त्र प्रवेश, विद्या प्रकाशन नागपूर, 1998. केदारनाथ तिवारी, तर्कशास्त्र एवं वैज्ञानिक पद्धती, मोतीलाल बनारसीदास, दिल्ली, 2006. अशोक कुमार वर्मा, सरल निगमन तर्कशास्त्र, मोतीलाल बनारसीदास, दिल्ली, 2005. पं. द. वा. जोग, तर्कसंग्रह, कॉन्टीनेटल प्रकाशन, पुणे, 1914. 		

Third Semester: Logic		
(General Elective / Open Elective) (Only for the students of the faculties other than Humanities)		
Title: Logic and Methodology of Science - I Subject Code: OE-201-LOG Credits: 2 (Theory)		
Course Outcomes		
CO1	To introduce and acquaint students with commonsense and science.	
CO2	To acquire a basic understanding of hypothesis.	
CO3	To enhance students' ability to confirmation of hypothesis	
Unit No.	Title and Contents	Hours
Unit1.	Nature of science: 1 Nature of science, pure and applied sciences. Commonsense and Science. 2 Theory and fact 3 Science and Human Values	15
Unit2.	Hypothesis: 1 Nature of Hypothesis, Kinds of Hypothesis 2 Conditions of a good hypothesis 3 Confirmation of Hypothesis 4 Falsifications	15
Prescribed Reading : <ul style="list-style-type: none"> Irving Copi, Karl Cohen and Kenneth M'cmohan, <i>Introduction to Logic</i>, 15th Edition, Pearson Dixit Shrinivas – Bhartiya Tattvajnayan, Phadke prakashan, Kolhapur,2002. Kawale. S. R. and Gole Leela; <i>Sugama Akarika Tarkasastra</i> Vidya Prakashan, Griha Pune, 1972. More, Hema; <i>Tarkasastra</i> Nimitta Prakashan, Pune 1995. Daryapurkar, Paramparik Tarkshastra, Bhupali Daryapurkar, Solapur,1978. Santosh Thakare, Tarkshastra, Kumbh Prakashan, Amravati, 2001. Sunil Bhoite, Tarkshastra: Paramparik ani Symbolic, Success Publication, Pune, 2023. Merrilee H. Salmon, Introduction to Logic and Critical Thinking, 6 th edition, Wadsworth Center Street, Bostan, USA. 		

- Matthew J. Van Cleave, Introduction to Logic and Critical Thinking,
- Sen M., An Introduction to Critical Thinking, Pearson Education India 2010.
- Hitchcock David, Critical Thinking, The Stanford Encyclopedia of Philosophy, Winter 2022 Edition.
- David Kelley, The Art of Reasoning (An Introduction to Logic and Critical Thinking), 4th edition, w. w. Norton & Company Ltd. Castle House, Wells Street, London. 2014
- डॉ. डी. वाय. देशपांडे, तर्कशास्त्र प्रवेश, विद्या प्रकाशन नागपूर, 1998.
- केदारनाथ तिवारी, तर्कशास्त्र एवं वैज्ञानिक पद्धती, मोतीलाल बनारसीदास, दिल्ली, 2006.
- अशोक कुमार वर्मा, सरल निगमन तर्कशास्त्र, मोतीलाल बनारसीदास, दिल्ली, 2005.

S. Y. B. A 4.5/ 100 (IV)		
Forth Semester: Logic		
Minor		
Title: Predicate Logic and Set Theory Subject Code: LOG-291-MN Credits: 02 (Theory)		
Course Outcomes		
CO1	To nature and origin of induction	
CO2	To define the concept like inductive leap	
CO3	To acquire student with the problem of induction and its solution	
CO4	To use the knowledge and application of predicate logic	
Unit No.	Title and Contents	Hours
Theory		
Unit 1.	Induction: 1. Nature and origin of Induction 2. Types of Induction: A) Simple enumeration B) Analogy 3. Inductive leap 4. Problem of induction and its solution	15
Unit 2.	Predicate logic: 1. Introduction to predicate logic 2. Difference between predicate logic and propositional logic 3. Basic terminology: Constants, Variables, Functions, predicates 4. Symbolization	15
Prescribed Reading <ul style="list-style-type: none"> Irving Copi, Karl Cohen and Kenneth M'cmohan, <i>Introduction to Logic</i>, 15th Edition, Pearson Dixit Shrinivas – Bhartiya Tattvajnyan, Phadke prakashan, Kolhapur, 2002. Kawale. S. R. and Gole Leela; <i>Sugama Akarika Tarkasastra</i> Vidya Prakashan, Griha Pune, 1972. More, Hema; <i>Tarkasastra</i> Nimitta Prakashan, Pune 1995. Daryapurkar, Paramparik Tarkshastra, Bhupali Daryapurkar, Solapur, 1978. Santosh Thakare, Tarkshastra, Kumbh Prakashan, Amravati, 2001. Sunil Bhoite, Tarkshastra: Paramparik ani Symbolic, Success Publication, Pune, 2023. डॉ. डी. वाय. देशपांडे, तर्कशास्त्र प्रवेश, विद्या प्रकाशन नागपूर, 1998. केदारनाथ तिवारी, तर्कशास्त्र एवं वैज्ञानिक पद्धती, मोतीलाल बनारसीदास, दिल्ली, 2006. अशोक कुमार वर्मा, सरल निगमन तर्कशास्त्र, मोतीलाल बनारसीदास, दिल्ली, 2005. पं. द. वा. जोग, तर्कसंग्रह, कॉन्टीनेटल प्रकाशन, पुणे, 1914. 		

	S. Y. B. A 4.5/ 100 (II)	
	Forth Semester: Logic	
	Minor	
	Title: Predicate Logic and Set Theory Subject Code: LOG-292-MNP Credits: 02 (Practical)	
	Course Outcomes	
CO1	Comprehend the nature and scope of set Theory	
CO2	Define the concept like intersection set	
CO3	Acquire student with methods of sets	
CO4	Using the knowledge of set theory in competitive examination	
Unit No.	Title and Contents	Hours
Practical		
Unit 1.	Set Theory: 1. Nature of SET 2. Methods of sets 3. Types of Set	30
Unit 2.	Operations of Sets: 1. Intersection Set 2. Union Set 3. Universal Set 4. Complimentary Set 5. Solve examples by using set operations	30
Prescribed Reading <ul style="list-style-type: none"> Irving Copi, Karl Cohen and Kenneth M'cmohan, <i>Introduction to Logic</i>, 15th Edition, Pearson Dixit Shrinivas – Bhartiya Tattvajnanayan, Phadke prakashan, Kolhapur, 2002. Kawale. S. R. and Gole Leela; <i>Sugama Akarika Tarkasastra</i> Vidya Prakashan, Griha Pune, 1972. More, Hema; <i>Tarkasastra</i> Nimitta Prakashan, Pune 1995. Daryapurkar, Paramparik Tarkshastra, Bhupali Daryapurkar, Solapur, 1978. Santosh Thakare, Tarkshastra, Kumbh Prakashan, Amravati, 2001. Sunil Bhoite, Tarkshastra: Paramparik ani Symbolic, Success Publication, Pune, 2023. डॉ. डी. वाय. देशपांडे, तर्कशास्त्र प्रवेश, विद्या प्रकाशन नागपूर, 1998. केदारनाथ तिवारी, तर्कशास्त्र एवं वैज्ञानिक पद्धती, मोतीलाल बनारसीदास, दिल्ली, 2006. अशोक कुमार वर्मा, सरल निगमन तर्कशास्त्र, मोतीलाल बनारसीदास, दिल्ली, 2005. पं. द. वा. जोग, तर्कसंग्रह, कॉन्टीनेटल प्रकाशन, पुणे, 1914. 		

Forth Semester: Logic		
(General Elective / Open Elective) (Only for the students of the faculties other than Humanities)		
Title : Logic and Methodology of Science - II		
Subject Code : OE-251-LOG		
Credits : 2 (Practical)		
CO1	To comprehend the nature and scope of scientific explanation	
CO2	To define the concept like Functional, D.N. Model	
CO3	To acquire student with Research Method in social sciences	
CO4	To acquire the skills by using the Survey, Case study, Field work, Questionnaire, Interview, Observation	
Unit No.	Title and Contents	Hours
Unit1.	Explanation: 1 Nature of scientific explanation 2 Distinction between scientific explanation and common-sense explanation 3 Types of scientific explanation: 1. D.N. Model, 2. Functional, 3. Statistical, 4. Teleological, 5. Probabilistic.	30
Unit2.	Research Method in social sciences: 1. Types of data collection (SPSS) 2. Survey, Case study, Field work, 3. Questionnaire, Interview, Observation (Merits, Demerits, Advantages, Disadvantages, significance, Limitations of all)	30

Prescribed Reading :

- Irving Copi, Karl Cohen and Kenneth M'cmohan, *Introduction to Logic*, 15th Edition, Pearson
- Dixit Shrinivas – Bhartiya Tattvajnyayan, Phadke prakashan, Kolhapur, 2002.
- Kawale. S. R. and Gole Leela; *Sugama Akarika Tarkasastra* Vidya Prakashan, Griha Pune, 1972.
- More, Hema; *Tarkasastra* Nimitta Prakashan, Pune 1995.
- Daryapurkar, Paramparik Tarkshastra, Bhupali Daryapurkar, Solapur, 1978.
- Santosh Thakare, Tarkshastra, Kumbh Prakashan, Amravati, 2001.
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- David Kelley, The Art of Reasoning (An Introduction to Logic and Critical Thinking), 4th edition, w. w. Norton & Company Ltd. Castle House, Wells Street, London. 2014
- डॉ. डी. वाय. देशपांडे, तर्कशास्त्र प्रवेश, विद्या प्रकाशन नागपूर, 1998.
- केदारनाथ तिवारी, तर्कशास्त्र एवं वैज्ञानिक पद्धती, मोतीलाल बनारसीदास, दिल्ली, 2006.
- अशोक कुमार वर्मा, सरल निगमन तर्कशास्त्र, मोतीलाल बनारसीदास, दिल्ली, 2005.