Ahmednagar Jilha Maratha Vidya Prasarak Samaj's

New Arts, Commerce, and Science College, Ahmednagar (Autonomous)
(Affiliated to Savitribai Phule Pune University, Pune)

National Education Policy (NEP)
Choice Based Credit System (CBCS)

Programme Skeleton and Syllabus of
B. A. Logic (Minor) - II Year

Implemented from

Academic Year 2024-25

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's
New Arts, Commerce and Science College, Ahmednagar (Autonomous)

Board of Studies in Logic

Sr. No.	Name	Designation
1.	Prof. Dr. Aman Bagade	Chairman
2.	Prof. Ganesh Nimase	Member
3.	Dr. Jayashri Aher	Member
4.	Dr. Satish Kulkarni	Member
5.	Dr. Prajkta Thube	Member
6.	Dr. Kiran Ahirrao	Member
7.	Dr. Vijayshrinath Kanchi	Academic Council Nominee
8.	Prof. Dr. Gyndeo Upade	Academic Council Nominee
9.	Prof. Dr. Sangita Pande	Vice-Chancellor Nominee
10.	Dr. Sachin Rajput	Alumni
11.	Mr. Deodatta Joshi	Industry Expert

1. Prologue/ Introduction of the programme:

Philosophy enquires into the meaning and significance of life and the world. It is called a second order discipline in so far as it enquires into the foundations and presuppositions of various disciplines. Logic is a science which deals with forms of arguments. In an extended sense, it studies the methodology of deductive as well as inductive science. Modern logic is a fastly developing science and it is closely related to mathematics. It does not cancel the Aristotelian logic but points out its limitations. So in the syllabus, we intend to acquaint the students with the elements of traditional logic, modern logic and scientific method. The syllabus will also acquaint students with a few essential problems of Western and Indian Philosophy.

Logic is the important tool to develop critical thinking. When used in arguments and decision making, deductive reasoning is used as a guideline to present factual evidence. Deductive reasoning allows them to apply the theories to specific situations. Logic study will student to develop analytical soft skills.

Although the power to draw rational conclusions, to some extent or the other, is natural to every human being, scholars have identified the rules of reasoning that we make without being conscious of them. This is the Science of Logic. New

Arts, Commerce and Science College (Autonomous) intends to use Logic course to enable its students:

1. Acquire knowledge of fundamental terms, definitions, concepts, principles and theories of Logic.
2. Understand logic as the study of inference.
3. Understand the purpose of logic and enquiry in general.
4. Differentiate between various forms of statements and arguments.
5. Apply formal techniques to arguments.
6. Develop the ability of logical thinking.
7. Appreciate logical thinking.
8. Develop interest in logic.
9. Detect fallacies involved in arguments.
10. Make use of tools and techniques in logic for solving practical problems in their life.

2. Programme Outcomes (POs)

1. To teach students to acquire pleasures in logical thinking.

2. To acquaint the student with the principles and techniques of Deductive Proof of validity and invalidity in Propositional Logic.

3. To acquaint the student with the principles and techniques of Axiomatic system.

4. To create awareness about the significance of logical thinking for academics and life in general.

5. To prepare students for university evaluation system and competitive examination.

Credit Distribution for B. A. including Major, Minor and OE and other courses.

	Type of Courses	III Yr	IV Yrs (Honours)	IV Yrs Research
Major Marathi	Discipline-Specific Courses (DSC)	46	74	66
	Discipline Specific Elective (DSE)	08	16	16
	Skill Enhancement Courses (SEC)	06	06	06
	Vocational Skill Courses (VSC)	08	08	08
	On-Job Training (OJT)	04	08	04
	Field Project (FP)	04	04	04
	Community Engagement and Service (CEP)	02	02	02
	Research project	00	00	12
	Research Methodology	00	04	04
	Total (I, II and III Year)	78	122	122
Minor	Minor	20	20	20
Other Courses	Open Elective (OE)/ Multidisciplinary Courses	12	12	12
	Indian Knowledge System	02	02	02
	Co-Curricular Courses	08	08	08

Ability Enhancement Courses	08	08	08
Value Education Courses	04	04	04
Total	132	176	176

B. A. Programme Framework: Credit Distribution

Year	Sem	Level	DSC	DSE	SEC	VSC	FP/OJT/IN/CEP	IKS	Minor	OE	CC	AEC	VEC	Total
I	I	4.5	06	-	02	-	-		03	03	02	02	02	22
I	II	4.5	06	-	02	02	-	02	03	03	-	02	02	22
			Exit Option: Award of UG Certificate in Major with 44 credits and an additional 4 credit core NSQF course /Internship or Continue with Major and Minor											
II	III	5.0	08	-	02	-	FP-02		03	03	-	02	02	22
II	IV	5.0	08	-	00	02	CEP-02		03	03	-	02	02	22
			Exit Option: Award of UG Diploma in Major with 88 credits and an additional 4 credit core NSQF course /Internship or Continue with Major and Minor											
III	V	5.5	10	04	-	02	FP-02		04	-	-	-	-	22
III	VI	5.5	08	04	-	02	OJT-04		04	-	-	-	-	22
			Exit Option: Award of 3-Yr UG Degree in Major and Minor with 132 credits or continue with Major for a 4-year Degree											
IV	VII	6.0	14	04	RM:04	-	-		-	-	-	-	-	22
IV	VIII	6.0	14	04	-	-	OJT-04		-	-	-	-	-	22
			4-Yr UG Degree (Honours) with Major and Minor with 176 credits											
IV	VII	6.0	10	04	RM:04	-	RP-04		-	-	-	-	-	22
IV	VIII	6.0	10	04	-	-	RP-08		-	-	-	-	-	22
			4-Yr UG Degree (Honours with Research) with Major and Minor with 176 credits											

B.A Programme Framework: Course Distribution

| Year | Semester | Level | Major | | | | | | Minor | OE | CC | AEC | VEC | Total |
			DSC	DSE	SEC	VSC	FP/OJT/IN/CEP	IKS						
I	I	4.5	02	-	01	-	-	01	01	01	01	01	01	09
I	II	4.5	02	-	01	01	-	-	01	01	01	01	01	09
			Exit Option: Award of UG Certificate in Major with 44 credits and an additional 4 credit core NSQF Course /Internship or Continue with Major and Minor											
II	III	5.0	03	-	01	-	01	-	01	01	01	01	-	09
II	IV	5.0	03	-	-	01	01	-	01	01	01	01	-	09
			Exit Option: Award of UG Diploma in Major with 88 credits and an additional 4 credit core NSQF Course /Internship or Continue with Major and Minor											
III	V	5.5	03	01	-	01	01	-	01		-	-	-	07

III	VI	5.5	02	01	-	01	01	-	01		-	-	-	06
		Exit Option: Award of 3-Yr UG Degree in Major and Minor with 132 credits or continue with Major for a 4-year Degree												
IV	VII	6.0	04	01	RM:01	-	-	-	-		-	-	-	06
IV	VIII	6.0	04	01	-	-	01	-	-		-	-	-	06
		4-Yr UG Degree (Honours) with Major with 176 credits												
IV	VII	6.0	03	01	RM:01	-	01	-	-		-	-	-	06
IV	VIII	6.0	03	01	-	-	01	-	-		-	-	-	05
		4-Yr UG Degree (Honours with Research) with Major with 176 credits												

Programme Framework (Courses and Credits): B. A. Logic (Minor)

Sr. No.	Year	Semester	Level	Course Type	Course Code	Title	Credits
1.	I	I	4.5	MNR-1	BA-LO101T	Traditional Logic	03
2.	I	II	4.5	MNR-2	BA-LO201T	Propositional Logic	03
3.	I	III	4.5	MNR-3	BA-LO301T	Deductive Logic	03
4.	I	IV	4.5	MNR-4	BA-LO401T	Formal Logic	03
5.	I	V	5.0	MNR-5	BA-LO501T	Indian Logic	04
6.	I	VI	5.0	MNR-6	BA-LO601T	Competional Logic	04
							20

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's

New Arts, Commerce and Science College, Ahmednagar
(Autonomous)
Syllabus
B. A. Logic (Minor) - II

Title of the Course: Deductive Logic								
Year: II				Semester: III				
Course Type	Course Code	Credit Distribution		Credits	Allotted Hours	Allotted Marks		
		Theory	Practical			CIE	ESE	Total
MNR-3	BA-LO201T	03	00	03	45	30	70	100

Learning Objectives:

1. To teach students to acquire pleasures in logical thinking.

2. To acquaint the student with the principles and techniques of Deductive Proof of validity and invalidity in Propositional Logic.

3. To acquaint the student with the principles and techniques of Axiomatic system.

4. To create awareness about the significance of logical thinking for academics and life in general.

5. To prepare students for university evaluation system and competitive examination.

Course Outcomes (Cos):

1. Students should understand the basic concepts of logic

2. Students should understand the Classification of propositions

3. Students should aquire the art of inferences inregard to academic understanding

4. Students should understand syllogisms and dilemmas of self life and social system

5. Understand difference between rational and irrational thinking and disputing irrational thoughts

Detailed Syllabus: Example

Unit I: THE METHOD OF DEDUCTION   **(Allotted 15 Lectures)**

1. Formal Proof of Validity (Rules of Inference and Replacement)

2. Various Techniques for proving validity/invalidity

   (i) Proofs of Tautologies

   (ii) Rules of Conditional Proof

   (iii) Indirect Proof

   (iv) Proving Invalidity

(v) Reductio ad Absurdum Method

Unit II: 1.DEDUCTIVE PROOF AND PROVING INVALIDITY (Allotted **15** Lectures)

1. The Concept of deductive proof

2. Rules of Inference and rules of replacement.

3. Nature and method of Direct proof

4. Proving validity of valid arguments in propositional logic by using direct proof method.

5. The nature invalidity.

6. Use of the method of assigning truth-values to demonstrate the invalidity of invalid

   Arguments.

Unit III: INDUCTIVE LOGIC   (Allotted **15** Lectures)

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

5. Hume's Criticism of Induction

Suggested Readings/Material:

1. Copi, I. M., Introduction to Logic, Macmillan Co. New York, 1986.
2. Copi, I. M., Symbolic Logic, Macmillan Co. New York, 1995 (6th ed.).
3. Hughes and Londe, Elements of Formal Logic, Methuen, London, 1965.
   (Relevant chapters only)
4. Terrell, D.B., Logic: A Modern Introduction to Deductive Reasoning, Holt Reinhart
   and Winston, New York, 1967.
5. कावळे एस. आर. आणि गोळे लीला, 'सुगम आकारिक तर्कशास्त्र, पुणे व्दिद्यापीठ प्रकाशन, पुणे, १९७२
6. सु. शि. बारलिनगे व मो . प्र . मराठे - 'तर्करेखा' भाग - २   कॉन्टिन्ट्ल प्रकाशन पुणे - ३०
7. कावळे एस. आर. आणि गोळे लीला, 'सुगम आकारिक तर्कशास्त्र, पुणे व्दिद्यापीठ प्रकाशन, पुणे,

८. मे . पु . रेगे – ' आकारिक तर्कशास्त्र '

९. बी . एस . दर्यापूरकर, पारंपारिक तर्कशास्त्र ,प्रकाशक: भूपाळी दर्यापूरकर, कोल्हापूर, १९७८

१०. बी. आर. जोशी, एस. व्ही. कुलकर्णी आणि इ. आर. मठवाले, तर्कविद्या भाग - १,

स्वाती प्रकाशन, पूर्णा,२००२

E-Content

(1) Online Downloadable Syllabus Based Study Materials

1. E-Content Learning - SPPU, Pune (Exam Purpose Module in English and Marathi) :
http://study Materials.unipune.ac.in:8080/jspui/

2. Sunil Bhoite YouTube मराठी : श्रेयांक-घटकांची स्पष्टिकरणात्मक व्याख्याने

https://www.youtube.com/channel/UC7JeiDxLgsjaRjX3mek8NDg

3. PHILOSOPHER'S NOTES मराठी नोट्स : http://philosophia.yolasite.com/

(2) Online Downloadable Reading Study Materials – Articles.

1. Introduction to Logic http://logic.stanford.edu/intrologic/public/index.php

2. Deductive reasoning/deductive logic

   https://en.wikipedia.org/wiki/Deductive_reasog

3. Deductive and Inductive Arguments https://www.iep.utm.edu/ded-ind/

4. Rule of inference https://en.wikipedia.org/wiki/Rule_of_inference

5. List of rules of inference https://en.wikipedia.org/wiki/List_of_rules_of_inference

(3) Audio-Visual Materials

(A) YouTube

1. PHILO-notes, What Is Logic? - Introduction to Logic (05 minutes 14 secs.):
   https://www.youtube.com/watch?v=oVgVz175Rdw&ab_channel=PHILO-notes

2. Mark Thorsby, Introduction to Formal Logic (Videos) :
   https://www.youtube.com/channel/UCh613185XS3ttEUA8UYnPuw

3. A.V. Ravishankar Sarma, Identification of Arguments (54 minutes 50 secs.) :
   https://www.youtube.com/watch?v=gfYwQ7oxDok&list=PLbMVogVj5nJS1F-yeDwn16nsuYrpSYzaO&ab_channel=nptelhrd

4. Mark Thorsby, Basic Concepts: Arguments, Premises, & Conclusions (35 minutes

5 secs.):

https://www.youtube.com/watch?v=qL6HMPOYlVs&list=PLS8vfA_ckeuZ9UjAHhA1q-ROZGuE_h21V&ab_channel=MarkThorsby

5. What is an Axiom? (Philosophical Definition) (06 minutes 53 secs.):

https://www.youtube.com/watch?v=qSpKQfSnN44&ab_channel=Carneades.org

6. Lassonde Student, Axioms, Rules of Inference and Proofs in Predicate Logic (09 minutes 57 secs.) :

https://www.youtube.com/watch?v=AWPQKvWBJIk&ab_channel=LassondeStudent

7. Mark Thorsby, Argument Forms: Proving Invalidity (26 minutes 44 secs.) :

https://www.youtube.com/watch?v=bCuqts1f2NU&ab_channel=MarkThorsby

8. Mark Thorsby, Predicate Logic: Finite Universe Method (01 hour 08 minutes 52 secs.) :

https://www.youtube.com/watch?v=x6lnBtOS6E0&ab_channel=MarkThorsby

(B) Films (Recommended)

1. Philosophy and Film Database: Logic/Critical thinking:

https://libguides.newcastle.edu.au/philosophyandfilmdatabase/logic

Ahmednagar Jilha Maratha Vidya Prasarak Samaj's

New Arts, Commerce and Science College, Ahmednagar
(Autonomous)
Syllabus
B. A. Logic (Minor) -II

Title of the Course: Formal Logic								
Year: II				Semester: IV				
Course Type	Course Code	Credit Distribution		Credits	Allotted Hours	Allotted Marks		
		Theory	Practical			CIE	ESE	Total
MNR-4	BA-LO401T	03	00	03	45	30	70	100

Learning Objectives:

    1. To introduce Logic as an academic discipline to students.

    2. To acquaint the student with Predicate logic and Rules of Quantification.

    3. To equip students with the logic of relations.

    4. To acquaint the student to the pleasures in logical thinking

Course Outcomes (Cos):

    1. Students Should acquire the pleasures in logical thinking.

    2. student's inculcate critical and systematic thinking in mind as well as common stakeholder in general.

    3. To create awareness about the significance of logical thinking for academics and life in general, in students and common stakeholders.

    4. To prepare students for university evaluation system and competitive examinations.

Detailed Syllabus:

Unit I: PREDICATE LOGIC   (Allotted 15 Lectures)

  1.   Nature and need of Predicate Logic.

  2.   Singular and General Propositions.

  3.   Constants and Variables (Individual and Predicate)

  4.   Propositional functions.

  5.   Substitution instances.

  6.   Instantiation and Quantification

Unit II: RELATIONAL LOGIC   (Allotted 15 Lectures)

  1. Nature of relational logic: as an extension of Predicate logic.

  2. Properties of dyadic relations.

3. The logical structure of relational proposition.

4. Kinds of relational propositions according to the number of relata.

5. Symbolizing relational proposition.

Unit III: Quantificational Logic   (Allotted 15 Lectures)

1. Individual constants and predicate constants.

2. Building up the notion of propositional function through substitution instances.

3. Defining a propositional function in terms of variable components , as the basic of generating propositions.

4. Obtaining propositions from propositional functions , Instantiation and Quantification.

5. Meaning of universal and existential quantifiers .

6. Formulating a four-fold scheme for symbolising general propositions.

7. Exercises in symbolizing general proposition .

Suggested Readings/Material:-

1. Copi. I.M. Symbolic Logic, India, Pearson , (2008).

2. Copi. I.M. Introduction to Logic, 14th Edition, Pearson, India, Hindi translation alsoavailable with Pearson , (2012).

3. Hurley. Patrick, Introduction to Logic , Delhi, Wadsworth , (2007) .

4. Jeffrey, R. Formal Logic: Its scope and limits, U.S.A. MaGraw Hill , (1967) .

5. Quine, W.V.O. Methods of Logic, London, Routledge , (1965) .

6. Sen, Madhucchanda, Logic, Delhi. Pearson , (2008) .

7. Hughes and Londe, Elements of Formal Logic, Methuen, London, 1965. (Relevant chapters only)

8. सु. शि. बारलिनगे व   मो . प्र . मराठे – ' तर्करेखा ' भाग - २ , कॉन्टिन्ट्ल प्रकाशन पुणे – ३० .

9. कावळे एस्. आर. आणि गोळे लीला, 'सुगम आकारिक तर्कशास्त्र, पुणे व्दिघापीठप्रकाशन, पुणे, १९७२.

10. मे . पु . रेगे – ' आकारिक तर्कशास्त्र '

11. बी . एस . दर्यापूरकर , पारंपारिक तर्कशास्त्र ,प्रकाशक: भूपाळी दर्यापूरकर, कोल्हापूर ,१९७८.

12. बी. आर. जोशी , एस. व्ही. कुलकर्णी आणि इ. आर. मठवाले , तर्कविद्या भाग – १, स्वाती प्रकाशन , पूर्णा ,२००२ .

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