Fergusson College (Autonomous)

Pune

Learning Outcomes-Based Curriculum

for

F.Y.B. A. (Logic)

With effect from June 2019

Programme Outcome

1	The student will be acquainted with the nature of Logic, its scope and its significance as a science of reasoning.
2	The student will be well-versed with various kinds of inference and their application in day to day life.
3	The student will comprehend logical issues with reference to methodologies of natural and social sciences.
4	The student will be able to trace the development of Logic in Western as well as Indian traditions.
5	The student will be able to process information in a logically consistent manner to arrive at their own position about a certain topic.
6	The student will have acquired reasoning skills which would enhance the further learning in any discipline including Philosophy and Logic.
7	The student will have sound knowledge of the theory and application of the techniques used in symbolic logic to identify valid and invalid arguments.
8	The student will be well equipped with the skills to relating to formal and non-formal reasoning.

Programme Structure

Year	Course Code	Course Title	Credits
F.Y. B.A.	LOG1101	Logical Reasoning- Indian & Western	3
	LOG1201	Elementary Symbolic Logic	3
S.Y. B.A.	LOG2301	First Order Predicate Logic	3
	LOG2401	Logic: Methodology of Natural Sciences	3
T.Y. B.A.	LOG3501	Second Order Predicate Logic	3
	LOG3601	Logic: Methodology of Social Sciences	3

Course Outcomes

CLASS	Course Code	Course Title	Course Learning Outcome
F.Y. B.A. SEM - I	LOG1101	Logical Reasoning- Indian and Western	The learner will be able to: • comprehend the nature and scope of Logic • trace the stages of development of logic • differentiate between propositions and sentences • identify deductive arguments, their premises and conclusion • recognise the difference as well as the relation between truth and validity in the context of a deductive argument • evaluate different kind of immediate inferences • identify and explain formal and informal fallacies • use the Venn diagram technique for proving validity of categorical syllogisms • compare the Nyaya theory of Anumana and Deductive Inference • identify valid and invalid forms of argument in day to day life

SEM - II	LOG1201	Symbolic Logic - Elementary	The learner will be able to: • comprehend the limits of traditional logic and the need for modern logic and the technique of symbolic logic • classify propositions from the modern symbolic logic point of view. • identify various truth functions and symbolise propositions • assign truth values to truth functional compound propositions • use methods of decision procedure to differentiate between valid and invalid argument forms • identify valid argument forms through Rules of Inference and Rules of Replacement • Prove Validity of arguments in Propositional Logic using various methods • Demonstrate invalidity of arguments in Propositional Logic

PAPER CODE: LOG1101
PAPER - I:
Title: Logical Reasoning: Indian and Western
[Credits - 3]

	Title and Contents
Unit - I	1.1. What is Logic? Why study Logic? 1.2. A brief history of Logic 1.3. Understanding Basic Concepts: Argument, Inference, Proposition, Truth, Validity and Soundness 1.4. Deductive and Inductive Inferences 1.5. Logical Reasoning in the Indian Tradition: Methods of argumentation 1.6 Introduction to Nyaya Epistemology
Unit - II	2.1. Traditional Classification of Propositions: Hypothetical, Disjunctive and Categorical 2.2. Nature and Classification of Categorical Propositions 2.3. Mediate and Immediate Inferences: Opposition as an immediate Inference (Square of Opposition) 2.4. Conversion, Obversion and Contraposition 2.5. Mediate Inferences: Categorical Syllogism: Syllogistic Rules and Fallacies Venn Diagram technique for proving validity of Syllogisms
Unit - III	3.1. Other Mediate Inferences: Disjunctive and Hypothetical Syllogisms: Rules and Fallacies 3.2. Dilemma: Simple and Complex, Refutation and Rebuttal 3.3. Nature of Panchavayavi Vakya 3.4. Nyaya Anumana: Concepts of Hetu, Sadhya, Paksha and Vyapti Classification of Anumana
Unit - IV	4.1. Fallacies: Nature and Classification 4.2. Understanding Informal Fallacies: Petitio Principi, Ignoratio Elenchi (Baculum, Hominem, Misericordium, Verecundium, Ignoratium, Populum), Division, Composition, Accident, Converse Accident. 4.3. Hetvabhasas: The fallacies of the Nyaya theory of Inference

References:

1. Introduction to Logic, by Irving Copi, Karl Kohen and Kenneth M'cmohan, 14th Edition, Relevant Chapters.
2. An Introduction to Indian Philosophy, Dhirendramohan Datta and Satishchandra Chatterjee.

PAPER CODE: LOG1201
PAPER - I: Title: Symbolic Logic: Elementary
[Credits - 3]

	Title and Contents
Unit - I	1.1. Need for Symbolic Logic 1.2. Modern Classification of Propositions: Simple and Compound; Truth Functionally and Non-Truth Functionally Compound 1.3. Types of Truth Functions; Symbolization of Propositions Exercises in Symbolization
Unit - II	2.1. Understanding the Basic Truth-functions 2.2. Methods of Decision Procedure: Truth-table, Shorter Truth-table and Truth-tree 2.3. Determining Propositions as Tautologies, Contradictory and Contingent
Unit - III	3.1. Proving Validity: Deductive Proof 3.2. Rules of Inference and Rules of Replacement
Unit - IV	4.1. Conditional and Indirect Proof Method of Proving Validity 4.2. Demonstrating Invalidity of Invalid Arguments

References:

1. Introduction to Logic, by Irving Copi, Karl Kohen and Kenneth M'cmohan, 14th Edition.
2. Hurley Pattrick, A Concise Introduction to Logic, 11th Edition, Wadsworth Cenage Publication, 2012.