SYLLABUS UNDER AUTONOMY

FIRST YEAR B.A. LOGIC
SEMESTER – I

Academic Year 2016-2017
### LOGIC

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F.Y. B.A. Logic  
Semester I  

LOG1101 Logical Reasoning: Indian and Western

Objectives:

i. To introduce Logic as an academic subject
ii. To introduce fundamental concepts in the process of reasoning
iii. To provide a historical background for Indian and Western Logic
iv. To introduce Syllogistic Logic in both, Indian as well as western context.

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
2.6. 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
3.5. 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

Books for Reference:
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
Objectives

i. To acquaint students with symbolic Logic.
ii. To introduce techniques of decision procedure and formal proof of Validity
iii. To introduce preliminary Set theory.

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
1.4. Exercises in Symbolization

Unit II

2.1. Understanding the Basic Truth-functions
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
3.3. Conditional and Indirect Proof Methods
3.4. Proving Invalidity

Unit IV

4.1. Introduction to Set Theory
4.2. Definitions and Nature of: Sets, elements of sets, sub-set, proper sub-set, null-set, universal sets, compliment of set, identity of sets
4.3. Modes of specifying sets: listing, defining
4.4. Basic operation on sets: union, intersection, complementation.

Books for Reference:

1. Introduction to Logic, by Irving Copi, Karl Kohen and Kenneth M’cmohan, 14th Edition
2. Pattrick Suppes (Chapter on Set Theory)