F.Y.B.A. Course in Logic
(Approved by B.O.S. in Philosophy)

Title of the Three Year Course in Logic:
LOGIC AND PRINCIPLES OF REASONING

G1: Introduction to Logic and Principles of Reasoning

(*Objective* : To explain the basic principles of correct reasoning and to provide students ample scope to exercise their reasoning based on the above principles.
The course is divided into two terms of four units each. The approximate duration of teaching of each unit will be twelve lectures)

Ist Term :
Traditional Logic

Unit 1:
The Nature of Logic as the study of Inference:
1. Logic: Nature, subject-matter and scope
2. Deductive and Inductive branches of logic.
3. Difference between proposition and sentence; Proposition and propositional form; Argument and argument form
4. Formal character of Deductive logic.

Unit 2:
 Traditional understanding of propositions and their classification :
1. Basic subject-predicate structure and components:
Quantifier, subject term, copula, predicate term.
2. Classification of propositions into Categorical,
Hypothetical, Disjunctive.
3. Four-fold scheme of Categorical Propositions
(A E I O).
4. Distribution of Terms in A E I O Propositional forms.

Unit 3:
 Traditional understanding and classification of inference :
1. Immediate Inference : Opposition, Conversion, Obversion.
2. Mediate Inference : Categorical Syllogism, Mixed Disjunctive Syllogism, Pure and Mixed Hypothetical Syllogism, Dilemma and its kinds; Refutation and Rebuttal.

Unit 4:
 Fallacies:
1. Formal fallacies (All those pertaining to kinds of Inference in item 3 above).
2. Non-formal fallacies : Division, Composition, Accident, Converse Accident, Many Questions, False Cause, Petitio Principii.
3. Ignoratio Elenchi : Argumentum : ad baculum, ad misericordiam, ad hominem, ad ignorantiam, ad verecundiam, ad populum.

IInd Term :
 Propositional Logic

Unit 5 .
1. Symbolic logic : nature, scope and applications.
2. Modern understanding of Propositions and their classification into :
 (a) Simple and compound propositions
 (b) Truth–functionally and non-truth-functionally compound propositions.
3. Propositional variables, Propositional constants, Logical constants and basic truth-functions
4. Symbolizing propositions using the above.

Unit 6:
 Use of the following Decision Procedures to identify propositional forms as Tautologous, Contradictory or Contingent:
Truth Table, Truth Tree, Normal forms (C.N.F., D.N.F.)

Unit 7:
 Deductive Proof:
1. Rules of Inference; The Rule of Replacement.
2. Kinds of Proof : Direct, Conditional, Indirect.

Unit 8:
1. Use of the method of assigning truth-values to demonstrate the invalidity of invalid arguments.
2. Application of the methods of reasoning to examples of different kinds.

Books for Study:
1. Copi I. M. *Introduction to Logic* Macmillan Company New York (Tenth Edition).
2. Copi I. M. *Symbolic Logic* Macmillan Company New York 6th Edition (Relevant Chapters).
3. Kawale. S. R. and Gole Leela; *Sugama Akarika Tarkasastra* Pune Vidyarth*i* Prakashan Griha Pune 1972
4. More, Hema; *Tarkasastra* Nimitta Prakashan Pune 1995

Books for Reference:

1. Barker Stephen; *Elements of Logic* McGraw- Hill Book Co New York 1965
2. Read Carveth *Logic;Part1(Deductive)* Progressive Publishers Calcutta 1953
3. Barlingay Surendra and. Marathe. M. P; *Tarkarekha,* Part I
   Continental Prakashan, Pune
4. Joshi B.R., Kulkarni S. V. and Mathvale E. R.; *Tarkavidya* Part I Swati Prakashan Parbhani 2002
5. Deshpande, D.Y.; *Tarkashastra*
6. Rege, M. P.; *Akarika Tarkashtra*