Anekant Education Society's

Tuljaram Chaturchand College, Baramati

(Autonomous)

Three Year B.A. Degree Program

(Faculty of Humanities)

CBCS Syllabus

S.Y. B. A. (Logic) Semester - IV

For Department of Philosophy & Logic

Tuljaram Chaturchand College, Baramati

Choice Based Credit System Syllabus (2022 Pattern)

To be implemented from Academic Year 2023-2024

Name of the Programme   : B.A Philosophy & Logic
Program Code   : UALO
Class   : S.Y.B.A.
Semester   : IV
Course Type   : General (G-2) (Theory)
Course Name   : Symbolic Logic
Course Code   : UALO241
No. of Lectures   : 48
No. of Credits   : 03

Course Objectives:

1. To acquaint Students with Symbolic LogicTo introduce Symbolic logic is also used in game-playing programs
2. To introduce Deductive systems and symbolizations and derivations of first order Predicate logic
3. To introduce complex symbolizations and derivations of second order predicate logic
4. To introduce symbolic logic programs can be used to query knowledge bases to answer questions or make decisions based on available information
5. Teach the construction and evaluation of truth tables.
6. Explore the use of rules of inference

Course Outcomes:

CO1. Students can acquire critical thinking ability.
CO2. Symbolic logic programs can check if a logical model satisfies certain properties or requirements
CO3. It can improve students' analytical thinking capacity.
CO4. It helps students to improve their decision-making power.
CO5. Students can make logical decisions in any situation.
CO6. Understand the fundamental concepts of formal logic..
CO7. Construct and evaluate truth tables for complex logical expressions.

Semester- IV   UALO241 G-2 Symbolic Logic

Unit No.	Topics & Learning Points	No. of Hours
1	**Predicate Logic- I** A. Need for Predicate Logic, difference in approach between Traditional logic and Predicate Logic B. Singular and General Propositions, Constants and Variables (Individual and Predicate), Propositional functions and Substitution instances; Instantiation and Quantification C. Universal and existential quantifiers; symbolising general propositions; Evaluation of the square of opposition of traditional logic; Exercises in symbolising general propositions.	12
2	**Predicate Logic- II** A. Need for quantification rules B. Nature, form and use of Quantification rules (Preliminary version), Rule of quantificational negation (Q.N.) C. Proving the validity of arguments involving the quantification rule (preliminary version).	12
3	**Relational Logic- I** A. Predicates and relations; Relational Logic as an extension of Predicate logic; the logical structure of relational proposition; kinds of relational propositions according to the number of relata. B. Symbolising relational propositions C. Proving validity of arguments involving relational propositions	12
4	**Relational Logic- II** A. Properties of dyadic relations B. Enthymeme. Proving validity of relational Enthymematic arguments C. Study of identity as a relation, Exercises in symbolising propositions involving the relation of Identity, Rules of Identity, proving validity of arguments involving identity	12

Readings:
Reference Book:-
1. Copi, I. M., Introduction to Logic, Macmillan Co. New York, 1986. (14th Edition)
2. Copi, I. M., Symbolic Logic, Macmillan Co. New York, 1995 (5th Ed.).
3. Pattrick Suppees (Chapter on Set Theory)
4. Symbolic logic (4thed.) I. M. Copi.
5. Formal logic : scope and limits
6. तर्कविद्या भाग १,२ डॉ. बी. आर. जोशी, प्रा. कुलकर्णी, प्रा. मठवाले
7. तर्कशास्त्र (पारंपरिक व सांकेतिक) – डॉ. सुनील ब. भोईटे

8. तर्कशास्त्र - श्रीनिवास दीक्षित
9. तर्कशास्त्राची मूलतत्त्वे - वाडेकर दे.द.
10. सुलभ तर्कशास्त्र - प्रा मुकुंद कदम
11. पारंपरिक तर्कशास्त्र - नांगरे, फडतारे, चौगुले, हिरवे, वाघमोडे

Choice Based Credit System Syllabus (2022 Pattern)

Mapping of Program Outcomes with Course Outcomes

Class: SYBA (Sem IV)   **Subject**: Logic
Course: Symbolic Logic   **Course Code**: UAPH 241 (G-2)

Weightage: 1= weak or low relation, 2= moderate or partial relation, 3= strong or direct relation

Mapping of Program Outcomes with Course Outcomes

Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	3	1	1	2	2	3	2	3
CO 2	2	2	2	3	1	1	2	2
CO 3	3	2	2	1	1	2	1	2
CO 4	2	2	2	3	3	1	1	2
CO 5	2	1	3	2	3	2	1	2
CO 6	2	1	2	1	1	3	1	3
CO 7	2	1	2	2	1	2	2	2

Justification for the mapping

(PO1): Research-Related Skills

- CO1 (Critical Thinking Ability): Critical thinking is an essential skill for research. By acquiring critical thinking ability, students are better equipped to ask relevant questions, plan, execute, and report the results of a research project under supervision.

(PO2): Effective Citizenship and Ethics

- CO3 (Improved Analytical Thinking Capacity): Analytical thinking is crucial for ethical decision-making. Improved analytical thinking capacity gained through the course contributes to students' ability to act with an informed awareness of moral and ethical issues.

(PO3): Social Competence

- CO6 (Understanding Fundamental Concepts of Formal Logic): Clear expression and effective communication are crucial for building interpersonal relationships. Understanding the fundamental concepts of formal logic enhances students' linguistic competencies, enabling them to express themselves clearly in personal and professional life.

(PO4): Disciplinary Knowledge

- CO2 (Symbolic Logic Programs): The course outcome related to symbolic logic programs contributes directly to the demonstration of disciplinary knowledge and its applications to the modern world.

(PO5): Personal and Professional Competence

- CO4 (Improved Decision-Making Power) and CO5 (Logical Decision-Making in Any Situation): Both course outcomes focus on enhancing students' decision-making abilities. This directly aligns with the program outcome of equipping students with strong work attitudes and professional skills for independent and collaborative work.

(PO6): Self-directed and Life-long Learning

- CO7 (Construct and Evaluate Truth Tables): The ability to construct and evaluate truth tables for complex logical expressions reflects students' engagement in independent and life-long learning, aligning with the program outcome of self-directed learning in the context of socio-technological change.

(PO7): Environment and Sustainability

- The critical thinking and problem-solving skills developed in CO1 and CO8 contribute to the understanding of the impact of scientific solutions in societal and environmental contexts, supporting the program outcome of understanding the need for sustainable development.

(PO8): Critical Thinking and Problem Solving

CO1 (Critical Thinking Ability) and CO8 (Exhibiting Critical Thinking Skills): Both course outcomes directly contribute to the program outcome of exhibiting critical thinking skills and using higher-order cognitive skills to approach problems in social environments.