Anekant Education Society's

Tuljaram Chaturchand College, Baramati

(Autonomous)

Three Year B.A. Degree Program in Philosophy & Logic

(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 (2019 Pattern)

To be implemented from Academic Year 2020-2021

Name of the Programme : B.A Philosophy & Logic
Program Code : LOG
Class : S.Y.B.A.
Semester : IV
Course Type : General (G-2) (Theory)
Course Name : **FORMAL LOGIC**
Course Code : LOG 2401
No. of Lectures : 48
No. of Credits : 03

Course Objectives:

I.   To acquaint Students with Symbolic Logic
II. To Introduce quantifiers (universal and existential) and understand their role in predicate logic.
III. To introduce Deductive systems and symbolizations and derivations of first order Predicate logic
IV. To Use rules of inference to derive conclusions in predicate logic
V.   To Introduce students to the basic concepts of formal logic.
VI. To Analyze and critique logical reasoning in various contexts.
VII. To Construct truth tables to evaluate the validity of propositional arguments

Course Outcomes:

CO1. Students can acquire critical thinking ability.
CO2. It enhances logical reasoning capacity in the student..
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. Critically assess logical reasoning in professional and academic contexts.

Semester- IV   LOG-2401 G-2 FORMAL LOGIC

Unit No.	Topics & Learning Points	No. of Hours
1	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; symbolizing general propositions; Evaluation of the square of opposition of traditional logic; Exercises in symbolizing general propositions.	12
2	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	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. Symbolizing relational propositions C. Proving validity of arguments involving relational propositions	12
4	A. Properties of dyadic relations B. Enthymeme. Proving validity of relational Enthymemic arguments C. Study of identity as a relation, Exercises in symbolizing 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 (2019 Pattern)

Mapping of Program Outcomes with Course Outcomes

Class: SYBA (Sem III) **Subject**: Logic
Course: Formal Logic **Course Code**: LOG 2401 (G-2)

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

Programme Outcomes (POs)

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

Justification for the mapping

PO1 Research-Related Skills:
- CO1. Students can acquire critical thinking ability.
- CO2. It enhances logical reasoning capacity in the student.
- CO3. It can improve students' analytical thinking capacity.
- CO8. Critical Thinking and Problem solving: Exhibit the skill of critical thinking and use higher order cognitive skills to approach problems situated in their social environment, propose feasible solutions and help in its implementation.

Justification: These course outcomes contribute to developing research-related skills by fostering critical thinking, logical reasoning, and analytical abilities. These skills are essential for planning, executing, and reporting the results of a research project.

PO2 Effective Citizenship and Ethics:
- CO8. Critical Thinking and Problem solving: Exhibit the skill of critical thinking and use higher order cognitive skills to approach problems situated in their social environment, propose feasible solutions and help in its implementation.

Justification: Critical thinking skills, emphasised in CO8, enable students to act with an informed awareness of moral and ethical issues, aligning with the effective citizenship and ethics program outcome.

PO3 Social Competence:
- CO1. Students can acquire critical thinking ability.
- CO2. It enhances logical reasoning capacity in the student.
- CO3. It can improve students' analytical thinking capacity.
- CO7. Construct and evaluate truth tables for complex logical expressions.

Justification: Communication skills, logical reasoning, and the ability to construct truth tables contribute to social competence, helping students express themselves clearly, build interpersonal relationships, and demonstrate multicultural sensitivity.

PO4 Disciplinary Knowledge:
- CO6. Understand the fundamental concepts of formal logic.
- CO7. Construct and evaluate truth tables for complex logical expressions.

Justification: CO6 and CO7 directly address the development of disciplinary knowledge by ensuring a strong understanding of formal logic, which is fundamental to various disciplines.

PO5 Personal and Professional Competence:
- CO2. It enhances logical reasoning capacity in the student.
- CO4. It helps students to improve their decision-making power.
- CO5. Students can make logical decisions in any situation.

Justification: Logical reasoning and improved decision-making power, as emphasised in CO2 and CO4, contribute to personal and professional competence.

PO6 Self-directed and Life-long Learning:
- CO1. Students can acquire critical thinking ability.
- CO6. Understand the fundamental concepts of formal logic.

Justification: Critical thinking and understanding fundamental concepts are crucial for fostering self-directed and life-long learning skills.

PO7 Environment and Sustainability:
- CO8. Critical Thinking and Problem solving: Exhibit the skill of critical thinking and use higher order cognitive skills to approach problems situated in their social environment, propose feasible solutions and help in its implementation.

Justification: Critical thinking and problem-solving skills, as highlighted in CO8, enable students to understand the impact of scientific solutions in societal and environmental contexts, aligning with the environment and sustainability program outcome.

PO8 Critical Thinking and Problem Solving:
- CO1. Students can acquire critical thinking ability.
- CO2. It enhances logical reasoning capacity in the student.
- 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.
- CO8. Critical Thinking and Problem solving: Exhibit the skill of critical thinking and use higher order cognitive skills to approach problems situated in their social environment, propose feasible solutions and help in its implementation.

Justification: CO1 to CO8 collectively contribute to the development of critical thinking and problem-solving skills, aligning with the program outcome on critical thinking and problem-solving.