Anekant Education Society's

Tuljaram Chaturchand College, Baramati

(Autonomous)

Four Year B.A. Degree Program

(Faculty of Humanities)

CBCS Syllabus

F.Y. B. A. (Logic) Semester -II

For Department of Philosophy & Logic

Tuljaram Chaturchand College, Baramati

Choice Based Credit System Syllabus (2023 Pattern)

(As Per NEP 2020)

To be implemented from Academic Year 2023-2024

CBCS Syllabus as per NEP 2020 for FYBA Logic (Minor)
(w. e. f. from June, 2023-24)

Name of the Programme	**: B.A.**
Program Code	**: UALOG**
Class	**: F.Y.B.A.**
Semester	**: II**
Course Type	**: Minor (Theory)**
Course Name	**: Scientific Method**
Course Code	**: LOG-161-MN**
No. of Lectures	**: 30**
No. of Credits	**: 02**

Course Objectives:

1. To ensure that students comprehend the steps and principles of the scientific method.
2. To develop critical thinking skills.
3. To familiarise students with basic research skills.
4. To teach students how to formulate clear and testable hypotheses, as well as how to refine them based on data and results.
5. To provide students with the skills to collect, organise, and analyse data using appropriate tools and techniques.
6. To discuss the importance of ethical conduct in scientific research.
7. To encourage independent research and inquiry, where students can apply the scientific method to investigate topics of interest..

Course Outcomes:

CO1. Students should be able to explain the steps and principles of the scientific method including observation, hypothesis formulation, experimentation, data collection, and conclusion drawing.
CO2. Students should be able to critically thinking Skills.
CO3. Students should be capable of designing, conducting, and evaluating scientific research
CO4. Students should have acquired practical research skills
CO5. Students should understand the importance of ethical conduct in scientific research and be able to identify and address ethical issues in research.
CO6. Students should be capable of revising and refining hypotheses based on empirical data and adapting research methods as needed.
CO7. Students should be able to conduct independent research or inquiry, applying the scientific method to investigate topics of interest.

Semester- II LOG-161-MN Scientific Method

Unit No.	Topics & Learning Points	No. of Hours
1	**Nature of Science** A. Definition and Characteristics of Science B. Common sense and Science	10
2	**Postulates of Science** A. Uniformity of Nature B. Principle of Causality	10
3	**Scientific Investigation** A. Stages of Scientific investigation B. Nature of Scientific observation and experiment	10

Books for Reading		
1	An Introduction to Logic and Scientific Method	Cohen and Nagel
2	Essentials of Scientific Method	Wolf
3	Science and Scientific Method	Korade, Sawant
4	Education for student youth	Arain Mounal
5	Scientific Method	Shivaji University Publication Hirve, Pitake, Nargare,Mrs. Patankar
6	तर्कशास्त्र आणि वैज्ञानिक पध्दती	वाडेकर, हरोलीकर
7	तर्कशास्त्र	श्री. ह. दीक्षित
8	वैज्ञानिक पध्दती	ज. रा. दाभोळे
9	वैज्ञानिक पध्दती	शिवाजी विद्यापीठ कोल्हापूर प्रा. हिरवे प्रा. नांगरे, प्रा.पिटके, प्रा. फरतारे, प्रा. वाघमोडे, प्रा. चौगुले
1	तर्कशास्त्र व वैज्ञानिक पध्दती	काळे, कावळे, हल्याळकर
1	E-Content विज्ञान आणि त्याचे स्वरूप https://youtu.be/vffUu3ILjhA व्यावहारिक ज्ञान व विज्ञान https://youtu.be/YyCcEFmpekc कारणाचे स्वरुप https://youtu.be/hL4XwzgPeRQ पर्यावरणाचे स्वरूप https://youtu.be/xR-UmBovr_8 शुद्ध शास्त्रे व उपयोजित शास्त्रे https://youtu.be/Ly-6VIw6ftA	Dr. Sunil B. Bhoite

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(As Per NEP 2020)

Mapping of Program Outcomes with Course Outcomes

Class: FYBA (Sem II) **Subject**: Logic

Course: **Scientific Method** **Course Code**: LOG-161-MN

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	1	1	1	1	2	1	2
CO 2	1	2	3	1	1	1	1	1
CO 3	3	1	1	3	1	2	3	3
CO 4	1	1	1	2	3	2	2	1
CO 5	1	3	1	1	1	1	1	1
CO 6	2	1	2	2	2	3	2	3
CO 7	2	1	2	2	2	1	3	2

Justification for the mapping

(PO1) - Research-Related Skills:

Course Outcome 1 (CO1): Students should be able to explain the steps and principles of the scientific method including observation, hypothesis formulation, experimentation, data collection, and conclusion drawing.

Justification: CO1 aligns with PO1 by ensuring that students acquire foundational research-related skills. Understanding the scientific method is crucial for planning, executing, and reporting research projects. It establishes a strong base for research ethics, intellectual property rights, and the avoidance of plagiarism.

(PO2) - Effective Citizenship and Ethics:

Course Outcome 5 (CO5): Students should understand the importance of ethical conduct in scientific research and be able to identify and address ethical issues in research.

Justification: CO5 directly addresses the ethical component of research, reinforcing the commitment to professional ethics and responsibility as outlined in PO2. Students, by grasping the ethical considerations in research, demonstrate an informed awareness of moral and ethical issues.

3 (PO3) - Social Competence:

Course Outcome 2 (CO2): Students should be able to develop critical thinking skills.

Justification: CO2 contributes to social competence by fostering critical thinking skills. The ability to think critically is essential for expressing oneself clearly and precisely, as specified in PO3. It also enables students to engage effectively in real and virtual media, showcasing multicultural sensitivity.

(PO4) - Disciplinary Knowledge:

Course Outcome 3 (CO3): Students should be capable of designing, conducting, and evaluating scientific research.

Justification: CO3 directly aligns with PO4 by ensuring that students acquire both theoretical and practical understanding of disciplinary knowledge. The ability to design, conduct, and evaluate research demonstrates the application of disciplinary knowledge to the modern world.

(PO5) - Personal and Professional Competence:

Course Outcome 4 (CO4): Students should have acquired practical research skills.

Justification: CO4 contributes to the development of personal and professional competence as outlined in PO5. Acquiring practical research skills equips students with the necessary tools to work independently and collaboratively in a team environment.

(PO8) - Critical Thinking and Problem Solving:

Course Outcome 6 (CO6): Students should be capable of revising and refining hypotheses based on empirical data and adapting research methods as needed.

Justification: CO6 directly addresses critical thinking and problem-solving skills required in PO8. The ability to adapt research methods based on empirical data demonstrates higher-order cognitive skills in approaching problems within their social environment.