Deccan Education Society’s
FERGUSSON COLLEGE (AUTONOMOUS),
PUNE

Syllabus
for

S. Y. B. A. Logic
[Pattern 2019]
(B.A. Semester-III and Semester-IV)

From Academic Year
2020-21
Fergusson College (Autonomous), Pune

Structure of S.Y.B.A. – Faculty of Arts and Humanities

Under CBCS pattern (2019-20) effective from June 2020

Equivalence Syllabus for Department of Philosophy (Subject – Logic)

<table>
<thead>
<tr>
<th>SY BA</th>
<th>New CBCS Pattern</th>
<th>Old /Existing Pattern</th>
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</thead>
<tbody>
<tr>
<td>Sem III</td>
<td>CC (3 credits)</td>
<td>General Paper 2</td>
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<tr>
<td>PHI2301: Title: Predicate Logic I</td>
<td></td>
<td>Title: First Order Predicate Logic</td>
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Note: SEC 1A is CC ’1 or 2’ (General paper for other department students)

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<tr>
<td>PHI2401: Title: Predicate Logic II</td>
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<td>Title: Second Order Predicate Logic</td>
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Note: SEC 1B is CC-’1 or 2’ (General paper for other department students)
### S.Y.B.A. Semester III

**Subject: LOGIC**  
**CC (LOG2301): Paper title Predicate Logic I**  

[Credits-3]

#### Course Outcomes
At the end of this course, students will be able to

**CO1** Identify the limits of propositional logic and explain the need for Predicate and Relational Logic  
**CO2** Use quantificational rules to prove validity of arguments in Predicate Logic  
**CO3** Demonstrate invalidity of arguments in Predicate Logic  
**CO4** Acquire the basics of Critical Thinking.

<table>
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<th>Unit</th>
<th>Details</th>
<th>Lectures</th>
</tr>
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</table>
| I    | - Need for Predicate Logic, difference in approach between Traditional logic and Predicate Logic  
  - Singular and General Propositions, Propositional functions and Substitution instances; Instantiation and Quantification  
  - Set of symbols for symbolizing general propositions; Evaluation of the square of opposition of traditional logic; Exercises in symbolizing general propositions | [12] |
| II   | - Need for quantification rules  
  - Nature, form and use of Quantification rules (Preliminary version), Rule of quantificational negation (Q.N.)  
  - Proving the validity of arguments involving quantification rule (preliminary version) | [12] |
| III  | - The basis for demonstration of invalidity of arguments  
  - Method of demonstrating invalidity of arguments in Predicate logic  
  - Exercises in demonstrating invalidity of arguments in predicate logic | [12] |
| IV   | Critical Reasoning  
  What is Critical Reasoning  
  - Its benefits and barriers  
  - Critical Reasoning and Logic  
  - Identifying Arguments – Premises, Hidden Premises, Conclusions, Intermediate Conclusions | [12] |

#### Books-
3. An Introduction to Critical Thinking, Madhucchanda Sen, Pearson  
### S.Y. B.A. Semester IV

**Subject:** Logic  
**CC (LOG2401):** Paper title: Predicate Logic II  
**[Credits-3]**

#### Course Outcomes
At the end of this course, students will be able to

<table>
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<th>CO1</th>
<th>Differentiate between singly general and multiply general propositions</th>
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<tr>
<td>CO2</td>
<td>Identify errors in application of revised quantification rules</td>
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<tr>
<td>CO3</td>
<td>Analyse the structure of a relational proposition</td>
</tr>
<tr>
<td>CO4</td>
<td>Evaluate the approaches to problem of induction and its formal and material grounds</td>
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#### Unit Details

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| I    | - The nature and definition of multiply general propositions  
     | - Exercises in symbolizing multiply general propositions                                                                                                         | [12]     |
| II   | - Need for revising the preliminary quantification rules; Revised form of quantification rules  
     | - Exercises pertaining to erroneous proofs  
     | - Exercises in proving the validity of arguments involving the use of revised Quantification rules, proof of logical truths involving quantifiers                     | [12]     |
| III  | - Predicates and relations; Relational Logic as an extension of Predicate logic; The logical structure of relational proposition  
     | - Symbolizing relational propositions  
     | - Proving validity of arguments involving relational propositions  
     | - Properties of dyadic relations  
     | - Enthymeme. Proving validity of relational Enthymemic arguments                                                                                              | [12]     |
| IV   | - Induction and Deduction Revisited  
     | - Simple Enumeration, Analogy, Scientific Induction,  
     | - The problem of Induction, Hume on Induction  
     | - Scientific hypothesis, Conditions of acceptability of hypothesis                                                                                           | [12]     |

#### Books-