

Syllabus
Math 01.504 Introduction of Mathematical Logic

CATALOG DESCRIPTION

Math 01.504 Introduction to Mathematical Logic 3 S.H

This course includes intuitive set theory, relations and functions, sentential calculus, predicate calculus, mathematical systems, axiomatic theories.

OBJECTIVES:

This course, which is intended to give some acquaintance with the foundations of mathematics, deals with questions such as what is truth, what is valid reasoning, what constitutes proof? The orientation is scientific rather than philosophical. Hence, the concentration is on symbolic logic as opposed to syllogistic treatment. Illustrative examples are drawn from familiar topics in mathematics.

CONTENT:

1. The Statement of Calculus
 - 1.1. Sentential Calculus
 - 1.2. Truth Tables
 - 1.3. Validity, tautology, relations between connectives
 - 1.4. Consistent and inconsistent premises
2. The Predicate Calculus
 - 2.1 Terms, predicates, variables, constants
 - 2.2 Quantifiers, denial of quantifiers
 - 2.3 Formulas, free and bound variables
 - 2.4 Validity and valid consequence
3. Axiomatic Theories

TEXTS:

Ebbinghaus, H.D., MATHEMATICAL LOGIC, Springer-Verlag, New York, 1989.

Mannin, Y.I., A COURSE IN MATHEMATICAL LOGIC, Springer-Verlag, New York, 1991.

Polya, G., PATTERNS OF PLAUSIBLE REASONING, Princeton University Press, Princeton, NJ 1990.