Course Title: Logic for Computer Science
Credit Structure (L-T-P-Cr): (3-0-0-3)
Course Code: IT424
Program/ Semester: B.Tech, Semester VI
Category: Elective
Prerequisites (if any)/desired skill set: Discrete Mathematics

Course objective: Students are expected
(1) To learn syntax and semantics of propositional logic and first order logic
(2) To learn the proof procedures and its soundness and completeness in propositional logic and first order logic
(3) To learn definability theorem

Course content:
Propositional Logic
Syntax, Semantics, Normal Forms, Natural Deduction, Resolution procedure
First Order Logic
Syntax, Semantics, Natural Deduction, Herbrand Theory, Resolution Procedure
Further First Order Features
Craig’s Interpolation Theorems, Beth’s Definability Theorems,
Introduction to a Theorem Prover Tool

Suggested textbook/references:
2. Logic in Computer Science: Modelling and reasoning about systems, M. Huth, M. Ryan, Cambridge University Press, 2004
3. First Order Logic and Automated Theorem Proving, Melvin Fitting, Springer, 1996

Grading Policy
Midsem 40%
Endsem 50%
Attendance 10%