SYMBOLIC LOGIC

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INTENDED AUDIENCE : May be used as core. Or, could be an Elective Course;Both. May serve as UG as well as PG

Course;B.Tech, B.E, M.Tech., M.E, B.Sc,M.Sc, B.A, M.A.

INDUSTRY SUPPORT : Software companies, Defense Research labs, Management Schools

COURSE OUTLINE :

Logic is a part of every systematic field of inquiry As the essential foundation for rational investigation. Logic has always been a multidisciplinary and an interdisciplinary subject. Its versatility is evinced in its vast and varied applications in digital electronics, computer and manufacturing technologies, and also for deliberating in law, public policy and business strategy. In view of the above, it is a value-addition to one's skill-base to be exposed to this all-important subject. Logic, roughly speaking, is the study of principles of correct reasoning. It is a foundational component for any systematic and rational investigation. It is a discipline that adds value to every other systematic field of inquiry.This course is designed to enable the participants To gain acquaintance with the fundamentals of Propositional logic and Predicate Logic. To strengthen the foundation with problem-solving training

ABOUT INSTRUCTOR :

Prof. Chhanda Chakraborti (Ph.D University of Utah, USA) did her Ph D dissertation on Logic of Indicative Conditionals. She is a double M.A from University of Washington, USA, and Jadavpur University. She has 20 years of experience of teaching logic in India and abroad. She regularly teaches logic at IIT Kharagpur. Her textbook on logic "LOGIC: Informal, Symbolic and Inductive", Prentice Hall of India
(2006) 2nd edition 2007, is widely used for logic teaching. She was invited to teach Logic at Department of Mathematical Information Technology, University of Jyvaskylla, Finland, and at University of Turku, Finland. She has organized 6 Summer and Winter Schools to teach Logic, and most recently organized an international Logic School in December 2015.

COURSE PLAN :
Week 1: Introduction to Logic, and to arguments
Week 2: Propositional Logic Syntax
Week 3: Propositional LogicSemantics. Truth table
Week 4: Propositional LogicSemantics. Truth Trees
Week 5: Proofs and Derivations
Week 6: Proofs with Limited Scope Assumption
Week 7: Logic of Classes and Syllogisms
Week 8: First Order Predicate Logic