IT 517- Formal Development of Programs (3-0-0-3)
Instructor: Ashok Thakorhbai Amin

Pre-requisites: MTech Standing, Familiarity with a programming language and background in Propositional and Predicate Logic (and mathematical maturity).

Texts

Course Coverage
This course is concerned with the design of provably correct programs: sequential and parallel.

Program specifications, for sequential programs, are written using predicate logic and quantifiers in the form of pre- and post- conditions. Programs are written in a language for which the semantics of language constructs are defined using weakest preconditions. Programs and proof are developed hand in hand with proof leading the way. Program correctness ensures that the program terminates in a finite number of steps and meets the program specification. Efficiency issues are addressed as part of program development as well.

Issues in the design of Parallel Programs; Program notations, logic, and structure; Architectures and Mappings; Communicating processes; and Terminal Detection.

Conduct of the Course
The course will be require active student participation; the instructor will serve primarily as a facilitator. There will be two InSem exams and an EndSem exam.