PhD Degree
(40 Credit Hours)

Description of Thesis

COMP 799-PhD THESIS (22Crs.): Since the PhD. is the highest earned degree conferred by Faculty of Engineering. The thesis should demonstrate superior quality both in scientific, creativity and presentation capabilities. It must be rationally related; research oriented, and should reflect scholarly and literary merit, beyond the master’s degree, which is indicative of the candidate's ability to conduct original research in engineering.

Description of Elective Courses


COMP 702-PARALLEL COMPUTING (3Crs.): Discusses the design, analysis and implementation of algorithms for parallel computers. Models of parallel machine structures: array, tree, mesh, Hyper-cube. Topics include selection, merging, sorting, searching, matrix processing, numerical problems, fast Fourier transforms, complexity of parallel computations, parallel architecture including SIMD machines, MIMD machines, and VLSI systolic arrays.

COMP 703-SPECIAL TOPICS IN ARTIFICIAL INTELLIGENCE (3Crs.): Search techniques, games, knowledge representation, logic and theorem proving. Expert systems. Natural language understanding. Vision. Learning from experience. Lisp (Prolog) is used to write programs related to the course.


COMP 705-IMAGE UNDERSTANDING (3Crs.): Manipulation of digital images: enhancement, restoration, change-detection and compression techniques. Orthogonal transforms. Clustering and feature extraction.

COMP 707-SPECIAL TOPICS IN DATA SECURITY (3Crs.): Covers latest topics in computer and information security.

COMP 708-SPECIAL TOPICS IN LOGIC THEORY (3Crs.): Covers latest topics in logic theory.


COMP 710-APPLICATIONS OF AUTOMATA THEORY TO DIGITAL DESIGN (3Crs.): Applications of theory of finite automata, push-down automata, and Turing machines to the design of digital machines. Emphasis will be on the computational capabilities of classes of finite and infinite automata and on the consequences for digital design. Theory of NP completeness, description of NP complete problems in digital design, and the consequences for design processes.