Computer Science Program
PhD Qualifying Examination Guidelines
(Revised 11/16/2012)

The exam is made of two parts; each part is for four hours. Part I is over CS undergraduate core courses and Part II is over two main sub-areas of Computer Science.

There will be a total of 12 questions in Part I, four (4) questions from each area of Part I, and a student should answer any 9 questions with at least 2 questions from each area. Passing score for Part I exam is 70%.

Each student should select two areas of Part II at the time of registration for the exam. There will be a total of eight (8) questions in Part II, four questions from each of the selected two areas of Part II, and a student should answer only three (3) questions from each of the selected two areas of part II. Passing score for Part II exam is 70%.

The exam is closed-book, closed-notes, and any information, if necessary, will be provided as part of the exam.

Part I
This part tests a student's knowledge over the three following areas:

Hardware
EE 354 Digital Logic
CS 458 Computer Architecture

Software
CS 351 Programming Languages
CS 537 Intro to Operating Systems

Theory
CS 317 Discrete Information Structure
CS 535 Algorithm Design and Analysis

Part II
This part tests a student's knowledge over two of the following areas.

Artificial Intelligence
CS 422 Intro to Artificial Intelligence *OR* CS 710 Artificial Intelligence
CS 743 Intelligent User Interfaces

Computer Hardware, Architecture & Performance Evaluation
CS 458 Computer Architecture
CS 760 Computer Systems Performance Evaluation

Computer Graphics & Visualization
CS 459 Fundamentals of Computer Graphics
CS 718 Advanced Computer Graphics

Computer Networks
CS 520 Computer Networks
CS 730 Advanced Computer Networks

Computer Security
CS 469 Intro to Computer Security
CS 759 Data Security

Human Computer Interaction & User Interfaces
CS 423 Into to Natural Language Processing *OR* CS 723 Natural Language Processing
CS 747 Human Computer Interaction

Programming Languages & Compilers
CS 431 Programming Languages Concepts
CS 654 Intro to Compilers OR CS 754 Compiler Construction and Theory
CS 732 Type Systems for Programming Languages

Theory & Algorithms
CS 417 Introduction to the Theory of Computation
CS 535 Algorithm Design and Analysis
CS 704 Analysis of Algorithms