COMP 5230, Declarative Programming Languages and Principles

Credit hours: 3 lecture
Contact hours: 3 lecture

Catalog Description: Functional and logic programming theoretical foundations, models and implementation issues; example language studies.

Prerequisites: COMP 3220
Corequisites: None

Selected Elective Course (CSCI, SWEN, WIRS)

Instructor or Course Coordinator: Dr. Jeff Overbey

Required Textbook

Reference Materials
The Haskell home page is at http://www.haskell.org/ and information about the Haskell language can be found there.

Software Used
Haskell

Course Outcomes
The student will be able to
• understand and apply declarative programming principles, languages and techniques.

Topics Covered
• Programming with functions mathematical foundations (6 hours)
• Functional programming basics (3 hours)
• Higher order functions (3 hours)
• Evaluation modes (3 hours)
• Example functional languages; problem solving (6 hours)
• Implementation issues (6 hours)
• Type checking and inference, reduction, Combinators, dataflow, garbage collection, Programming with logic, mathematical foundations (6 hours)
• Propositional logic, predicate logic, logic programming techniques (3 hours)
• Cuts and tail recursion, logic programming and functional logic, logic programming paradigms (3 hours)
• Forward and backward chaining, Example logic programming languages; problem solving (4 hours)
• Exams (2 hours)
Course Requirements
• Homework Assignments (40%)
• Exams (60%)

Syllabus prepared: Spring 2016