Quality Enhancement Plan (QEP)
Applied Critical Thinking for Lifelong Learning and Adaptability

Applied Critical Thinking Statement:
This course has been authorized by UHCL as an Applied Critical Thinking (ACT) Course which means that in addition to learning about the specified course content, students will be engaged with some or all of the Elements of Thought and Universal Intellectual Standards of critical thinking. The objective of an ACT course is to develop the student’s ability to become skilled at analysis and evaluation by applying a set of intellectual tools that may be effectively used across all disciplines (as well as to the student’s personal life). Based on the Foundation for Critical Thinking model (http://www.criticalthinking.org/), critical thinking involves thinking for a purpose, asking questions, using information, applying concepts, drawing inferences and conclusions, identifying assumptions, anticipating implications and consequences, and recognizing points of view. The Universal Intellectual Standards that are applied to these Elements of Thought of critical thinking in order to develop Intellectual Traits include clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness.

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Office Hours: Mon, Wed: 12:00 – 3:00 pm, and by appointment.

Teaching Assistant (TA):
TA Office hours: Neha Bethapudi

| Mon: 11 – 1 pm | Tue: 12 – 5 pm |
| Wed: 2 – 4 pm | Thu 10 – 12 pm & 4 – 7 pm |
| And by appointment |

Email: BethapudiN8686@UHCL.edu <or> nehaphani@gmail.com
Room: D-119 lab (computer lab, first floor Delta building).

Course Pre-requisite
CSCI 2315 Data structures

Textbook
References:

Course Description (and how critical thinking is present):
This course will introduce and study the main concepts for programming languages from conceptual point of view; topics will include formal language definition and grammar, lexical and syntactic analysis, parsing, finite state machines, types and names, functions, design techniques and implementation issues for compilers, imperative, object-oriented, functional, and logic programming paradigms. Both numeric and string processing languages will be covered. The course assumes knowledge of at least one imperative language. One of the central questions in this course is “What are the various and important design and implementation issues I need to identify about various programming languages (PL) and PL paradigms?” Students will be able to clearly and accurately specify the purpose of stages of the compiling process and the significant functions and output of each stage. Moreover, this course explains significant and relevant language design concepts like static type checking, dynamic type checking, strong typing, dynamic name binding, parameter passing by reference, classes, abstract methods, inheritance and their consequences that can be handled in one of multiple ways. For such concepts, and their consequences, students will use deep analysis and critical thinking to accurately understand the material.

Learning Outcomes (SLO):

Upon completion of this course, students will be able to:

1. Clearly explain the purpose of the five core principles of programming languages: syntax, names, types, semantics, and functions.
2. Accurately describe and construct solutions with finite state machines, deterministic, non-deterministic, and regular grammar.
3. Explain the Significance of the concept in each step in the compilation process.
4. Clearly describe the relevant information on the four major programming paradigms: imperative, object-oriented, functional, and logical.
5. Identify correct and incorrect sentences accurately in a given grammar using parse tables.
6. Write correctly small programs in LISP.
7. Write correctly small programs in Prolog.

Elements of Critical Thinking*

The elements of thought are as follows:
1. All reasoning has a purpose
2. All reasoning is an attempt to figure something out, to settle some question, to solve some problem
3. All reasoning is based on assumptions
4. All reasoning is done from some point of view
5. All reasoning is based on data, information and evidence
6. All reasoning is expressed through, and shaped by, concepts and ideas
7. All reasoning contains inferences or interpretations by which we draw conclusions and give meaning to data
8. All reasoning leads somewhere or has implications and consequences


Major Activities that Promote Critical Thinking:

1- Writing slide presentation (MS PowerPoint ppt slides) on the most important three concepts in the five core principles of programming languages: syntax, names, types, semantics, and functions in connection with the compilation process steps. This will address the first and the third SLOs. This assignment focuses on connections: Students will make connections to related concepts of the compilation process and core concepts of programming language upon researching the programming language literature.
2- Writing a term paper. This is a group assignment. Each group will write and submit a term paper about the concept and purpose of the finite state machine and regular grammar. In this assignment, students will make connections to the particular problems in grammar and finite state machines. This assignment assesses the second SLO.

Assessment: Excellent: 90% - 100%
Acceptable: 60% - 89%
Unacceptable: 0% - 59%

SLOs #1 to #3 will be assessed by the two ACT activities discussed above. The primary C of the four C’s to be assessed is connections.

General Course Outline

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Grading and Evaluation

Homework & Quizzes 30%
Midterm exam 30%
CT activity 5%
Final exam 35%

Important dates:
Midterm exam: Monday March 23th
Final exam: Monday May 11th
General Notes

- Blackboard will be used in this course to post course material, announcements, and any handouts. Students are expected to review and read class material from Blackboard and from the book before coming to class. The material will be posted on the course Blackboard before class time. This is a face-to-face course conducted as lectures and presentations.

- All submissions and deliverables of assignments are due at the beginning of the class (first ten minutes) in the due date. Some assignments will be submitted online in Blackboard.

- Class attendance is expected. It is the student’s responsibility to get the material discussed, announcements, handouts, or anything conducted during a missed class meeting.

- Some course materials and handouts, e.g. homework paper, will be distributed in the class and may not be posted electronically on Blackboard.

- Participations and discussions from students are highly encouraged and will be rewarded.

- All class assignments: 30% taken off per day penalty on late submissions. For example, if the homework is graded out of 150 points, then 30% (or 45 points) will be taken from whatever grade you make if you submit one day late.

- There will be quizzes given in the course. Usually quizzes will be announced one week before. Sometimes, quizzes will be announced in the same day at the beginning of the class.

- Makeup of exams and quizzes will be very restricted, and is allowed only under a documented (appropriate documents) legitimate excuse that is to the discretion of the instructor.

- Students with special needs and disability should contact the instructor as soon as possible and contact Disability Services Office at 281-283-2627 website: www.uhcl.edu/disability

- Academic Honesty: HONESTY CODE of UHCL states: I will be honest in all my academic activities and will not tolerate dishonesty. Students and Faculty are bound to the honor code; therefore, academic dishonesty will not be tolerated in this class! See the UHCL catalog for more details. You are encouraged to become familiar with the policy of academic dishonesty found in the UHCL official student handbook. All submissions are considered completely 100% your own work. Sharing the course material after finishing this course is not allowed. Any violation of the dishonesty rules will result in filing Academic Dishonesty Form and subtracting 10 points of total course grade for each incident. (resource: you can check this resource which includes a tutor on academic integrity and honesty: virtual academic integrity library Vail: http://www-apps.umuc.edu/vailtutor/).

Some important dates:

- Spring Regular 15-Week (January 20, 2015 - May 4, 2015)
  - January 20, 2015  First Class Day - Regular 15-Week Session
  - March 16 - 22, 2015  University Holiday - Spring Break
  - April 14, 2015  Last day to Drop/Withdraw-Regular 15-Week Session
  - May 4, 2015  Last Day of Class - Regular 15-Week Session
  - May 5 - May 11, 2015  Face-to-Face Final Exam Period
  - May 28, 2015  Grades available over E-services Online