CSC 410 – Software Evaluation

1. CSC 410 – Software Evaluation

2. credit units 4 contact hours 6

3. Course Coordinator: Alex Dekhtyar

4. Textbook (or other required material):
   - Lazar, Feng, Hochheiser, Research Methods in Human Computer Interaction
   - Anthony, Design and Experiments for Engineers and Scientists
   - Stefan Buettcher, Charles L. A. Clarke, Gordon V. Cormack, Information Retrieval: Implementing and Evaluating Search Engines
   - Forrest Shull, Janice Singer, Dag Sjoberg (Eds), Guide to Advanced Empirical Software Engineering

5. a. Course Description:
   Theory and practice of evaluation of software and software systems. Design of experiments for measuring software performance, measuring software output quality, comparing multiple implementations of the same algorithm, and evaluation of software heuristics. Selection of appropriate software evaluation measures and criteria. 3 lectures, 1 laboratory.

   b. Prerequisite: CSC 349; STAT 301, STAT 312, STAT 321 or STAT 350.

   c. Required/Elective/Selective Elective for CPE, CSC, EE, SE

      |                    | CSC | CPE | SE |
      |-------------------|-----|-----|----|
      | Required          |     |     |    |
      | Elective          |     | X   | X  |
      | Selective Elective|     |     |    |

6. a. Course Learning Objectives
   The student will be able to:
   - Formulate software evaluation questions.
   - Determine measures to appropriately evaluate software to address a specific software evaluation question.
   - Design an empirical study evaluating software.
   - Analyze the results of an empirical study of software and make choices based on this analysis.
b. Level at which Student Outcomes are addressed
   (“B” = Basic level, “I” = Intermediate level, “A” = Advanced level)

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7. Major Topics Covered: (number of lecture hours per)
   - Experimental Design and Hypothesis Testing (6 hours)
   - Performance Evaluation (6 hours)
   - Software Output Evaluation (6 hours)
   - Software Use Evaluation (6 hours)
   - Visualization and Presentation (3 hours)