CSC 313 – Teaching Computing

1. CSC 313 – Teaching Computing

2. credit units 4 contact hours 6

3. Course Coordinator: Zoë Wood

4. Textbook (or other required material): None

5. a. Course Description:
   An introduction to pedagogical methods and practical techniques for computer science education: selecting appropriate content, designing assignments and activities, evaluating student learning, and evaluating teaching efficacy. Hands-on guided curricular design activities and real-world practice. 3 lectures, 1 laboratory.

b. Prerequisite: CPE/CSC 202

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

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6. a. Course Learning Objectives
   The student will be able to:
   - Explain common challenges to learning and teaching computing to broad audiences.
   - Discuss computational concepts and then correct common misunderstandings.
   - Assess whether a proposed computer science curriculum and teaching methodology is appropriate for a target audience.
   - Identify, evaluate, and effectively use evolving tools for computing education.
   - Identify, evaluate, and disseminate results from a research study.
   - Identify, evaluate, and disseminate changing pedagogical norms.
   - Design an effective assignment for teaching fundamental computational concepts.

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)

- Difficulties of teaching programming (2)
- Theories of learning (3)
- Current teaching pedagogy in CS (3)
- Designing content for an audience with attention to: (3)
  - Course learning objectives
  - Inclusion and diversity
- Designing and iterating computing assignments (3)
- Assessing student learning (3)
- Evaluating teaching efficacy (3)
  - CS Education research methods and ethics
- Emerging topics in CS pedagogy, technology, and outcomes (10)