## **Minnesota State University Moorhead**

# **CSIS 340: Software Engineering**

#### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: 0

OJT Hours/Week: \*.\*

Prerequisites:

This course requires all three of these prerequisite categories

1. CSIS 304 - Databases

And

2. MATH 210 - Concepts from Discrete Mathematics

And

3. Any one of these three

CSIS 255 - Data Structures

CSIS 335 - Graphical User Interface Programming

CSIS 336 - C#.Net Programming

Corequisites: None MnTC Goals: None

A study of the software development life-cycle including Requirements, Design, Implementation, Testing, Maintenance and Quality Assurance. Tools, techniques and methods will be studied. Project required.

## B. COURSE EFFECTIVE DATES: 10/29/2012 - Present

#### C. OUTLINE OF MAJOR CONTENT AREAS

- 1. Software Engineering concepts (purpose, life cycle models, design characteristics).
- 2. cepts (purpose, life cycle models, design characteristics) 25% is .
- 3. CASE tools to enable team project development.
- 4. Requirements workflow (use cases and user stories).
- 5. Analysis workflow (functional, entity class, and dynamic modeling).
- 6. Design Workflow (detailed method design).
- 7. Implementation.
- 8. Testing (non-execution and execution based, including automated unit testing).

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### **D. LEARNING OUTCOMES (General)**

- 1. Understand the purpose of Software Engineering.
- 2. Describe various software life cycle models emphasizing iteration and incrementation.
- 3. Utilize tools for project management.
- 4. Understand the necessity and use tools to produce project documentation.
- 5. Understand the continual necessity for testing all project artifacts.
- 6. Perform non-execution based testing on project artifacts.
- 7. Understand characteristics of sound software design.
- 8. Apply techniques for requirements elicitation including use cases and user stories.
- 9. Perform Object Oriented Analysis to extract classes and develop scenarios.
- 10. Perform Object Oriented Design to complete the required classes.
- 11. Implement an Object Oriented design in a programming language.
- 12. Perform execution based testing on software artifacts
- 13. Utilize tools that enable software development by teams.

## E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

#### F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

### G. SPECIAL INFORMATION

None noted

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