

0774



Curriculum Proposal

Please type or select the requested information. Print completed forms, add appropriate paper attachments, and route through MSU's curricular process for recommendations and decisions.

		(Check all that apply):	Proposal # <u>111</u>
College: <u>Science, Engineering and Technology</u>	<input checked="" type="checkbox"/> Undergraduate		Effective Date of Change:
Department: <u>Computer and Information Sciences</u>	<input type="checkbox"/> Graduate		Academic Year <u>06-07</u>
Program: <u>Computer Information science</u>	CIP # <u>11.0701 00</u>		(For Office Use Only)
Type of Change Proposed: <u>COURSE PROPOSALS</u>		Course Designator and Number	Number of Credits
Title Current:			
Title Proposed: <u>Information Technology Capstone</u>		IT 498	4
24-Char. Abbrev: <u>Info Techn. Capstone</u>			(if applicable)

Include a course or program description for the Bulletin (30-40 words maximum for courses, 100 for programs):
 Develop high quality software application researching and applying fundamental software engineering techniques, several advanced development and test tools, human factors of interface design and a team approach, each student controlling only a part of the system.
 Pre: Permanent admission to IT, completion of all core courses, and consent
 Fall, Spring

Rationale or Justification for change:
 The CIS major is being redesigned and name changed to Information Technology (IT). The above change is proposed to be consistent with the IT major, it's designator and focus.

*****For General Education or Cultural Diversity Courses Only*****

General Education Course:		Cultural Diversity Course:
GE Category #	GE Category Name (Maximum of 3 Categories)	(Please check one.)
<u>N/A</u>		<input type="checkbox"/> Core (At least 75% devoted to topics of race, gender, sexual orientation, age, class, and disabilities as they occur in United States Society.)
<u>N/A</u>		<input type="checkbox"/> Related (At least 25% devoted to the above topics or to a global perspective on topics related to African American, Asian, Hispanic, and Native American inhabitants of the United States.)
<u>N/A</u>		
? For Writing Intensive Courses, attach a description of the kind and quantity of writing. ? For Upper Division Courses, include a description of the respects in which it is broad and general rather than narrow and specific, and so suitable as GE.		
Attach paper copies of the following:		
a. Syllabus or course outline.		
b. Course's student learning outcomes associated with each GE competency or CD designation.		
c. List of strategies to be used to assess students' achievement of each GE competency or CD designation.		

*****For New Courses*****

(Check all that apply):	Instructional Type: <u>Lecture</u>	Course will be offered:
<input checked="" type="checkbox"/> Course is an elective.	Grading Format: <input checked="" type="checkbox"/> Grade <input type="checkbox"/> P/N	<input type="checkbox"/> Fall Semester
<input type="checkbox"/> Course is required for program		<input type="checkbox"/> Spring Semester
<input checked="" type="checkbox"/> Pre- or Co-requisites:	<u>Permanent admission to IT, completion of all listed core c</u>	<input type="checkbox"/> Summer Session
<input type="checkbox"/> Other courses are being changed or eliminated. (Explain.)		
<input type="checkbox"/> Course content or title is similar to courses in other departments. (Attach copy of letter of agreement with other program(s) contacted. Indicate the nature of the discussions and/or resolution of differences or potential conflicts.)		
Attach paper copies of the following:		
a. Syllabus or course outline.		
b. Course's student learning outcomes.		
c. A list of resources required to offer and support this course.		
d. A description of how teaching this course will affect department staffing.		
e. If 400/500 level course, an explanation of added expectations of graduate students.		



Minnesota State University, Mankato
Curriculum Proposal

Signature Page

Department

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

David Hays 10/9/06
Department Chair Date

Comments:

College Curriculum Committee

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

Karen C. Chon 11/2/06
Committee Chair Date

Comments:

College Dean

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

John Long 11/06/06
Dean Date

Comments:

General Education Subcommittee

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

General Education Subcommittee Chair Date

Comments:

Undergraduate Curriculum and Academic Policy Committee

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

ARM 1-31-07
UCAP Faculty Chair Date

Comments:

Faculty Association Graduate Committee

Recommended
 Not Recommended

Faculty Association Graduate Chair Date

Comments:

Graduate Dean

Recommended
 Not Recommended

Graduate Dean Date

Comments:

Academic Affairs Council

Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

Debra Jannay 2/9/07
Assistant Vice President Date

Comments:

Senior Vice President and Vice President for Academic Affairs

Approved (Category/ies _____)
 Not Approved (Category/ies _____)

S. J. B. 2/13/07
Sr. Vice President / Vice Pres. Academic Affairs Date

Comments:

IT 498 (4) Information Technology Capstone

a. SYLLABUS

Textbook:

Evelyn Stiller and Cathie LeBlanc, *Project-Based Software Engineering: An Object-Oriented Approach*, Pearson Addison-Wesley, Boston, MA, 2002.

Software Engineering, Seventh Edition, Ian Sommerville, Addison-Wesley, ISBN: 0-321-21026-3

The Mythical Man Month, Fredrick Brooks, Addison-Wesley, ISBN: 0201835959

The Technical Writer's Companion, Seventh Edition, Alfred, Brusaw, Oliu, ISBN 0-312-3923-7

Text book related to the area of specialization in which the project is to be completed.

Prerequisites:

All core courses listed in the major, at least two courses from the specialization, consent

Course Objectives:

The purpose of this course is to teach students how to develop a significant software application in the area of their specialization by applying fundamental software engineering techniques. In this course the students will apply the knowledge of the IT fundamental courses to the development and delivery of a high quality and secure software project. In this course, the student will:

- Understand the state of modern software development
- Research on a topic of software development
- Derive and specify software requirements
- Design a software system using UML
- Build a software system from the design
- Verify the software system against requirements
- Use several advanced software system development and test tools
- Document the software system for users
- Explore other important topics in Software Engineering including J2EE programming, Software Performance Engineering, Component Based Development, Configuration Management
- Apply human factors of user interfacing
- Include security aspect
- Demonstrate Programming Skills (Java, .NET etc)
- Work as part of an organized software team to design and develop a large multi- step project in which each person has control of only part of the system.
- Follow professional codes of ethics
- Develop effective communication skills
- Present work in a professional manner.

Course Coverage:

Software Design
 Programming Languages
 Software engineering process.
 Software team organization and management
 Software development environments and tools
 Application of Unified Modeling Language (UML).
 Data structures and specification.
 Advanced object-oriented design.
 Testing and debugging.

Expected specialization area coverage: The students will cover one or more the following topic areas depending on the project selected.

Modern Programming Languages
 Networking and Telecommunications
 Data Management
 Data mining
 Artificial Intelligence
 Information Assurance and Security
 Analysis and Design

Theoretical Content: Depends on project

Analysis and Design: Design and implementation of project

Computing Platform: To be determined by student, with approval of instructor.

Course Contents:

Number of Weeks	Activity
<i>Project related activities (in and outside class hours):</i>	
1	Introduction, finalization of topic area
3	Research on the topic area, derive and specify requirements
3	Design the software system
3	Implementation and testing of individual component
3	Integration of the individual components and testing
2	Documentation
<i>In class lecture:</i>	
3	Review and guide to software engineering principles, tools and methodologies
2	Human factors of user interfacing
2	Security aspects in the software project

2	Professional codes of ethics
2	Documentation Guide
2	Oral Presentation
2	Individual and team activity

Catalog Description:

In this course students will develop a significant and high quality software application in their area of specialization by researching and applying fundamental software engineering techniques, several advanced development and test tools, human factors of interface design and a team approach with each student controlling only a part of the system.

Grading:

Homeworks & Quizzes	30%
Final Project	70%
Requirements Document	20% of project grade
Design Document	20% of project grade
User Manual	10% of project grade
Delivery	50% of project grade

Assessment criteria include: group meetings, oral presentations, written reports,

b. LEARNING OUTCOMES

After completing this course the student will be able to:

- Understand the state of modern software development
- Derive and specify software requirements
- Identify security vulnerabilities
- Design a software system using UML
- Build a software system from the design
- Verify the software system against requirements
- Use several advanced software system development and test tools
- Document the software system for users
- Apply human factors of user interfacing to software development
- Work as part of an organized software team to design and develop a large multi- step project in which each person has control of only part of the system.
- Understand professional codes of ethics
- Develop effective communication skills
- Present work in a professional manner.

c. RESOURCES REQUIRED TO OFFER AND SUPPORT THIS COURSE

Resources currently in place within the department and the University Library will support this new course. No new resources are required.

d. IMPACT ON STAFFING IN THE DEPARTMENT

There is no impact on department staffing.