08-113

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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):

College: Science, Engineering and Technology
Department: Computer Science
Program: Software Engineering
CIP # _____
Type of Change Proposed: COURSE PROPOSALS — New Course
Title Current:
Title Proposed: Software Engineering
24-Char. Abbrev: Software Engineering

☒ Undergraduate
☒ Graduate

Proposal # 325
Effective Date of Change:
Academic Year 07-08
(For Office Use Only)

Course Designator and Number	Number of Credits
CS 481/581	3

(if applicable)

Include a course or program description for the Bulletin (30-40 words maximum for courses, 100 for programs):

Building upon the introduction provided in CS 300, provides a formal presentation of software engineering concepts. Additional topics include alternative design methods, software metrics, software project management, reuse and re-engineering.
Pre: CS 300, CS 380 and MATH 121 Variable

Rationale or Justification for change:

The course is a new required course for the proposed Software Engineering major. The course presents the engineering basis for software engineering and serves as the primary prerequisite for other software engineering-related courses.

For General Education or Cultural Diversity Courses Only

General Education Course:

GE Category # **GE Category Name (Maximum of 3 Categories)**

N/A
N/A
N/A

? 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.

Cultural Diversity Course:

(Please check one.)

☐ **Core** (At least 75% devoted to topics of race, gender, sexual orientation, age, class, and disabilities as they occur in United States Society.)

☐ **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.)

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:)

☐ Course is an elective.
☒ Course is required for program
☒ Pre- or Co-requisites:
☐ Other courses are being changed or eliminated. (Explain.)

Instructional Type: Lecture
Grading Format: ☒ Grade ☐ P/N
Software Engineering
CS 300 and CS 380 and math 121

Course will be offered:
☒ Fall Semester
☒ Spring Semester
☐ Summer Session

☐ 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.

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Curriculum Proposal

Signature Page

Department
✓ Recommended (Category/ies_____)
__ Not Recommended (Category/ies_____)

Department Chair — Date: 2-2-08

Comments:

College Curriculum Committee
X Recommended (Category/ies_____)
__ Not Recommended (Category/ies_____)

Committee Chair — Date: 2/14/08

Comments:

College Dean
__ Recommended (Category/ies_____)
__ Not Recommended (Category/ies_____)

Dean — Date: 2/18/08

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_____)

UCAP Faculty Chair — Date: 3/18/08

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_____)

Assistant Vice President — Date: 4/28/08

Comments:

Senior Vice President and Vice President for Academic Affairs
✓ Approved (Category/ies_____)
__ Not Approved (Category/ies_____)

Sr. Vice President / Vice Pres. Academic Affairs — Date: 4/28/08

Comments:

CS 481: Software Engineering (3 credits)

Course Description:
Building upon the introduction provided in CS 300, provides a formal presentation of software engineering concepts. Additional topics include alternative design methods, software metrics, software project management, reuse and re-engineering.

3 lecture hours per week.

Prerequisites: CS 300, CS 380, and MATH 121

Proposed Text:
1) *Software Engineering: A Practitioner's Approach.* Pressman. McGraw Hill, 2004. ISBN 007301933X.
2) *IEEE Software Engineering Standards*

Schedule of Topics:
1) Software development process (~ 1 wk)
2) Software project management and planning (~ 2 wks)
3) Requirements engineering (~ 2 wks)
4) Object-oriented analysis and design (~ 3 wks)
5) Formal specification methods (~ 1 wk)
6) Component-based software development (~ 1 wk)
7) Software testing and quality assurance (~ 2 wks)
8) Software maintenance and configuration management (~1 wk)
9) Software metrics (~1 wk)

Student Outcomes:
Students who complete this course will be able to:
1) Describe the software engineering process and select the correct process for a given software development scenario.
2) Demonstrate the ability to work as part of a software development team.
3) Demonstrate the ability to perform object-oriented software analysis, design, verification & validation, and implementation.
4) Apply standard, accepted software engineering techniques to system development and to apply appropriate metrics.
5) Demonstrate proficiency in eliciting requirements from a customer and refining the high-level requirements to an end product.
6) Demonstrate the ability to document their work to an acceptable standard.

Added Expectations of Graduate Students
1) Graduate students will be held to a higher standard in all coursework, including assignments and exams.
2) Graduate students will also be expected to perform in depth and thorough independent investigation of the subject matter.

Grades will be assigned based on exams and assignments.

Required Resources & Departmental Staffing:

Resources currently in place within the department, the college, and the university library will support this new course. No new resources are required.

There is no impact on staffing requirements.