January 10, 2006

METROPOLITAN STATE COLLEGE *of* DENVER
Office of Academic Affairs

REGULAR COURSE SYLLABUS

School of: Letters, Arts, and Sciences

Department: Mathematical and Computer Sciences

CIP Code: 11.9999

Prefix & Course Number: CS 4282 **Crosslisted With*:** _____

Course Title: Software Development Management

Check All That Apply: Required for Major: _____ Required for Minor: _____ Specified Elective: _____
Required for Concentration: _____ Elective: X Service Course: X

Credit Hours: 3 (3 + 0)

Total Contact Hours per semester (assuming 15-16 week semester):

Lecture 45 Lab 0 Internship 0 Practicum 0 Other (please specify type and hours): 0

Schedule Type(s): Lecture **Grading Mode(s):** Letter

Variable Topics Courses (list restrictions, including the maximum number of hours that can be earned**):

____

** **NOTE: This information must be included in the course description.**

Restrictions (Variable Topics Course): _____

Prerequisite(s): CS 4250 or permission of department

Corequisite(s): _____

Prerequisite(s) or Corequisite(s): _____

Banner Enforced:

Prerequisite(s): _____
Corequisite(s): _____
Prerequisite(s) or Corequisite(s): _____

Catalog Course Description:

This course provides students with exposure to a broad set of principles and practices affecting the success and failure of software development efforts and productivity of teams involved in such efforts. The role and tasks of the software development manager are explored in detail. Note that this course is specific to software development and is not a general management course (see MGT courses).

APPROVED:

Ruth Q. Yarar — 1-17-06
Department Curriculum Committee — Date

Steve Beaty — 1/19/06
Department Chair ~~OR~~ Program Director — Date

Hal Lacuy — 1/31/06
Dean **OR** Associate Dean — Date

Linda S. Curran — 2/2/06
Associate VP, Academic Affairs — Date

*If crosslisted, attach completed Course Crosslisting Agreement Form

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Required Reading and Other Materials will be equivalent to:

The Deadline by DeMarco, Dorset House, 1997.
The Mythical Man Month (Anniversary Edition) by Brooks, Addison Wesley, 1995.
Software Project Management: Readings and Cases, ed. by Kremerer, Irwin, 1997.
Various articles and reprints from journals and conference proceedings *(IEEE Software, CACM, ...)*

Specific, *Measurable* Student Behavioral Learning Objectives:
Upon completion of this course the student should be able to:

1. Demonstrate knowledge of basic issues, principles and practices in software development management
2. Produce software development management artifacts (Architecture, Development Timeline, etc.)
3. Identify stakeholders and facilitate meetings for a software development team
4. Assess and critique software engineering project plans (e.g., structured walkthroughs)
5. Support organizing and staffing software engineering projects
6. Track and evaluate software development progress

Detailed Outline of Course Content (Major Topics and Subtopics):

I. The world of the modern software development manager
   A. Software engineering and development vs. software life-cycle models
   B. Planning and organizing the software development effort
   C. Directing: executing, monitoring and controlling software development
II. Software engineering project problems and perspectives
   A. Software development risks and risk management
   B. Software development resource allocation and oversight
   C. Alternative models of software development
III. Introduction to software engineering economics
   A. Introduction to software metrics
   B. Technical feasibility analysis
   C. Estimating software size and complexity
   D. Software robustness: alternative designs (for usability, testability, maintainability) and retrofitting
IV. Software engineering project planning
   A. Software development dimensions and associated activities
   B. Tools and techniques to support software development planning (*iThink* models, reengineering, etc.)
V. Software development team organization
   A. Organizational alternatives (pair-programming, chief-programmer team, egoless programming, etc.)
   B. Software engineer team dynamics (Weinberg's *psychology of programming*, etc.)
   C. Considerations for staffing a new software development team
VI. Directing a software engineering development effort
   A. Leadership and delegation of software developers
   B. Change management vs. configuration management
   C. Facilitating meetings and addressing conflicts...
      1. Among software developers
      2. Between software developers and customers
      3. Between software developers and executives
   D. Managing expectations (software developer, software development organization, client, end-user)
      1. Why software is viewed differently from other products
      2. Why expectation violation is prevalent in the software industry
      3. How to bring expectations in line with reality for software development efforts
   E. Software development reviews, walkthroughs and inspections
   F. Software development and product standards

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Evaluation of Student Performance:

1. Homework assignments
2. Quizzes and examinations
3. Final examination
4. Projects
5. Research papers and/or book reports
6. Oral presentations

as determined by the instructor. Written and verbal communication skills will be applied in this course