

Proposal Form

Educational Policy and Curriculum Committee

PLEASE COMPLETE ITEMS 1 THROUGH 5:

1. Fill in the name and number of the course, the name of the policy, or the curriculum/major proposed for modification.

Course: CmSc 250 Fundamentals of Computing III

* submit copies of the current and proposed requirements for the major

2. Addition _____ Deletion _____ Change X
3. Does this proposal impact other majors or minors? Yes** _____ No X
4. Does this proposal impact the Cornerstone program? Yes** _____ No X
5. Does this proposal impact teacher licensure? Yes** _____ No X

** If yes, obtain appropriate signatures (signifying review) below.

Attach a statement that addresses each of items 6 through 11:

6. Nomenclature of course(s) (Department, Number, Title, Credit Hours)
7. Catalog description of course(s) (including prerequisites), curriculum or policy
(For changes, please submit a description of the existing course, policy, or curriculum.)
8. Relationship to major, other disciplines and frequency of offering
9. Proposed configuration [traditional (MWF 50 min. or TTh 75 min.) or other]
10. (a) A complete statement of the proposal's rationale to assist consideration by the EPCC
(b) A 5-line summary of the rationale to be presented to the full faculty
11. Cost estimates and staff estimates

APPROVED BY:

Signature of proposer

Date

Signature of Division Chair

Signature of Department Chair

REVIEWED BY:

Signature of Academic Dean

Signature of Education Department Chair**

Signature of Department Chair in affected major**

Signature of Cornerstone Director**

**if applicable

Upon completion of this form, print a copy to be circulated for signatures. In addition, send a copy of the proposal as an email attachment to mclean@simpson.edu (for 2006-2007 school year)

6. Change in Prerequisite, Description, Title for CmSc Fundamentals of Computing III**7. Old Title and Catalog description****CmSc 250 Fundamentals of computing III.**

This course is a continuation of CmSc 155. Topics to be covered include advanced data structures (graphs, priority queues, various tree structures), advanced sorting and search techniques, recursion, hashing, basic algorithmic design techniques (divide and conquer, greedy, backtracking, etc.) and the fundamentals of algorithm analysis and computational complexity. Laboratory exercises are used to demonstrate, compare and contrast different problem solving techniques.

Prerequisites: Computer Science 155 and Computer Science 180 (Math 140 or 151 highly recommended). Four hours.

New Title and Catalog Description**CmSc 250 Introduction to Algorithms and Algorithms Analysis**

This course is an introduction to the fundamental ideas used in algorithm analysis and design, illustrated through a variety of algorithms of practical utility. Topics include efficient searching and sorting algorithms for advanced data structures (hash tables, priority queues, various tree structures), introduction to graph representation and graph algorithms, and the fundamentals of algorithm analysis and computational complexity. Laboratory exercises are used to demonstrate, compare and contrast the advantages and disadvantages of the examined algorithms.

Prerequisites: CmSc155: Fundamentals of Computing II, CmSc180 Discrete Mathematics, MATH 140 Elements of Calculus or 151 Calculus I.

Comment on the changes

The course preserves its current content.

8. This course is required of all CmSc majors. It is and will continue to be offered in the Spring semester of each academic year and will also be offered regularly in the DAL program.

9. CmSc 250 will be offered on a MWF basis as part of the traditional program or one evening a week in the semester mode as part of the DAL program.

10. Rationale

a. Title and Description changes: The new description reflects better the current content of the course

b. Prerequisites: The course has a substantial mathematical component related to the algorithms analysis. It requires knowledge of polynomial, logarithmic and exponential functions, limits of functions, summation of finite sequences and ability to manipulate mathematical expressions. Students that take the course without having Math 140 or Math 151 are usually less successful. The new prerequisite is intended to ensure the necessary conditions for understanding and learning the content of this course.

11. No changes from the current offering.