George Mason University
Graduate Course Approval/Inventory Form

Please complete this form and attach a copy of the syllabus for new courses. Forward it as an email attachment to the Secretary of the Graduate Council. A printed copy of the form with signatures should be brought to the Graduate Council Meeting. Complete the Coordinator Form on page 2, if changes in this course will affect other units.

Please indicate:  _x___ NEW   ____ MODIFY   ____ DELETE

Local Unit: Graduate Council Approval Date:

Course Abbreviation: Course Number: INFS514

Full Course Title: Database Design and Management

Abbreviated Course Title (24 characters max.):

Credit hours:  3        Program of Record:

Repeatable for Credit?   ___ D=Yes, not within same term    Up to hours
                         ___ T=Yes, within the same term    Up to hours
                         _x__ N=Cannot be repeated for credit

Activity Code (please indicate):   _x___ Lecture (LEC)    ____ Lab (LAB)   ____ Recitation (RCT)
                                   ___ Studio (STU)    ___ Internship (INT) ___ Independent Study (IND) ___ Seminar (SEM)

Catalog Credit Format  3 :3 : 0   Course Level: GF(500-600) __500__
                                GA(700+) ___

Maximum Enrollment: 30

For NEW courses, first term to be offered:
Prerequisites or corequisites:

Catalog Description (35 words or less) Please use catalog format and attach a copy of the syllabus for new courses:

Students will learn the basics of relational database management systems. The focus is on the use of relational database systems in application programs. They will learn to design and implement databases, and access databases through various means.

For MODIFIED or DELETED courses as appropriate:
Last term offered: Previous Course Abbreviation: Previous number:

Description of modification:
APPROVAL SIGNATURES:
Submitted by: ________________________________ email: ________________
Department/Program: ________________________________ Date: ________________
College Committee: ________________________________ Date: ________________
Graduate Council Representative: ________________________________ Date: _______
GEORGE MASON UNIVERSITY
Course Coordination Form

Approval from other units:
Please list those units outside of your own who may be affected by this new, modified, or deleted course. Each of these units must approve this change prior to its being submitted to the Graduate Council for approval.

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Graduate Council approval: ____________________________________________ Date______________
Graduate Council representative: ______________________________________ Date:___________
Provost Office representative: ______________________________________ Date:_________
COURSE PROPOSAL TO THE GRADUATE COUNCIL
BY
SCHOOL OF INFORMATION TECHNOLOGY AND ENGINEERING

PROPOSAL DESIGNATION
New Course Proposal

I. CATALOG DESCRIPTION
A. INFS 514 Database Design and Management
B. Prerequisites: (1) One programming course (preferably in Java, but not required), and (2) 6 credits of undergraduate math, such as MATH 125 (Discrete Mathematics), MATH 115 (Analytic Geometry and Calculus), MATH 203 (Matrix Algebra), or MATH 290 (Foundations of Mathematics).
C. This course focuses on relational database management systems. It covers logical and physical database design, query languages, and database programming. It also examines commercial systems, and uses computing lab.

II. JUSTIFICATION
A. Course Objectives: Students will learn the basics of relational database management systems. The focus is on the use of relational database systems in application programs. They will learn to design and implement databases, and access databases through various means.
B. Desirability of adding this course: More and more application systems include a database component. Such applications cut through various disciplines. A basic understanding of database systems, from foundation concepts to entry-level usage, becomes a requirement to students from many all disciplines, not only students from computer science, information systems and software engineering. This course will lower the barrier in terms of prerequisites for the entering students, and yet give students enough for their diverse needs in acquiring basic database management knowledge and skills. The makeup of the student population of INFS 614 (a related course, see below) supports the argument that there are many potential students for the proposed course from majors other than Information Systems and Software Engineering. For example, in the three sections of INFS 614 offered during Spring 2003, the following numbers of students are from outside these two majors: 40% in section 1, 31% in section 2, and 32% in section 3. For these students, it is sometimes difficult to enforce the prerequisite requirements, and, as a result, the instructors may need to lower their standards to meet the needs of all.
C. Relationship to other graduate courses: Currently, there are two graduate courses that teach introductory database management. One is INFS 614 (Database Management), and the other is CS 650 (Databases and Knowledge Engineering). However, both courses have large number of prerequisites that most non-CS and non-ISE students do not have. The prerequisites for these courses are justified as the courses go deep into data management issues. The proposed course will serve a different group of students and different purpose (as mentioned in the “desirability of adding this course” section).
III. APPROVAL HISTORY
   A. Approved by the ISE Graduate Committee on _______________
   B. Approved by the ISE Department on _______________
   C. Approved by the IT&E Graduate Committee on _______________
   D. Approved by the IT&E Dean on _______________

IV. SCHEDULING
   A. The initial offering of the course is planned for the Spring semester, 2004. It is planned to be offered once every academic year thereafter in the Fall semester.
   B. The proposed instructors are Dr. Daniel Barbara, Dr. Alex Brodsky, and Dr. Ami Motro.

V. SAMPLE SYLLABUS
   Attached
SAMPLE COURSE SYLLABUS
FOR
INFS 514 Database Design and Management

A. COURSE ORGANIZATION AND SCHEDULE
   • Introduction
   • ER Model and ER Design
   • Relational tables, SQL DDL, translation of ER to relational
   • Functional dependencies and normalization
   • Relational algebra
   • Relational algebra (2), Query-by-example
   • Catch up & Review
   • Midterm Exam
   • SQL
   • SQL II
   • Java and JDBC
   • Database Transactions
   • Data reliability and security
   • Catch up & Review
   • Final exam

B. READING AND REFERENCE MATERIAL
   • Principles of Database Systems with Internet and Java Applications by Greg Riccardi, Addison Wesley
   • Oracle 9i Programming: a Primer, by Rajshekhar Sunderraman, Addison Wesley.

C. STUDENT EVALUATION CRITERIA
   Final grades assigned to students are based on their performance in homework assignments, midterm exam, final exam, and a semester-long project.