San Bernardino Valley College
Curriculum Approved: February 2, 2004
Last Updated: January 2004

I. COURSE DESCRIPTION:
A. Department Information:
Division: Business & Information Technology
Department: Computer Information Technology
Course ID: CIT 215
Course Title: Database Management Systems
Units: 3
Lecture: 3 hours
Laboratory: None
Prerequisite: CIT 101

B. Catalog and Schedule Descriptions:
An introduction to the components of relational database management including data definition language, data manipulation language, screen generation, the use of report writers, and Structured Query Language (SQL). (Formerly MIS 215)

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One

III. EXPECTED OUTCOMES FOR STUDENTS:
Upon successful completion of the course, the student should be able to:
A. define Database systems and the Evaluation Database technology.
B. distinguish and use applicable database principles as they apply to an introductory database application.
C. discuss database systems and data sharing in an organization.
D. apply conceptual data base design techniques in simple user queries and existing reports and forms.
E. explain fundamental concepts of the relational model and its use as a database implementation model.
F. demonstrate the structure of query solutions especially the conditional statements that must be formed to define a query solution.
G. formulate SQL queries of varying complexity.
H. define and evaluate the strengths and weaknesses of QBE as a relational language.
I. utilize the data manipulation language of a server DBMS.

IV. CONTENT:
A. The Evolution of Database Technology
B. Database Systems
C. Current Directions-Client/Server Platforms
D. Database Systems: Hardware, Software, Data, People
E. Database Design and Implementation
F. Obtaining Management Information from our Database
G. Data Sharing and Databases
H. Strategic Database Planning
I. Databases and Management Control
J. Risks and Costs of Databases
K. Separating Logical and Physical Representation
L. Database Development
M. Building Skills in Database Development
N. Principles of Conceptual Database Design
O. Building Conceptual Data Models from Existing Reports
P. Modeling Conceptual Objects versus Physical Objects
Q. The Relational Data Model and Systems Development
R. The Relational Data Model: Fundamental Concepts
S. The Normalization Process
T. Transforming a Conceptual Model to a Relational Model

U. Comparisons of Conceptual Relational Data Modeling
V. A Revolutionary Advance in Data Manipulation
W. Relational Implementations
X. Schema and Table Definition
Y. Data Manipulation
Z. The Information Schema
AA. Defining Database Tables on Server DBMS.
BB. Server Data Manipulation and Programming
CC. Developing Client Applications
DD. Physical Access of the Database
EE. Physical Storage Media
FF. Disk Performance Factors and Data Storage Formats
GG. File Organization and Addressing Methods
HH. Implementing Logical Relationships
II. Client/Server Implementation of Balanced Tree Indexing
JJ. Mapping Logical Data Structures to Physical Data Structures
KK. Creating a Macro with Visual Basic
LL. Database Integrity, Security, and Recovery
MM. Distributed Database Systems Design
NN. Distributed Query Processing
OO. Data Integrity in Distributed Database Systems
PP. Analyzing Management Information Needs
QQ. DBMS Functions and Capabilities
RR. Classifying DBMS Feature Requirements
SS. Gathering Data on Feature Availability and Performance

V.   METHODS OF INSTRUCTION:
A. Lecture
B. Demonstration
C. Directed discussion and discovery
D. Writing assignments
E. Data-Show computer display
F. One-on-One instruction
G. Simulation exercises

VI.   TYPICAL ASSIGNMENTS:
A. Reading, writing, problem solving or performance.
   1.   A doctor's office needs to keep track of the medication that is being prescribed to each patient of this clinic. For each patient the clinic keeps a record of the patient number, name, address and phone number. Each time a prescription is ordered, the clinic needs to record the medication prescribed, the date, and the amount prescribed. Each patient has only one doctor. However, a physician may prescribe several different medications per patient, per day or he may prescribe the same medication on different days to the same patient. For each doctor, the clinic keeps the doctor's name, address, home phone number, pager number, and field of specialty. Create a rational schema for the information given about this doctor's office.
   2.   Suppose you were designing a default value for the age field in a student record at your university. What possible values would you consider and why? How might the default vary by other characteristics about the student, such as school within the university or degree sought?

VII.   EVALUATIONS
A. Methods of Evaluation
   1.   Examinations and Objective Quizzes
      a. Name the different types of physical storage media.

        b   Once a database has been created its structure cannot be changed. T F
2.   Practice Exercises at the end of chapters
3.   Class Participation
B. Frequency of Evaluation
1.   Minimum five (5) quizzes
2.   Weekly practice exercises
3.   Three examinations
4.   One (1) final exam.
C. Examination
1.   Typical Examination Question
      a. Describe each of the following DBMS functions and capabilities:
          1. data dictionary/directory
          2. data security and integrity
          3. query, data manipulation, and reporting capabilities
      b. `Once a database has been created its structure cannot be changed. T F

VIII.   TYPICAL TEXT(S)

Hoffer, Jeffrey A. and Prescott, Mary B. and McFadden, Fred R. <u>Modern Database Management</u>, 6th ed. Upper Saddle River, NJ: Prentice Hall, 2002
Pratt, Philip J. and Adamski, Joseph J. <u>Concepts of Database Management</u>, Boston, MA: Course Technology, 2002.
Pratt, Philip. <u>A Guide to SQL</u>, 5th ed. Boston, MA: Course Technology, 2001.

IX.   OTHER SUPPLIES REQUIRED FOR STUDENTS:

Zip disk