ESSEX COUNTY COLLEGE

DEPARTMENT

COURSE OUTLINE

COURSE DESIGNATION: CSC 232

COURSE TITLE: Advanced Database Management

NUMBER OF CREDITS: 4

CONTACT HOURS: 4 LECTURE: 4 LAB: 0 OTHER (Specify):

PREREQUISITES: CSC 231 or Placement

CONCURRENT COURSES: None

COREQUISITES: None

CATALOG DESCRIPTION:

This course provides students with the essential concepts, principles, and techniques of modern database systems. This course covers the principles for the design and techniques of database modeling, and database system architecture, query optimization, query processing, and transactions and user/program interfaces. Building systems that have a relational database as a backend and the Web as a frontend, data mining and data warehousing will be introduced as class projects.

GENERAL EDUCATION GOALS: N/A

COURSE OBJECTIVES:

|  |  |  |  |
| --- | --- | --- | --- |
| **Course Intended learning Outcomes:** Upon completion of this course, students will be able to: | **Means of Course Assessment:** | | |
| projects | labora-tory | exam |
| 1. Query the database using SQL; | Y |  | Y |
| 1. Demonstrate implementation problems; |  | Y |  |
| 1. Evaluate file storage and transfer methods; |  | Y |  |
| 1. Build systems that have a relational database as a backend and the Web as a frontend; and | Y | Y | Y |
| 1. Describe a few advanced topics on databases, such as XML, OODBs, DB security, multimedia and distributed databases and ontologies. | Y | Y | Y |

* 85% of students will complete the laboratory and perform at 75% or above level.
* 75% of students will perform at 75% or above level on the projects.
* 70% of students will perform at 75% or above level on the exams.

COURSE CONTENT OUTLINE:

Based on the two texts 1) *Fundamentals of Database Systems* by Ramez Elmasri, Shamkant B. Navathe. NOTE: The actual textbook may vary and the amount of time spent on each topic may also vary depending on the class and the instructor.

1. Data Modeling, DBMS Architecture and Database Evolution
2. Query Processing
3. Data storage and Access Methods
4. Transaction Processing
5. Data Warehousing
6. Data Mining
7. Object-Relational DB
8. XML
9. Database Security
10. Web Services and Extensible Systems
11. Performance Tuning
12. Ontologies

METHODS OF INSTRUCTION:

(e.g.,  lecture, discussion, group projects, computer-assisted, role  playing, demonstration/return demonstration, independent study, research project)

Instructor presents technical material in formal lectures and class discussion. Concepts will be reinforced through laboratory exercises and programming projects.

COURSE REQUIREMENTS:

(e.g., minimum number of assignments, exams, papers, etc.)

Attendance:

Students are expected to attend ALL lectures and ALL lab sessions and punctuality is required. Late arrivals interfere with the learning process and will reflect negatively on final averages in the "Assignments, class participation, Lab Reports and Lab Quizes" grading category.

Laboratory:

Students are expected to attend every lab and to maximize use of lab time. Late students, arriving after explanation of that day’s procedures have been given, will not be permitted to stay for lab. Lab works provide students with "hands on" experiences which are vital for learning the material presented in the course. Each Laboratory will require a laboratory report that is due at the beginning of the lab the following week. Format for these will be discussed in the laboratory.

Quizzes:

There will be several laboratory quizzes during the semester, which will be announced one week in advance. A student who arrives after the lab quiz has begun will not be permitted to take the quiz.

Projects:

Non-trivial Projects will be assigned during the latter part of the course after students have absorbed a significant amount of course material. These projects will be worth 35% of your final grade. Students will be given laboratory time to work on the projects, but it is expected that additional work will be done outside of the assigned time.

Comprehensive Examinations

There will be comprehensive midterm (15%) and final (25%) examinations given during midpoint and last week of the course. They will test all material covered up to then in the course and will be worth 15% + 25% = 40% of the overall course grade. These exams must be taken when scheduled. Makeup exams will only be given when a valid excuse is accepted by the instructor.

METHOD OF EVALUATION:

(specific method required should be explicitly listed)

Grading Category % of Final Average

Midterm examination 15%

Final examination 25%

Assignments, class participation, Lab Reports and Lab Quizes 25%

Projects 35%