INTRODUCTION TO DATABASE DESIGN
CSIT 1810

Class Hours: 3.0  Credit Hours: 4.0
Laboratory Hours: 3.0  Date Revised: Spring 2016

Catalog Course Description:
A study of database management systems and their impact on information technology. Topics include database models, data modeling techniques, conceptual and physical design, storage techniques and data administration. Special emphasis will be placed on relational systems and application of query languages using relational operations.

Entry Level Standards:
The entering student should have a familiarity with the Windows environment. The student is expected to have moderate programming abilities in a high-level language or a scripting language. Problem solving skills will be essential. The student must have math, writing, verbal and English language skills at the college level.

Prerequisites:
CSIT 1110 or WEB 2010

Textbook(s) and Other Course Materials:


Supplies: USB flash drive; ear buds or head phones for audio tutorials

I. Week/Unit/Topic Basis:

<table>
<thead>
<tr>
<th>Week</th>
<th>Chapter</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Database Systems</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Database Models; Relational versus NoSQL databases</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>The Relational Database Model</td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>Introduction to Systems &amp; Database Design</td>
</tr>
<tr>
<td>5, 6</td>
<td>4, 5.1</td>
<td>Entity-Relationship Modeling</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>Normalization</td>
</tr>
<tr>
<td>8-10</td>
<td>7, 8.1, 8.4</td>
<td>SQL Queries, Creating Tables and Views in SQL</td>
</tr>
<tr>
<td>11</td>
<td>10</td>
<td>Transaction Management and Concurrency Control</td>
</tr>
</tbody>
</table>
II. Course Goals*:

The course will:

A. Enhance the student’s knowledge of the advantages and disadvantages of using a database management system rather than conventional filing methods. II III IV V

B. Foster the ability to recognize the language of data definition and data manipulation and its importance. II III IV V

C. Foster the ability to recognize the components of a database model and appreciate how implementation as system may vary from the model. II III IV V

D. Develop an awareness of the factors involved in the transformation of a conceptual design into a logical data base design and to a physical database design. I II III IV V

E. Enhance the student’s knowledge of the database administration function. I II III IV V

F. Foster the ability to use a database management package including use of a query language. II III IV V

*Roman numerals after course objectives reference goals of the Computer Science & Information Technology program.

III. Expected Student Learning Outcomes*:

Students will be able to:

1. Explain the similarities and differences of hierarchical, network, relational, object-oriented, and NoSQL data models. C D E

2. Perform database normalization. D E

3. Develop Entity-Relationship Models. D E

4. Describe the functions of database administration. E

5. Develop applications using a development tool. D F

6. Define schema and subschema and explain the generic terminology associated with them. B C D E

7. Use a query language. B D E F

8. Implement a database using real-world case studies. A D E F

*Capital letters after Expected Student Learning Outcomes reference the course goals listed above.

IV. Evaluation:
A. Testing Procedures: 60% of grade

A minimum of two tests is recommended. Tests will cover material presented in class. Tests are not to be missed without a valid excuse.

B. Laboratory Expectations: 30% of grade

Lab attendance is required. Assignments will be given and must be completed and handed in at the designated date and time.

C. Field Work:

NA

D. Other Evaluation Methods: 10% of grade

Unannounced quizzes and/or homework will also comprise part of the final grade for the course. Class attendance and participation may be assessed at the option of the instructor and shall be detailed in the instructor’s syllabus supplement.

E. Grading Scale:

<table>
<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93 – 100 % of total points possible</td>
<td>A</td>
</tr>
<tr>
<td>88 – 92 % of total points possible</td>
<td>B+</td>
</tr>
<tr>
<td>83 – 87 % of total points possible</td>
<td>B</td>
</tr>
<tr>
<td>78 – 82 % of total points possible</td>
<td>C+</td>
</tr>
<tr>
<td>73 – 77 % of total points possible</td>
<td>C</td>
</tr>
<tr>
<td>65 – 72 % of total points possible</td>
<td>D</td>
</tr>
<tr>
<td>Below 65 % of total points possible</td>
<td>F</td>
</tr>
</tbody>
</table>

V. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of Academic Affairs, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of Academic Affairs.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
- Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
- Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one’s own work.
- Taking an exam for another student.
- Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
- Any of the above occurring within the Web or distance learning environment.

Please see the Pellissippi State Policies and Procedures Manual, Policy 04:02:00 Academic/Classroom Conduct and Disciplinary Sanctions for the complete policy.

C. Accommodations for disabilities:

Students that need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Disability Services (DS) in order to receive accommodations in this course. Disability Services may be contacted by sending email to disabilityservices@pstcc.edu, or by visiting Alexander 130. More information is available at http://www.pstcc.edu/sswd/.

D. Other Policies:

Plagiarism, cheating, software piracy, non-educational use of computer systems and other forms of academic dishonesty are strictly prohibited. A student caught cheating or infracting specific rules will be given a grade of "F" for the course.

Make-up exams: All exams are required, and make-ups will be allowed only in the rarest of cases. In the event of an emergency, notification of the instructor must be made in advance.

It is the student's responsibility to request help from the instructor prior to an assignment's due date.