Course Title: Database Administration
Date: 11/19/2009

Course Number: COP 4723
Number of Credits: 3

Subject Area: Database
Subject Area Coordinator: Nagarajan Prabakar
email: prabakar@cis.fiu.edu

Catalog Description:
Client-server architecture; planning, installation, server configuration; user management; performance optimization; backup, restoration; security configuration; replication management; administrative tasks.

Textbook: Professional Microsoft SQL Server 2008 Administration
Brian Knight
Wrox (ISBN: 0470247967)

References:

Prerequisites Courses: CGS 4366

Corequisites Courses: None

Type: Elective

Prerequisites Topics:
- Database architecture
- SQL queries

Course Outcomes:
1. Be familiar with database system architecture
2. Master the planning and installation of enterprise database server
3. Master user management
4. Master backup, restoration
5. Master techniques of security configuration
6. Be familiar with replication management
7. Master administrative tasks
8. Be familiar with performance optimization
<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of Lecture Hours</th>
<th>Outcome</th>
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</thead>
</table>
| • Enterprise server  
  o client-server architecture  
  o SQL server features  
  o SQL server organization and data storage  
  o Capacity planning  
  o Installation and configuration | 6 | 1,2 |
| • Data management  
  o Database object fundamentals  
  o Data conversions  
  o Bulk insert, bcp, SQL update operations  
  o Data Transformation Services  
  o Data migration planning | 6 | |
| • Backup and recovery  
  o Data security  
  o Backup and restoration | 6 | 4 |
| • Security management  
  o Network communications  
  o Server login and user management  
  o Security management and planning | 6 | 3,5 |
| • Replication  
  o Linked servers and Nonlinked servers  
  o Replication concepts  
  o Publishing, distribution, and managing subscriptions  
  o Replication planning and management | 6 | 6 |
| • Performance  
  o Automating management  
  o SQL Server management  
  o Windows monitoring tools  
  o SQL Server monitoring tools  
  o Database optimization | 6 | 3,7 |
### Course Outcomes Emphasized in Laboratory Projects / Assignments

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Number of Weeks</th>
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<tbody>
<tr>
<td>Estimation of storage</td>
<td>2</td>
</tr>
<tr>
<td>Comparison of index performances</td>
<td>3</td>
</tr>
<tr>
<td>Evaluation of replication schemes</td>
<td>3</td>
</tr>
</tbody>
</table>

### Oral and Written Communication:

No significant coverage

- Number of written reports:

- Approximate number of pages for each report:

- Number of required oral presentations:

- Approximate time for each presentation:

### Social and Ethical Implications of Computing Topics

No significant coverage

<table>
<thead>
<tr>
<th>Topic</th>
<th>Class time</th>
<th>Student performance measures</th>
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</table>
Theoretical Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Class time</th>
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Problem Analysis Experiences
1. Evaluation of the results of indexes/replication and identifying performance bottlenecks

Solution Design Experiences
1. Estimation of storage needs for a given DB specification
2. Design of database replication strategies

Assessment Plan for the Course & how Data in the Course are used to assess Program Outcomes

Student and Instructor Course Outcome Surveys are administered at the conclusion of each offering, and are evaluated as described in the School’s Assessment Plan: https://abet.cs.fiu.edu/csassessment/