**COURSE TITLE: CS6272 – ADVANCED DBMS**

Credit Hours: 3 (Theory) + 1 (Lab)  
Pre-requisites: CS4271 – DATABASE- II

**COURSE OBJECTIVES:**

C# and ADO.NET facilitate the development of a new generation of database applications, including remote applications that run on the Web. This course is the resource you need to thrive in this new world. Assuming no prior experience with database programming, this course teaches you every aspect of the craft, from GUI design to server development to middle-tier implementation. If you're familiar with earlier versions of ADO, you'll master the many new features of ADO.NET all the more quickly. You'll also learn the importance of XML within the new .NET paradigm.

**CLASS POLICY:**

* A student must reach the class-room in time. Late comers may join the class but are not entitled to be marked present.
* Attendance shall be marked at the start of the class and students failing to secure 75% attendance will not be allowed to sit in final exam.
* The assignment submission deadline must be observed. In case of late submission, assignment will not be considered.
* Those who are absent on the announcement date of assignment/test. Must get the topic/chapter of test/assignment confirmed through their peers.
* Mobile phones must be switched-off in the class-rooms.

**GRADING POLICY:**

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|  | **Internal Evaluation** | | |
|  |  | Midterm Exam | 20% |
|  |  | Attendance | 10% |
|  |  | Assignment/Presentations | 10% |
|  |  | Quizzes/Tests | 10% |
|  | **Total Internal Evaluation** | | **50%** |
|  | **Final Term Examination** | | |
|  |  | Theory Exam | 40% |
|  |  | Viva Exam | 10% |
|  | **Total Marks** | | **100%** |

**TEXT BOOKS:**

* Practical Database Programming with Visual C#.NET by Ying Bai, IEEE Press Wiley Publishers.
* Mastering C# Database Programming by Jason Price, Sybex.
* Windows Applications Development with Microsoft .Net by Matthew Steoecker.

**COURSE DESCRIPTION:**

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| **WEEK NO** | **TOPIC DESCRIPTION** | **ASSESSMENT** |
| 1 | **Chapter 1 – Distributed DBMSs – Concepts and Design**   * Introduction to distributed databases management system * Advantages and disadvantages of DDBMSs * Homogenous and heterogamous DDBMSs * Overview of networking * Functions and architectures of a DDBMS |  |
| 2 | **Chapter 2 (continued)**   * Distributed relational database design * Transparencies in a DDBMS * Date’s twelve rules for a DBMS | **Assignment –** 1 |
| 3 | **Chapter 2 – Distributed DBMSs – Advanced Concepts**   * Distributed transaction management * Distributed concurrency control * Distributed deadlock management | **Quiz –** 1 |
| 4 | **Chapter 2 (continued)**   * Distributed database recovery * The X/Open distributed transaction processing model * Distributed query optimization * Distribution in Oracle |  |
| 5 | **Chapter 3 – Replication and Mobile Databases**   * Introduction to database replication * Benefits of database replication * Applications of replication * Basic components of database replication * Database replication environments * Replication servers |  |
| 6 | **Chapter 3 (continued)**   * Introduction to mobile DBMS * Oracle replication | **Assignment –** 2 |
| 7 | **Chapter 4 – Introduction to Object DBMSs**   * Advanced database applications * Weaknesses of RDBMSs * Object-Oriented concepts | **Quiz –** 2 |
| 8 | **Chapter 4 (continued)**   * Storing objects in a relational database * Next-generation database systems * OO database design * OO analysis and design with UML |  |
| **9** | **Midterm Exam** | **Chapter 1 – Chapter 4** |
| 10 | **Chapter 5 – Object-Oriented DBMSs – Concepts**   * Introduction to OO data models and OODBMSs * OODBMS perspectives |  |
| 11 | **Chapter 5 (continued)**   * Persistence * Issues in OODBMSs * Advantages and disadvantages of OODBMSs |  |
| 12 | **Chapter 6 – Object-Relational DBMS**   * Introduction to Object-Relational database systems * The 3rd generation database manifesto * Postgres – An early ORDBMS | **Assignment –** 3 |
| 13 | **Chapter 6 (continued)**   * SQL:1999 and SQL:2003 * Query processing and optimization * OO extension in Oracle * Comparison of ORDBMS and OODBMS |  |
| 14 | **Chapter 7 – Web Technology and DBMSs**   * Introduction to Internet and Web * The Web * Scripting languages * Common gateway interface * HTTP cookies | **Quiz –** 3 |
| 15 | **Chapter 7 (continued)**   * Java (JDBC, SQLJ, CMP, JDO, Servlets, JSP, and web services) * Microsoft’s web platform * Oracle Application Server (OraclceAS) |  |
| 16 | **Chapter 8 – Data Warehousing Concepts**   * Introduction to data warehousing * Data warehouse architecture |  |
| 17 | **Chapter 8 (continued)**   * Data warehouse data flows * Data warehousing tools and technologies * Data marts * Data warehousing using Oracle | **Assignment –** 4 |
| 18 | **Chapter 9 – Online Analytical Processing**   * Introduction * OLAP applications * Representation of multi-dimensional data * OLAP tools * Oracle OLAP | **Quiz –** 4 |
| 19 | **Chapter 10 – Data Mining**   * Introduction to data mining * Data mining techniques * The data mining process * Data mining tools * Data mining and data warehousing * Oracle data mining |  |
| **20** | **Final Term Exam** | **Chapter 5 – Chapter 10** |