

**5<sup>th</sup> SEMESTER**  
**DISCIPLINE SPECIFIC ELECTIVES (DSEs)**

**OPTION - I**

**IT520D1: INFORMATION TECHNOLOGY (DATABASE MANAGEMENT SYSTEM - DBMS)**

**CREDITS: THEORY: 4, PRACTICALS: 2**

**THEORY (4 CREDITS)**

**UNIT-I**

**Introduction:** Traditional File processing system, drawback of traditional file processing system, evolution of data base system, advantages & disadvantages of DBMS.

Basic concepts, database and database users, characteristics of database, the three level architecture for a DBMS, components of a DBMS, classification of DBMS users, DBMS facilities, structure of a DBMS.

**UNIT-II**

**Data model classification:** Network and Hierarchical models, data modeling using the entity relationship approach, relational model, relational database, relation algebra& tuple calculus.

**UNIT-III**

**Database decomposition:** Lossless join property, relational data base design, functional dependencies.

**Normalization for relational database:** Normal forms (1NF, 2NF, 3NF, 4NF, BCNF, 5NF).

**UNIT-IV**

**Relational database manipulation:** SQL-A relational database language, data definition in SQL, data manipulation in SQL, views and queries in SQL, specifying constraints and indexes in SQL(ORACLE),creating triggers, stored procedures, functions & cursors in PL/SQL.

**PRACTICALS (2 CREDITS)**

**Note:** *The Practical Component shall be based on the Unit-I to Unit-IV*

**REFERENCES:**

1. Date, C.J., "An Introduction to Database System", Narosa publications house, n. Delhi
2. Elmasri and Navathe, "Fundamentals of Database System", Addison Wesley, N.Y.
3. BipinDesai, "An Introduction to Database Concepts", Galgotia publications, N. Delhi.

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**DISCIPLINE SPECIFIC ELECTIVES (DSEs)**

**OPTION - II**

**IT520D2: INFORMATION TECHNOLOGY (DOT NET TECHNOLOGIES)**

**CREDITS: THEORY: 4, PRACTICALS: 2**

**THEORY (4 CREDITS)**

**UNIT-I**

**Introduction to .NET framework:** Managed Code and the CLR- Intermediate Language, Metadata and JIT Compilation - Automatic Memory Management. Language Concepts and the CLR: Visual Studio .NET – Using the .NET Framework. The Framework Class Library: .NET objects - ASP .NET - .NET web services – Windows Forms

**UNIT-II**

**Elements:** Variables and constants – data types – declaration. Operators – types – precedence. Expressions. Program flow – Decision statements – if ..then, if..then..else, select..case– Loop statements – while..end while, do..loop, for..next, for..each..next.

**Types:** Value data types – Structures, Enumerations. Reference data types- Single-dimensional – Multi-dimensional arrays – jagged arrays – dynamic arrays

**UNIT-III**

**Windows programming:** Creating windows Forms – windows controls – Button, Check box, Combo box, Label, List box, Radio Button, Text box. Events – Click, close, Deactivate, Load, Mousemove, Mousedown, MouseUp.

**Menus and Dialog Boxes:** Creating menus – menu items – context menu - Using dialog boxes – showDialog() method.

**UNIT-IV**

**Application Development Using ADO .NET**

**Features of ADO.NET:** Architecture of ADO.NET – ADO.NET providers – Connection – Command – Data Adapter – Dataset.

**Accessing Data with ADO.NET:** Connecting to Data Source, Accessing Data with Data set and Data Reader - Create an ADO.NET application - Using Stored Procedures.

**PRACTICALS (2 CREDITS)**

**Note:** *The Practical Component shall be based on the Unit-I to Unit-IV*

**Reference Books:**

1. Introduction to Visual basic.NET - NIIT Prentice Hall of India,2005
2. Introducing Microsoft .NET- David S. Platt Microsoft Press”, Saarc Edition, 2001
3. Introduction to Microsoft® ASP.NET Work Book - Microsoft- Microsoft Press
4. Developing XML Web Services Using Microsoft® ASP.NET -Microsoft- Microsoft Press
5. Designing Microsoft ASP.NET Applications-Douglas J. Reilly-Microsoft Press.
6. ASP.NET-Danny Ryan and Tommy Ryan-Hungry Minds Maran Graphics.

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**DISCIPLINE SPECIFIC ELECTIVES (DSEs)**

**OPTION - III**

**IT520D3: INFORMATION TECHNOLOGY (PHP PROGRAMMING)**

**CREDITS: THEORY: 4, PRACTICALS: 2**

**THEORY (4 CREDITS)**

**Unit I**

**Introduction to PHP (3L)**

PHP introduction, inventions and versions, important tools and software requirements (like Web Server, Database, Editors etc.), PHP with other technologies, scope of PHP , Basic Syntax, PHP variables and constants , Types of data in PHP , Expressions, scopes of a variable (local, global) , PHP Operators : Arithmetic, , Assignment, Relational , Logical operators, Bitwise , ternary and MOD operator. ,PHP operator Precedence and associativity

**Unit II**

**Handling HTML form with PHP**

**HTML**

Capturing Form Data, GET and POST form methods, Dealing with multi value fields, Redirecting a form after submission

**PHP conditional events and Loops**

- PHP IF Else conditional statements (Nested IF and Else),
- Switch case, while, For and Do While Loop,
- Goto , Break ,Continue and exit

**Unit III**

**PHP Functions**

- Function, Need of Function, declaration and calling of a function,
- PHP Function with arguments, Default Arguments in Function,
- Function argument with call by value, call by reference, Scope of Function Global and Local

**String Manipulation and Regular Expression (2L)**

Creating and accessing String , Searching & Replacing String , Formatting, joining and splitting String , String Related Library functions , Use and advantage of regular expression over inbuilt function , Use of preg\_match(), preg\_replace(), preg\_split() functions in regular expression

**UNIT IV**

**Array**

Anatomy of an Array, Creating index based and Associative array, Accessing array, Looping with Index based array, with associative array using each () and for each(), Some useful Library function .

**PRACTICALS (2 CREDITS)**

*Note: The Practical Component shall be based on the Unit-I to Unit-IV*