Five years Integrated M.Sc.(IT)(Semester 4)

Teaching Schedule

060010408: GUI Programming

Objectives: To provide fundamentals of .NET framework, C# language and to introduce development of rich windows form applications with event driven programming model.

Course Outcome: Upon completion of the subject students will be able

to CO1: Describe key features .NET framework and its class library. CO2:

Describe basic constructs of C# language.

CO3: Create windows form, react to its events and manipulate its content in code.

CO4: Design well integrated and rich GUI windows applications.

CO5: Demonstrate data access, data manipulation and data binding techniques using ADO.NET.

Unit	Subunit	No of Lecture(s)	Topics	Reference Chapters/ Additional Reading	Teaching Methodologies to be used	Planned Date	Evaluation Parameter
Unit -1 Introduction to .net Framework and C# Fundamentals							
	1.1	1	.NET framework & architecture of .NET framework: Evolution and Benefits	KW#ch1,page. 3 http://www.c-sharpcorner.com/uploadfile/puranindia/benefits-of-the-net-framework/ https://dotnetunleashed.wordpress.com/	Presentation.		
	1.2	1	Common Language Runtime: CLR functions, managed code, unmanaged code,	KW#ch1, page. 4-6	Presentation		

			memory management				
	1.3	1	.NET Framework Class Library & Common Language Specification	KW#ch1,page. 7-8	Presentation		
	1.4	2	Metadata and Assemblies: Assembly Contents, Assembly Manifest, GAC, Private and Shared Assemblies, Single-File and Multi-File Assemblies	KW#ch1, page. 6-8 http://www.codeproject.com/Articles/80730/All-About-Assemblies https://msdn.microsoft.com/en-us/library/z38d5bzk(v=vs.110).aspx	Presentation		
	1.5	1	Introduction to Visual Studio & Creating Console and Windows applications	KW#ch1,page. 9-11, KW#ch2,page. 13-28.	Demonstration		
	1.6	1	Introduction to C#, creating applications in C#, similarities & difference with Java	KW#ch1, page. 8-10, https://msdn.microsoft.com/en-us/library/ms836794.aspx	Presentation and Demonstration		
Unit-2 C# Language Basics							
	2.1	1	Variables, Data types, Operators	KW#ch3, page. 31-54, KW#ch4, page. 59-68,	Presentation		

			(Arithmetic, Relational, Bitwise) and its precedence, boxing and un-boxing	KW#ch5, page.94-102, KW#ch11, page. 303-305			
	2.2	1	Flow control: Selection statement, Iteration statement, Jump statement	KW#ch4, page. 68-89	Practical Demonstration and Chalk and Talk		
	2.3	1	Procedures: Subroutines and Functions, Argument passing mechanism, Returning value, Built in functions, Overloading functions	KW#ch6, page. 125-149	Practical Demonstration and Chalk and Talk		
	2.4	1	Array: Declaring, Initializing, Multi-dimensional and Dynamic	KW#ch5, page. 110-115	Presentation and Demonstration		
	2.5	1	Exception handling: Structured and Unstructured error handling	KW#ch7, page. 175-115	Presentation		Quiz-1 ,Unit test-1
Unit-3 OOP in C#							

	3.1	1	Concept of Class, Object, Encapsulation, Inheritance, Polymorphism in C#	KW#ch8, page. 185-198	Practical Demonstration and Chalk and Talk		
	3.2	1	Creating Class and Objects Methods with “ref” and “out” parameters	KW#ch10, page. 249-252	Practical Demonstration		
	3.3	1	Static and Non-Static Members	KW#ch10, page. 241-246	Presentation		
	3.4	1	Constructors, Destructor	KW#ch9, page. 217-221	Presentation and Demonstration		
	3.5	2	Inheritance, Interface and Polymorphism: deriving classes, calling base class constructor, overriding Methods, non-inheritable classes, abstract class, interface inheritance	KW#ch9, page. 232-235, KW#ch10, page.244-260.	Practical Demonstration and Presentation.		
	3.6	1	Generic and Collection classes	KW#ch12, page. 332-341. KW#ch12, page.351-356.	Presentation		
Unit-4 GUI Design and Event Driven Programming							
	4.1	2	Basic Windows	KW#ch15, page.447-451	Practical		

			Controls		Demonstration		
	4.2	4	Concept of adding various Windows Controls Button, Label, TextBox, RadioButton, CheckBox, ComboBox, ListBox, PictureBox, ScrollBar, ToolStrip, Timer, Panel and GroupBox	KW#ch15, page.453-480, KW#ch16, page.498-504, http://csharp.net-informations.com/gui/cs-picturebox.htm http://csharp.net-informations.com/gui/cs-scrollbars.htm http://csharp.net-informations.com/gui/timer-cs.htm http://visualcsharptutorials.com/windows-forms/the-panel-and-groupbox-controls/	Practical Demonstration and Presentation		
	4.3	3	Windows form: appearance of form-properties of form, placing controls on forms, setting tab order, anchoring and docking, splitting forms into	KW#ch15, page.491-492, KW#ch15, page.491-492, KW#ch16, page.448-451, KW#ch16, page.512-522.	Practical Demonstration and Presentation		

			multiple forms, MDI (Multiple Document Interface)				
	4.4	3	Working with the Events: handling Form events, Mouse events, Keyboard events	KW# ch13, page 377-387, KW#ch15, page 451-452	Presentation and Practical Demonstration.		Unit Test-2
Unit-5 Advanced GUI Controls							
	5.1	1	RichTextBox: text manipulation and formatting	KW#ch15, page 457-464.	Presentation		
	5.2	1	Dialog Boxes (ColorDialog, FontDialog, SaveFileDialog and OpenFileDialog)	https://msdn.microsoft.com/en-us/library/system.windows.forms.colordialog(v=vs.110).aspx https://msdn.microsoft.com/en-us/library/system.windows.forms.fontdialog(v=vs.110).aspx https://msdn.microsoft.com/en-us/library/system.windows.forms.savefiledialog(v=vs.110).aspx https://msdn.microsoft.com/en-us/library/system.windows.f	Presentation and Practical Demonstration		

				orms.openfiledialog(v=vs.110).aspx			
	5.3	2	TreeView control: adding nodes at design time and runtime, scanning tree view control, Menu, (MenuStrip, ContextMenuStrip)	KW#ch16, page.497-503, http://www.dotnetperls.com/treeview	Presentation and Practical Demonstration		
	5.4	3	ListView control: the column collection, ListView Items and subitems, Items collection, Subitems collection, sorting in ListView, processing selected Items	http://csharp.net-informations.com/gui/cs-listview.htm KW#ch15, page.481-490.	Presentation and Practical Demonstration		
Unit-6 Database Programming with ADO.NET							
	6.1	1	Introduction to ADO .NET	RR#Part-1, ch1, page.3-6	Presentation		
	6.2	1	Concept of Connected and Disconnected Architecture	RR#Part-1, ch1, page.6-18	Presentation		
	6.3	2	Data Providers in ADO.NET and	RR#Part-2, ch2, page.18-61.	Presentation and Practical		

			connection Object		Demonstration		
	6.4	3	Working with the DataSet: creating, filling and modifying DataSet, DataGrid control and Data Binding	RR#part-2, ch-6, page.110-134.	Presentation and Practical Demonstration		
	6.5	2	Accessing data: Executing query using Command object, Reading data	RR#part-2, ch-2, page.40-63. RR#part-2, ch-3, page.37-61.	Presentation and Practical Demonstration		
	6.6	1	Reports: RDLC (Report Definition Language Client-side)	http://www.aspsnippets.com/Articles/RDLC-Report-in-Windows-Forms-WinForms-Application-using-C-and-VBNet.aspx	Presentation and Demonstration		Internal

Text Books:

[1] Karli Watson, Christian Nagel, Jacob Hammer Pedersen, Jon D. Reid, Morgan Skinner "Beginning Visual C# 2010" – Wrox Publication

[2] Rebecca M. Riordan, Microsoft Press "Microsoft ADO. Net" - PHI

Reference Books:

[1] Shibi Panilkkar, Kumar Sanjeev, "Magic of C# with .Net FrameWork" - Firewall media

[2] Paul J. Deitel and Harvey M. Deitel "C# 2008 for Programmers (Third Edition)" Pearson

[3] Karli Watson, Christian Nagelm Jacob Hammer Pedersen, Jon D. Reid, Morgan Skinner, Eric White – "Beginning Visual C# 2008" - Wrox Publication

[4] Bharat & Co. "Programming with C# "- [ISBN No. : 978-93-81786-41-3]

Course Objectives and Course Outcomes Mapping:

- Fundamentals of .NET framework: CO1, CO2.
- Understanding of VB.NET language: CO2, CO3.
- Development of rich windows form applications with event driven programming model: C03, C04, C05.

Course Units and Course Outcomes Mapping:

Unit No	Unit	Course Outcome				
		CO1	CO2	CO3	CO4	CO5
1	Introduction to .NET Framework and C# Fundamentals	✓	✓			
2	C# Language Basics	✓	✓	✓	✓	
3	OOP in C#			✓	✓	
4	GUI Design and Event Driven Programming		✓			
5	Advanced GUI controls			✓	✓	✓
6	Database Programming with ADO.NET			✓	✓	✓

Computing Environment:

A student must have the following computing environment available in laboratory as well as in his/her personal laptop.

- Visual Studio 2010.

Modes of Transaction (i.e. Delivery)

Appropriate methods of teaching shall be decided depending on the objectives of the content taught.

- Lecture/Discussion method shall be used.
- Demonstration of topic covered in each unit shall be given.
- Hands on training shall be given of topic covered in each unit.

Activities/Practicum:

The following activities shall be carried out by the teacher.

1. Project shall be given to explore student's creativity in GUI programming.

2. Assist students in project problem solving.

3. Assign creative small projects to students.

The following activities shall be carried out by the students.

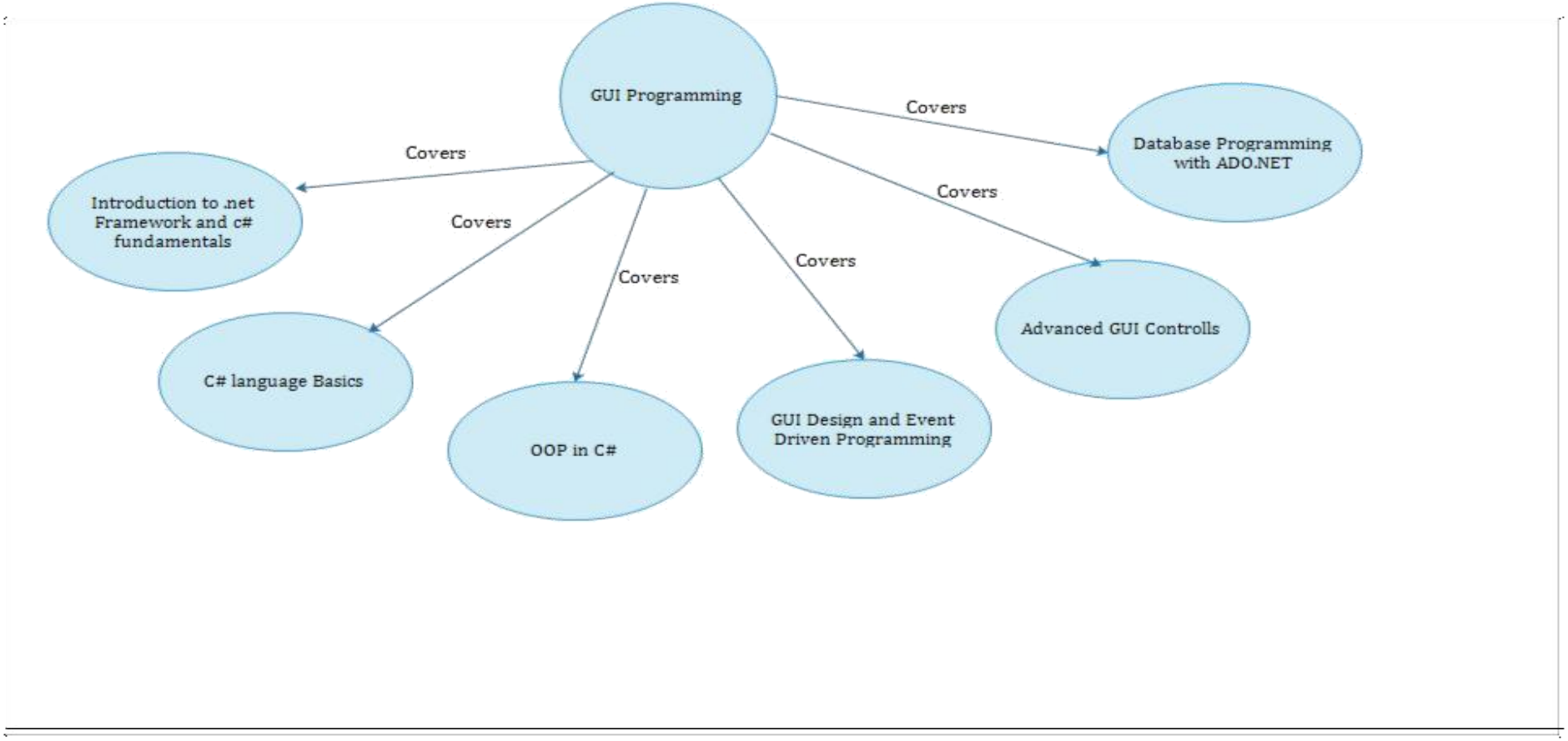
1. A group (Team size 2-4) of student shall have to prepare a project.

2. Student shall have to prepare assignment on list of control, which are commonly used in various applications.

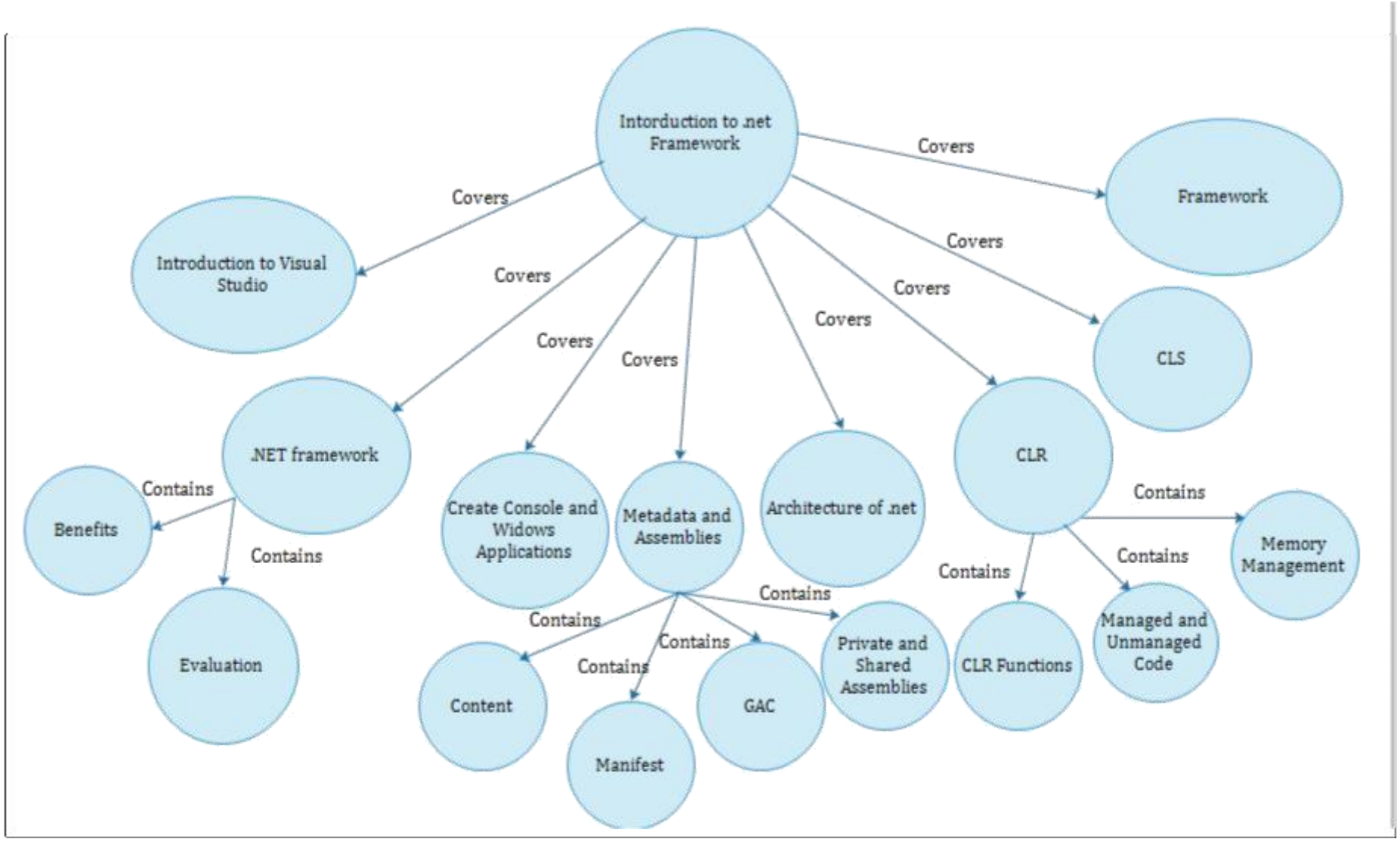
3. Student demonstrates application and discusses arrangement of controls**.**

Concept Map:

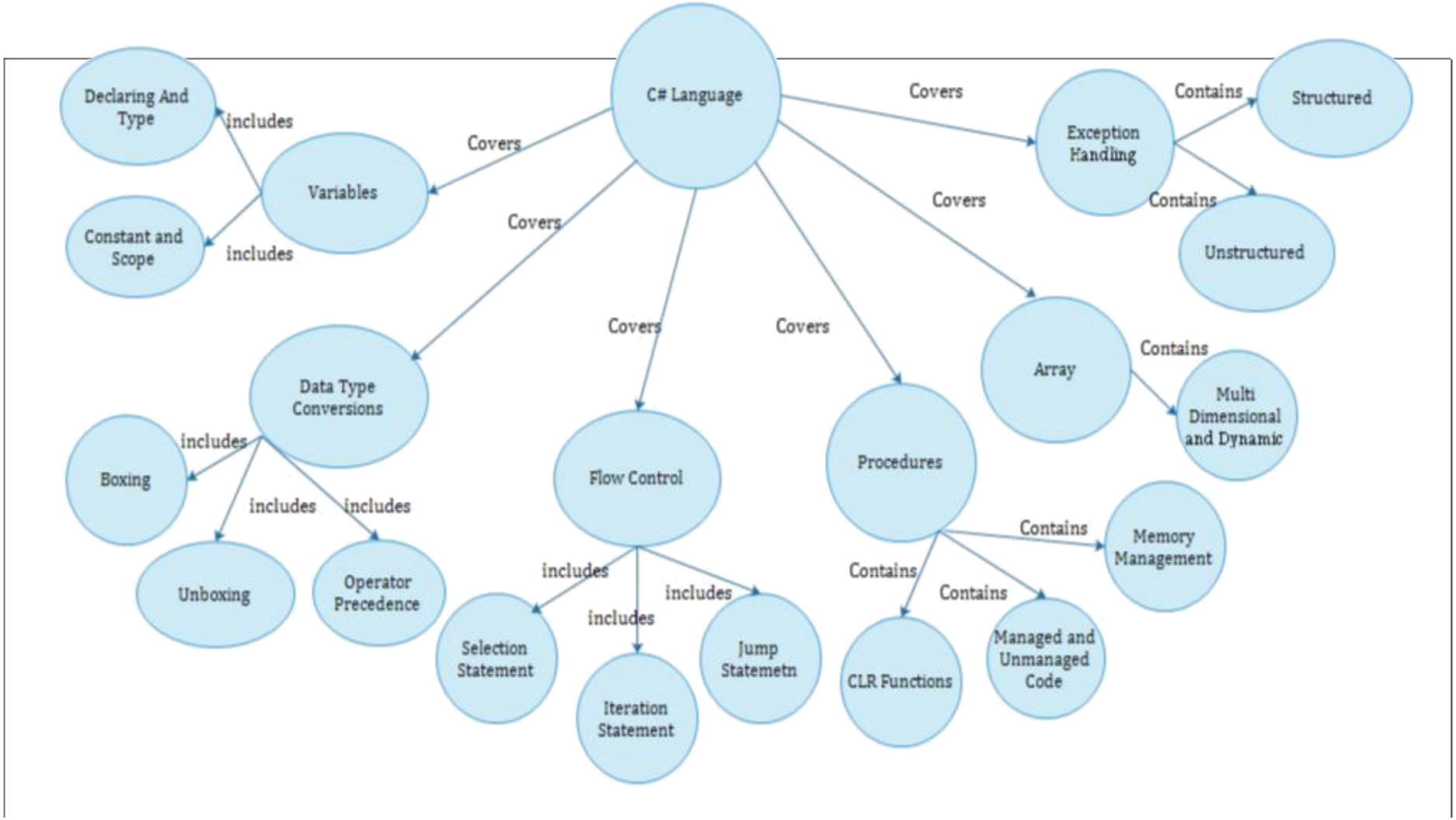
GUI Programming


GUI Programming
Covers
Database Programming with ADO.NET
Covers
Introduction to .net Framework and c# fundamentals
Covers
Covers
Advanced GUI Controlls
Covers
C# language Basics
Covers
OOP in C#
GUI Design and Event Driven Programming

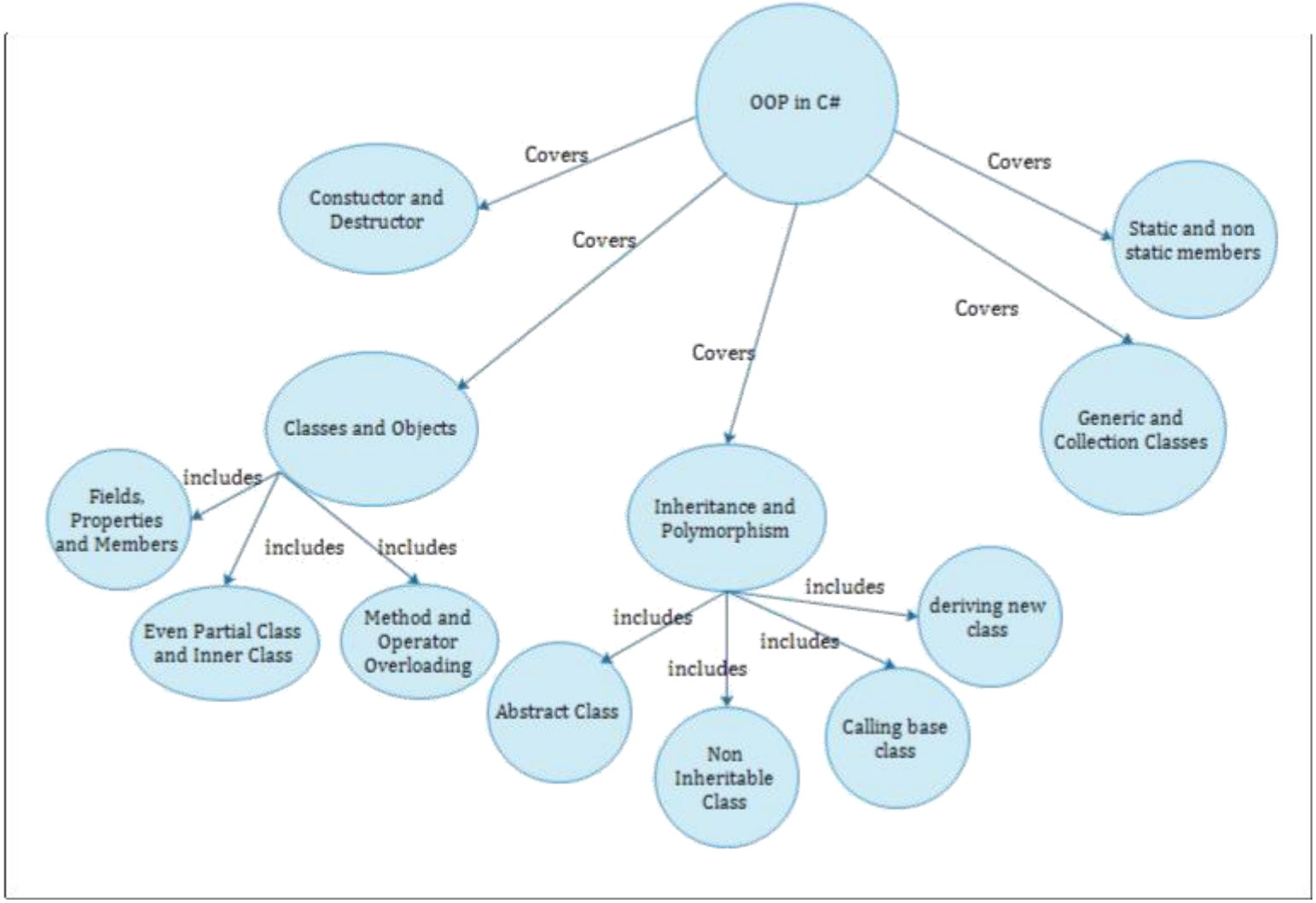
Unit-1


Intorduction to .net Framework
Covers
Framework
Covers
Introduction to Visual Studio
Covers
CLS
Covers
Covers
Covers
Covers
.NET framework
Contains
Benefits
Contains
Evaluation
Create Console and Widows Applications
Metadata and Assemblies
Architecture of .net
CLR
Contains
Memory Management
Contains
Contains
Managed and Unmanaged Code
Contains
Contains
Contains
Contains
Contains
Content
Manifest
GAC
Private and Shared Assemblies
CLR Functions

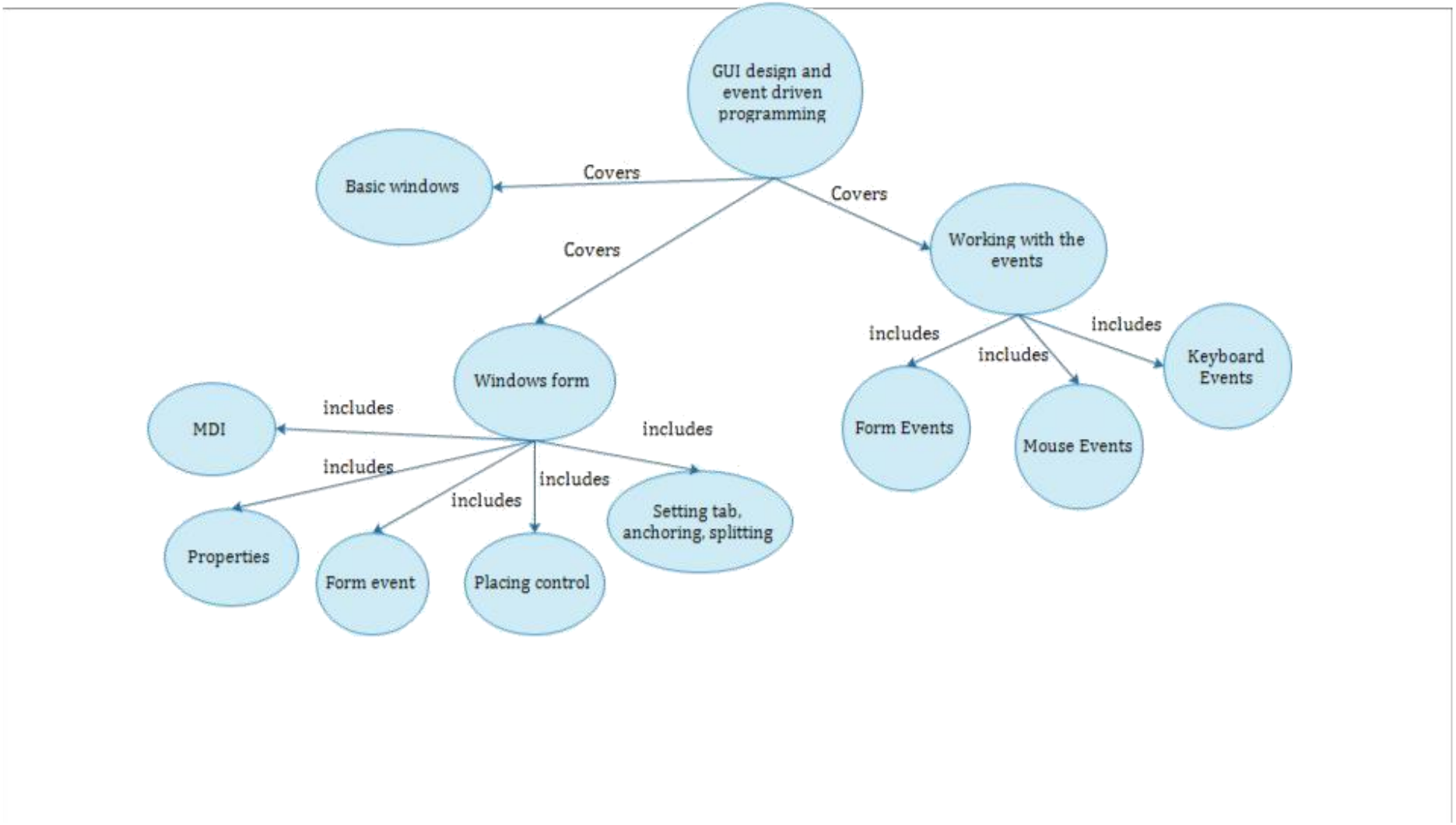
Unit-2


C# Language
Declaring And Type
includes
Variables
Constant and Scope
includes
Covers
Covers
Data Type Conversions
includes
Boxing
Unboxing
includes
Operator Precedence
includes
Covers
Flow Control
includes
Selection Statement
includes
Iteration Statement
includes
Jump Statemetn
Covers
Procedures
Contains
CLR Functions
Contains
Managed and Unmanaged Code
Contains
Memory Management
Covers
Array
Contains
Multi Dimensional and Dynamic
Covers
Exception Handling
Contains
Structured
Contains
Unstructured

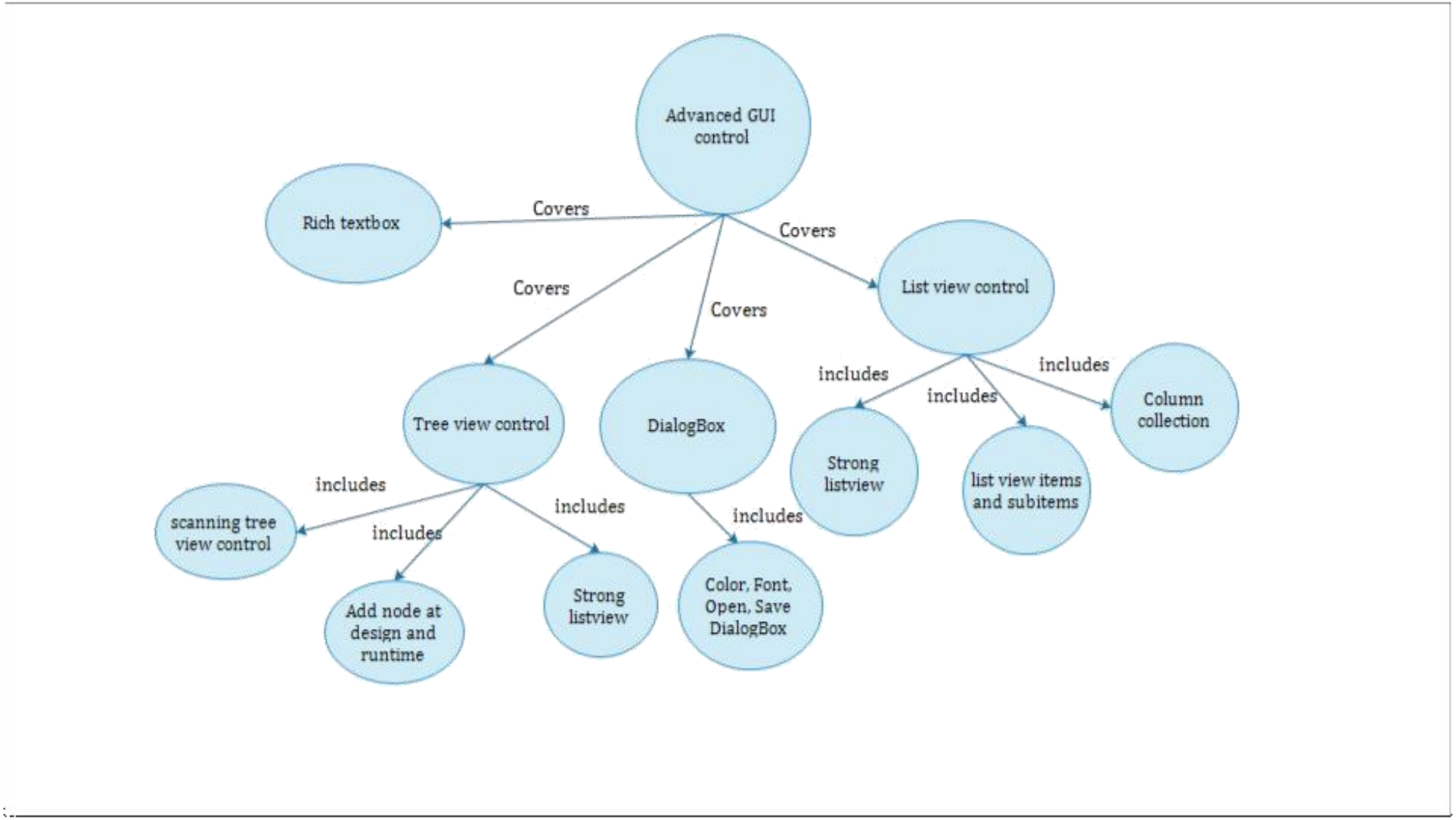
Unit-3


OOP in C#
Covers
Constuctor and Destructor
Covers
Classes and Objects
Covers
Inheritance and Polymorphism
Covers
Generic and Collection Classes
Covers
Static and non static members
includes
Fields, Properties and Members
includes
Even Partial Class and Inner Class
includes
Method and Operator Overloading
includes
Abstract Class
includes
Non Inheritable Class
includes
Calling base class
includes
deriving new class

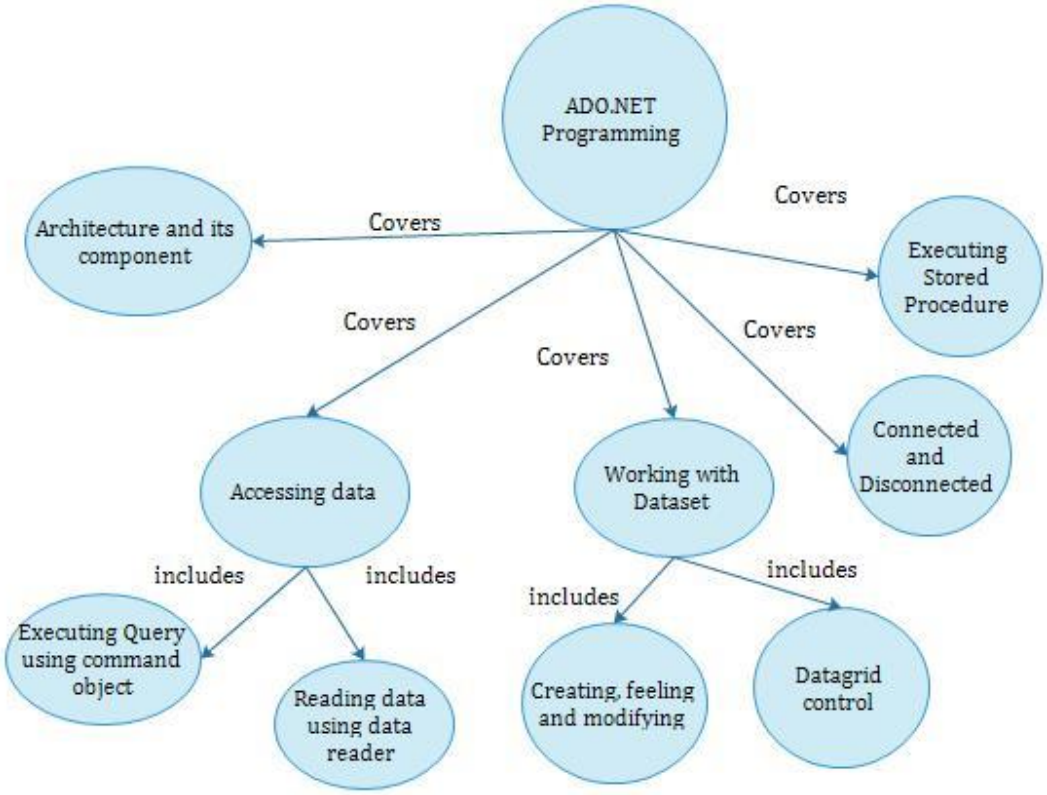
Unit-4


GUI design and event driven programming
Covers
Basic windows
Covers
Covers
Working with the events
Windows form
includes
includes
includes
Keyboard Events
includes
includes
Form Events
Mouse Events
MDI
includes
includes
includes
includes
Setting tab, anchoring, splitting
Properties
Form event
Placing control

Unit-5


Advanced GUI control
Rich textbox
Covers
Covers
Covers
Covers
List view control
Tree view control
DialogBox
includes
includes
includes
Column collection
Strong listview
list view items and subitems
includes
includes
includes
includes
scanning tree view control
Add node at design and runtime
Strong listview
Color, Font, Open, Save DialogBox

Unit-6


ADO.NET Programming
Covers
Architecture and its component
Covers
Executing Stored Procedure
Covers
Covers
Covers
Accessing data
Working with Dataset
Connected and Disconnected
includes
includes
includes
includes
Executing Query using command object
Reading data using data reader
Creating, feeling and modifying
Datagrid control