

B.C.A. 4th Semester

Course: 030010409- CC10 GUI Programming

Teaching Schedule

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

Course Outcomes: Upon completion of the subject students shall be able to

C01: Comprehend key features of .NET framework and its class library.

C02: Illustrate basic constructs of C# language.

C03: Create windows form, react to its events and manipulate its content in code.

C04: Design rich integrated and GUI windows applications.

C05: Demonstrate data access, data manipulation and data binding techniques using ADO.NET.

Unit	Sub Unit	No. of Lecture(s)	Topics	Reference Chapter / Additional Reading	Teaching Methodology to be used	Evaluation Parameters
Unit 1: Introduction to .NET Framework and C# Fundamentals						
1	1.1	1	.NET framework: Evolution and Benefits	BV#3 Page No. 3 , #MS	Chalk and talk & Presentation	
	1.2	1	The .NET Architecture: Building Block of .NET Platform	#MS https://msdn.microsoft.com/en-us/library/zw4w595w(v=vs.110).aspx	Chalk and talk & Presentation	
	1.3	2	.NET Framework Class Library & CLR, CLS and CTS.	#MS https://msdn.microsoft.com/en-us/library/9k3bbf3b(v=vs.71).aspx https://msdn.microsoft.com/en-us/library/8bs2ecf4(v=vs.110).aspx	Chalk and talk & Presentation	
	1.4	1	The .NET Assemblies: Single File and Multi-File Assemblies, Role of CIL, .NET Type Metadata and Assembly Manifest	BV#1 Page No. 5,#MS https://msdn.microsoft.com/en-us/library/1w45z383(v=vs.90).aspx https://msdn.microsoft.com/en-us/library/k3677y81(v=vs.90).aspx	Chalk and talk & Presentation	
	1.5	1	Introduction to Visual Studio &	BV#1 Page No. 8-9,#MS	Video tutorial,	

			Creating Console and Windows applications	http://msdn.microsoft.com/en-us/library/ms438026%28v=office.14%29.aspx	Demonstration	
	1.6	1	Introduction to C#, creating applications in C#, similarities & difference with other languages	-	Demonstration	
Unit 2: C# Language Basics						
2	2.1	1	Variables, Data types, Operators (Arithmetic, Relational, Bitwise) and its precedence, boxing and un-boxing	BV#3 Page No. 26-42, BV#11 Page No. 257	Chalk and talk	Quiz
	2.2	1	Flow control: Selection statement, Iteration statement, Jump statement	BV#4 page No. 49-75	Chalk and talk & Self study	
	2.3	2	Procedures: Subroutines and Functions, Argument passing mechanism, Returning value, Built in functions, Overloading functions	BV#6 Page No. 106-115,124	Demonstration	
	2.4	2	Array: Declaring, Initializing, Multi-dimensional and Dynamic	BV#5 Page No. 92-97	Demonstration	
	2.5	2	Exception handling: Structured and Unstructured error handling	BV# Page No. 132-152, PD#13 Page No. 456-476	Demonstration	
Unit 3: OOP in C#						
3	3.1	3	Concept of Class, Object, Encapsulation, Inheritance, Polymorphism in C#	BV#8 Page No. 157-169	Chalk and talk, Presentation & Demonstration	

	3.2	1	Static and Non-Static Members	#MS http://freevideolectures.com/Course/3002/DOT-NET-Tutorial , PD#10 Page No. 332, KL#4 Page No. 156	Presentation & Demonstration	
	3.3	2	Constructors, Destructor	BV#9 Page No. 184,185	Discussion & Presentation	Unit Test-1
	3.4	3	Inheritance, Interface and Polymorphism: deriving classes, calling base class constructor, overriding Methods, non-inheritable classes, abstract class, interface inheritance	BV#10 Page No. 218-221	Discussion & Presentation	
Unit 4: GUI Design and Event Driven Programming						
4	4.1	1	Basic windows controls	Visual Studio,#MS http://freevideolectures.com/Course/3002/DOT-NET-Tutorial	Chalk and talk & Self study	Open Book
	4.2	2	Concept of adding various Windows Controls Button, Label, TextBox, RadioButton, CheckBox, ComboBox, ListBox, PictureBox, ScrollBar, ToolStrip, Timer, Panel and GroupBox	BV#15 Page No. 405-408,#MS http://freevideolectures.com/Course/3002/DOT-NET-Tutorial	Discussion & Demonstration	
	4.3	2	Windows form: appearance of form-properties of form, placing controls on forms, setting tab order, anchoring and docking, splitting forms into multiple forms, MDI (Multiple Document Interface)	#MS http://freevideolectures.com/Course/3002/DOT-NET-Tutorial ,BV#15 Page No. 393-398	Video tutorial & Demonstration	

	4.4	2	Working with the Events: handling Form events, Mouse events, Keyboard events	BV#13 Page No. 316-326	Demonstration	
Unit 5: Advanced GUI controls						
5	5.1	1	RichTextBox: text manipulation and formatting	#MS http://freevidelectures. com/Course/3002/DOT- NET-Tutorial https://msdn.microsoft.c om/en-us/library/aa261 653(v=vs.60).aspx	Chalk and talk & Demonstration	
	5.2	2	Dialog Boxes (ColorDialog, FontDialog, SaveFileDialog and OpenFileDialog)	#MS 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.forms.openfiledialog(v=vs.110).aspx	Chalk and talk & Demonstration	
	5.3	2	TreeView control: adding nodes at design time and runtime, scanning tree view control, Menu, (MenuStrip, ContextMenuStrip)	#MS https://msdn.microsoft.c om/en-us/library/syste m.windows.forms.treevie w(v=vs.110).aspx	Chalk and talk & Demonstration	
	5.4	2	ListView control: the column collection, ListView Items and subitems, Items collection, Subitems collection, sorting in ListView, processing selected Items.	#MS https://msdn.microsoft.c om/en-us/library/3bz1s 4ky(v=vs.110).aspx	Chalk and talk & Demonstration	
Unit 6: Managing data with ADO.NET						

6	6.1	1	Introduction to ADO .NET	KL#19 Page No. 890	Presentation	Unit Test 2
	6.2	2	Concept of Connected and Disconnected Architecture	KL#19 Page No. 885- 889	Presentation & Chalk and talk	
	6.3	3	Data Providers in ADO.NET and connection Object	KL#19 Page No. 895-916	Presentation & Chalk and talk	
	6.4	3	Working with the DataSet: creating, filling and modifying DataSet, DataGrid control and Data Binding	KL#19 Page No. 917-923	Chalk and talk & Demonstration	
	6.5	1	Accessing data: Executing query using Command object, Reading data	KL#19 Page No. 916	Chalk and talk & Demonstration	Internal Examination

Text Book:

1. Karli Watson, Christian Nagel, Jacob Hammer Pedersen, Jon D. Reid, Morgan Skinner - "Beginning Visual C# 2010" - Wrox Publication - [#BV]
2. Rebecca M. Riordan - Microsoft Press "Microsoft ADO. Net" - PHI [#MA]
3. Microsoft User Guide, <http://www.msdn.microsoft.com> [#MS]

References :

1. Shibi Panilkar, Kumar Sanjeev - "Magic of C# with .Net FrameWork" - Firewall mediaSharnam Shah , Vaishali Shah , Strut2 Beginners – Include Struts Integration with Hibernate 3, SPD -[SPD#]
2. Paul J. Deitel and Harvey M. Deitel - "C# 2008 for Programmers – Pearson [#PD]
3. Kogent Learning Solutions Inc, "C# 2012 Programming". [#KL]
4. Karli Watson, Christian Nagel, Jacob Hammer Pedersen, Jon D. Reid, Morgan Skinner, Eric White – "Beginning Visual C# 2008" - Wrox Publication
5. Bharat & Co - "Programming with C#

Note: # denotes chapter number.

Course objectives and Course outcomes mapping:

- ✓ To provide fundamentals of .NET framework: CO1.
- ✓ To provide fundamentals of C# language: CO2.
- ✓ Introduce development of rich windows form applications with event driven programming model: CO3, CO4 and CO5.

Course units and course outcome 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	Managing data with ADO.NET					✓

Programme Outcomes:

PO1: Ability to understand the concepts of key areas in computer science.

PO2: Ability to design and develop system, component or process as well as test and maintain it so as to provide promising solutions to industry and society.

PO3: Effective communication and presentation skill.

PO4: Ability to understand professional and ethical responsibility.

PO5: Recognition of the need for life-long learning.

Course outcome and programme outcome mapping:

	CO1	CO2	CO3	CO4	CO5
PO1	✓	✓	✓	✓	✓
PO2		✓	✓	✓	✓
PO3					
PO4					
PO5					

Computing Environment:

- ✓ A student must have the following computing environment in laboratory and or on his/her laptop.
 - ❖ IDE like Microsoft Visual Studio 2010 or higher
 - ❖ RDBMS like SQLExpress, MySQL

Modes of Transaction (Delivery):

Various methods of teaching should be employed depending on the objectives of the content.

Unit No	Topic Detail	Teaching Approach	PO mapped
2	2.2 Flow control: Selection statement, Iteration statement, Jump statement	Hands-On Activity	PO2, PO5
3	3.1 Concept of Class, Object, Encapsulation, Inheritance, Polymorphism in C#	Questions to ponder	PO1, PO2, PO5

Activities/Practicum:

- ✓ The following activities shall be carried out by the students.
 - ❖ Installation of IDE and RDBMS.
 - ❖ Demonstrate Windows application as a group project.
 - ❖ Demonstration of Report.
- ✓ The following activities shall be carried out by the teacher.

Learner	Activities to be done	PO mapped
For slow learners	Question and answering after completion of each chapter.	PO1, PO2, PO3
For advanced learners	GUI designing using Dev components.	PO1, PO2, PO5
For all	Deployment of application.	PO1, PO2, PO5

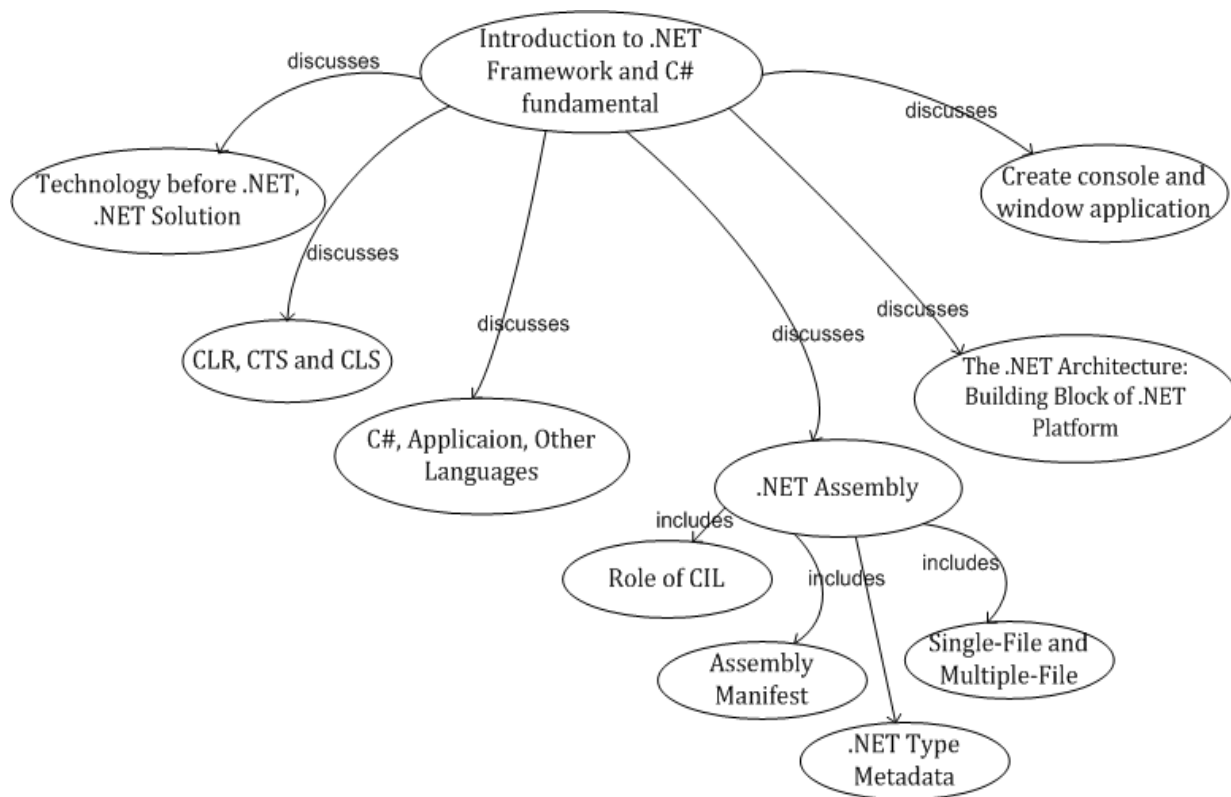
Number of Practical Problems in Journal: 20

Total sets to be developed for each division: 2

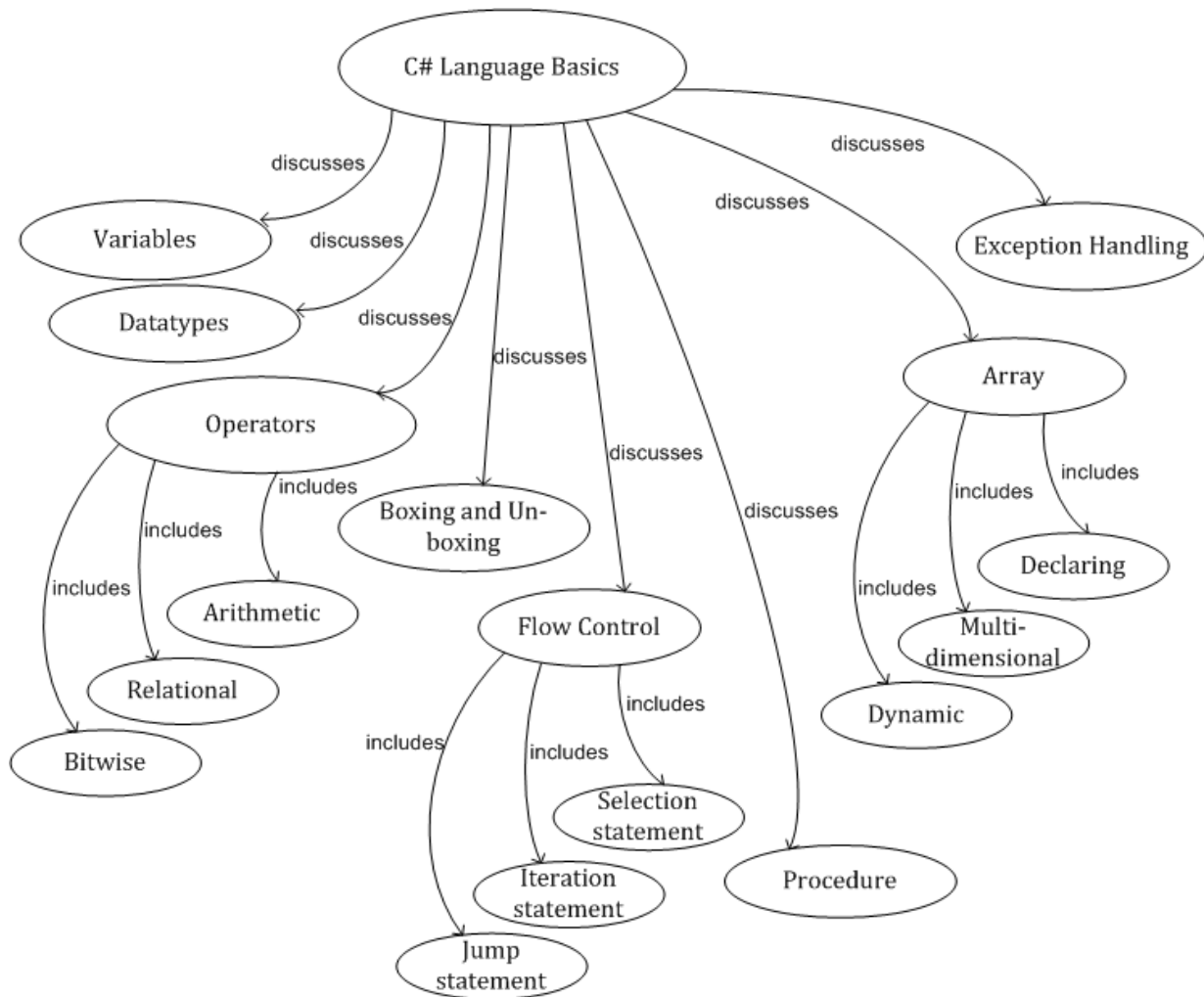
Unit Number	Number of Questions	Time required to implement and debug the question (in hours)	Minimum required of Journal Certification
Unit 2	2	6	2
Unit 3	3	10	3
Unit 4	4	12	4
Unit 5	5	12	4
Unit 6	6	20	5
TOTAL	20	60	18

Concept map:

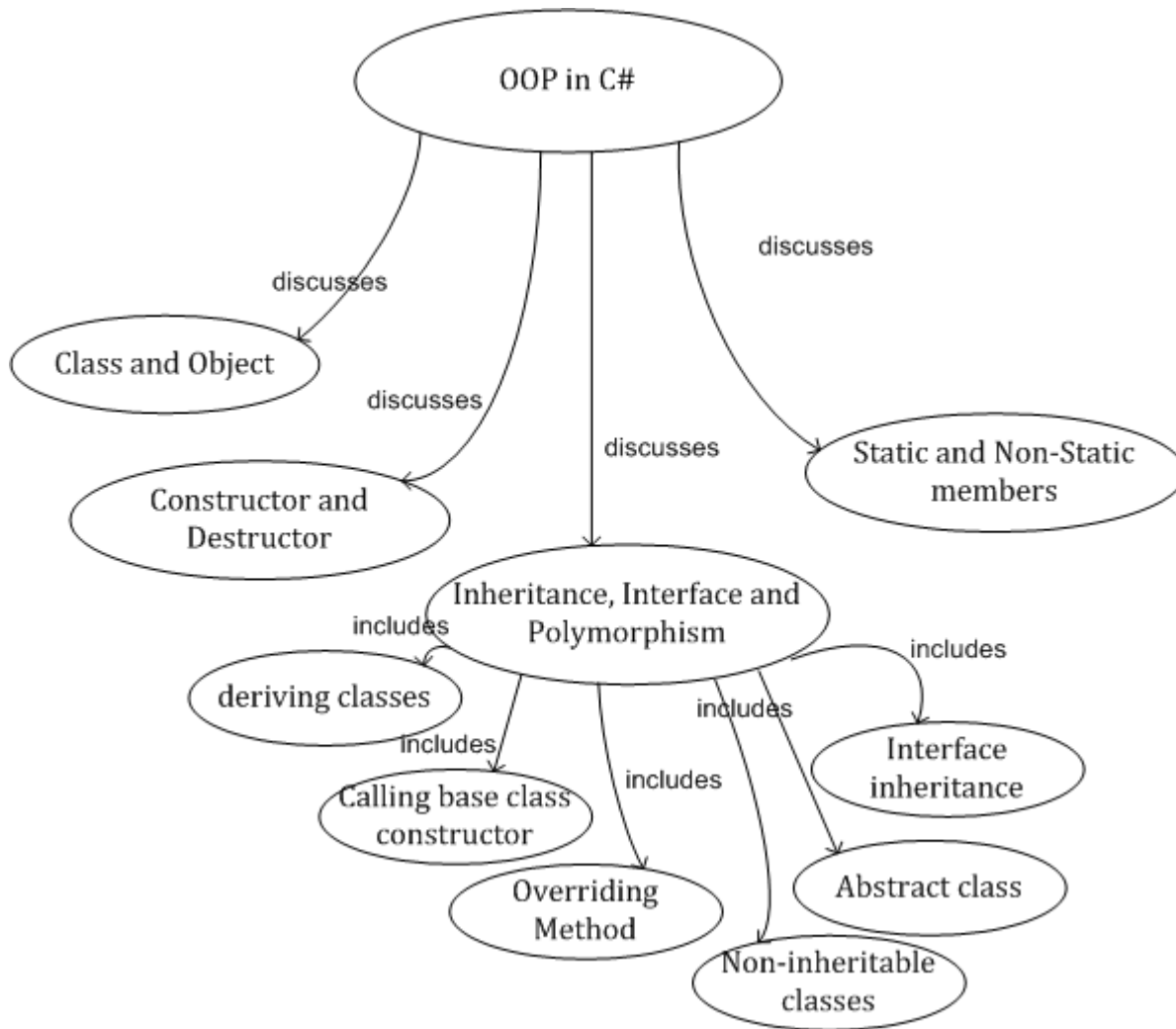
Unit 1:



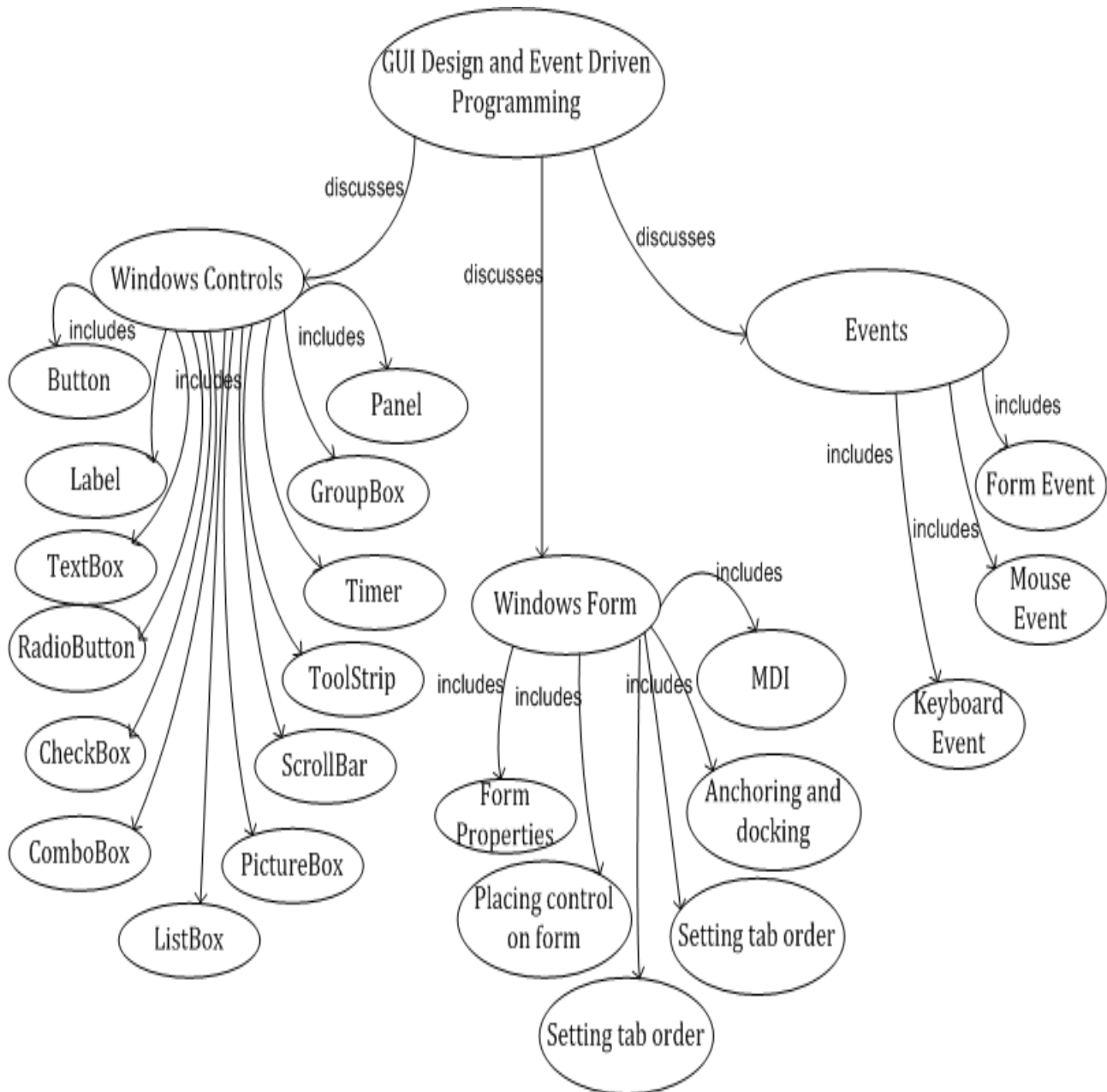
Unit 2:



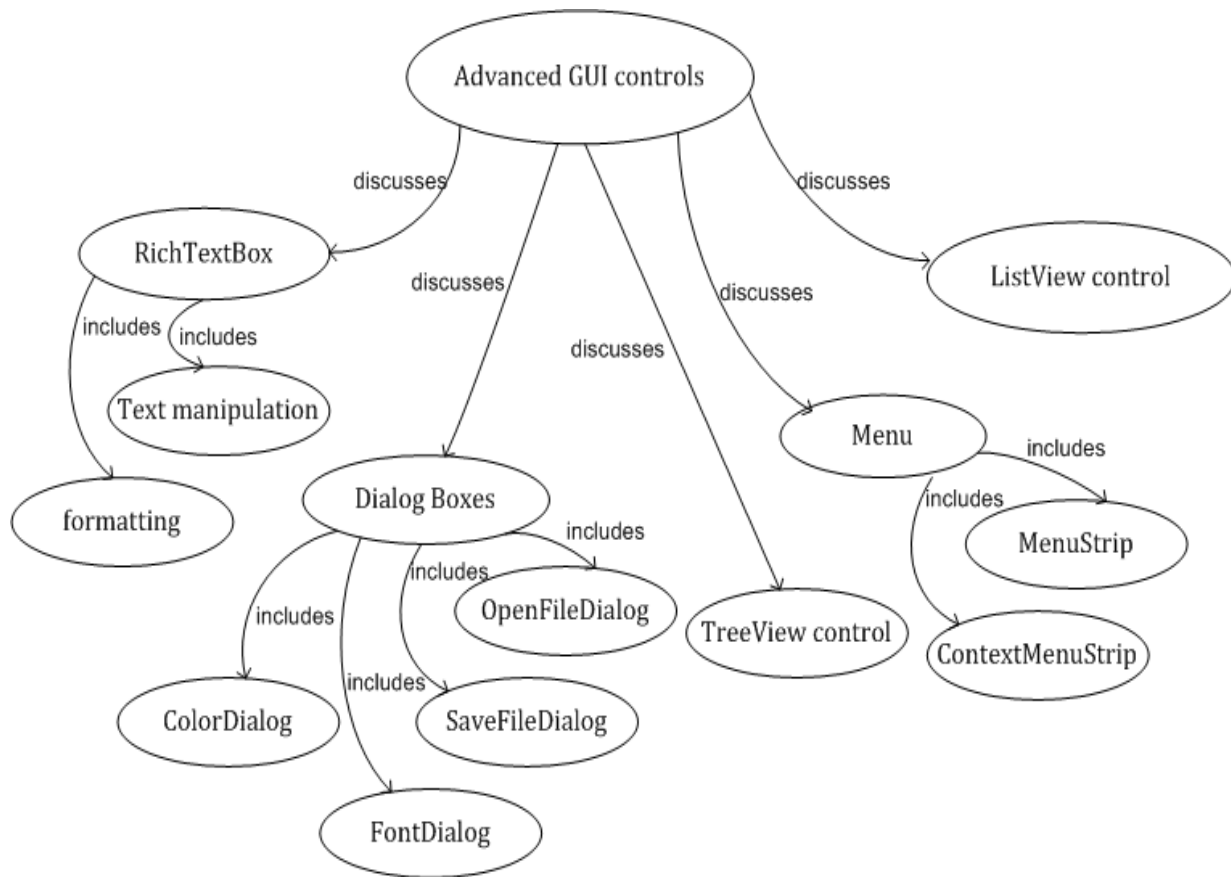
Unit 3:



Unit-4:



Unit-5:



Unit-6:

