Course Code	PCA20D05J	Course Name	PROGRAMMING USING C#		Course Category	D	Discipline Elective Course	L	T	P	C
								3	0	2	4

Pre-requisite Courses	Nil	Co-requisite Courses	Nil	Progressive Courses	Nil		
Course Offering Department		Computer Applications		Data Book / Codes/Standards	Nil		

Course Learning Rationale (CLR):	The purpose of learning this course is to,	Learning	Program Learning Outcomes (PLO)

		1	2	3		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CLR-1 :	To cover the fundamental concepts of the C# language																			
CLR-2 :	To learn various C# libraries																			
CLR-3 :	To understand the basis of web programming																			
CLR-4 :	To understand the basis of Windows Programming																			
CLR-5 :	To understand .NET Controls and ActiceX Data Objects																			
CLR-6 :	To enable the learner to become an application developer using this language																			

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)	Disciplinary Knowledge	Critical Thinking	Problem Solving	Analytical Reasoning	Research Skills	Team Work	Scientific Reasoning	Reflective Thinking	Self-Directed Learning	Multicultural Competence	Ethical Reasoning	Community Engagement	ICT Skills	Leadership Skills	Life Long Learning
CLO-1 :	Understand the basics of C# and .NET framework	3	80	70	H	L	L	L	L	H	L	L	L	L	L	L	H	-	H
CLO-2 :	Develop applications using object-oriented aspects of C#	3	85	75	H	L	H	L	H	H	L	L	L	L	L	L	H	-	L
CLO-3 :	Design Windows applications	3	85	75	H	H	L	H	H	H	L	L	L	H	L	H	L	-	H
CLO-4 :	Create Database applications using ActiveX Data Objects	3	85	80	H	H	L	H	H	H	L	L	L	H	L	L	H	-	H
CLO-5 :	Develop Web based applications	3	85	75	H	H	L	L	H	H	H	H	H	H	L	H	L	-	H
CLO-6 :	Develop Web based applications with Database Interaction	3	80	70	H	H	L	L	H	H	H	H	H	H	L	H	H	-	H

Duration (hour)		15	15	15	15	15
S-1	SLO-1	Introducing C# - Understanding .NET Framework	Class Fundamentals	Delegates – Declaration, Methods	Programming with Basic Windows Form Controls: Button Control, Label and Link Label Control	ADO.Net framework
	SLO-2	Origin and Benefits	Principles, Defining Class	Delegate Instantiation, Invocation	Textbox Control, Radiobutton and Checkbox Controls	Architecture of .Net Framework
S-2	SLO-1	Overview of C#	Creating Objects	Multicast Delegates	Richtextbox Contro, Listbox and CheckedListbox Controls	ADO.NET managed providers
	SLO-2	Simple C# Program	Accessing Objects	Implementing Multicast delegates	Simple windows	Types of Providers

S-3	SLO-1	Literals, Variables and Data Types	Constructors	Console I/O Operations – Console Input, Output	ListView Controls, Advanced Windows Form Features	Data set – Object Model
	SLO-2	Declaration and Initialization of variables	Example using Constructors	Formatted Output, Numeric Formatting, Standard Numeric Format, Custom Numeric Format	Menus and Toolbars	DataTable Collection
S-4-S 5	SLO - 1	**Lab 1: Initialization and Declaration, Data types**	**Lab 4: Classes, Constructors**	**Lab 7: Delegates**	**Lab 10: Create Windows Applications**	**Lab 13:Develop Web Applications Using Object Model**
S-6	SLO-1	Operators and Expressions	Indexers and Properties	Event Handling	SDI and MDI Applications	Data source controls
	SLO-2	Evaluation of Expressions	Implementation of an indexer and property	Application of event with Delegates	Building MDI Applications	SQL DataSource, AccessDataSource
S-7	SLO-1	Program Control Statements: Branching	Inheritance	Errors and Exception Handling	Validation Controls	Working with Grid view
	SLO-2	If, If else, Elseif	Implementation of inheritance	Using try, Catch	Types of Validation Controls	Bind Data Using SQlConnection and SQL Adapter
S -8	SLO-1	Program Control Statements: Looping	Abstract Class, Sealed Class	Exception Hierarchy	Navigation Controls	DataList
	SLO-2	While, Do While, For	Case Study	Implementing Exception Hierarchy	Types of Navigation Controls	Templates and Events in Datalist
S-9-S 10	SLO-1	**Lab 2:Control Statements**	**Lab 5: Inheritance**	**Lab 8: Exception Handling**	**Lab 11: Develop Web Applications using Validation and Navigation Controls**	**Lab 14: Develop Web Application Using DataSource Control**
S-11	SLO-1	Methods in C#	Interface	Custom Exception	Data Controls	Formview
	SLO-2	Case Study Using Methods	Sample Programs	Throwing our own Exceptions	Program using Data Controls	Displaying Data with Formview Control
S-12	SLO-1	Arrays : Array Class, Array List	Operator Overloading	Multithreading in C#	Creating Web Applications	Repeater Control
	SLO-2	One Dimensional array, Two Dimensional array, Jagged Arrays	Overloadable Operators, Defining	Creating and Starting Thread	Case Study	Templates and Events in Repeater
S-13	SLO-1	Arrays : Array Class, Array List	Operator Overloading – Unary Operators, Binary Operators	Scheduling a Thread	Deployment	Designing Web Application
	SLO-2	One Dimensional array, Two Dimensional array, Jagged Arrays	Operator Overloading –Binary Operators	Synchronizing Threads	Steps to Deployment	Steps to Design Web Applications

S-14-S 15	SLO-1	Lab 3:Arrays	Lab 6: Interface, Operator Overloading	Lab 9: Custom Exception,Thread	Lab 12: Develop Web Applications using Data Controls	Lab 15: Develop Web Application Using Form View and Repeater Control

Learning Resources	1. E. Balagurusamy, "Programming in C#-A Primer" – Fourth Edition, Mc Graw Hill Education. 2. Kogent(2010), "ASP.NET 4.0 Black Book – Platinum Edition", Dreamtech Press,New Delhi	1. Paul Deitel, Harvey Deitel – C# 2010 For Programmers, Deitel Developer Series – Pearson Education – 2011 2. Andrew Troelsen – C# and the .NET Platform – A1 Press – 2003

Learning Assessment

Level	Bloom's Level of Thinking	Continuous Learning Assessment (50% weightage)								Final Examination (50% weightage)	
		CLA – 1 (10%)		CLA – 2 (10%)		CLA – 3 (20%)		CLA – 4 (10%) #			
		Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice	Theory	Practice
Level 1	Remember Understand	20%	20%	15%	15%	15%	15%	15%	15%	15%	15%
Level 2	Apply Analyze	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Level 3	Evaluate Create	10%	10%	15%	15%	15%	15%	15%	15%	15%	15%
	Total	100 %		100 %		100 %		100 %		100 %	

CLA – 4 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, Conf. Paper etc.,

Course Designers

Experts from Industry	Experts from Higher Technical Institutions	Internal Experts
Mr.G.Muruganandam, Group Project Manager, HCL Technologies, Chennai	Dr.S.Gopinathan, Professor, University of Madras, Chennai	Mrs. D. Jebeula, SRMIST
Mr.M. Hemachandar, Tech Lead, Wipro Limited, Chennai		Dr.S.Albert Antony Raj , SRMIST