SCALA PROGRAMMING

(Honors)

Course Code		Year	III	Semester	I
Course Category	Honors	Branch	IT	Course Type	Theory
Credits	4	L-T-P	4-0-0	Prerequisites	Java Programming
Continuous Internal Evaluation :	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes	
Upon Successful completion of course, the student will be able to:	
CO1	Understand the fundamental concepts of basic object oriented programming in scala.	L2
CO2	Apply the knowledge of functional programming concepts to develop applications.	L3
CO3	Analyze and the behavior of programs involving fundamental programming concepts in Scala.	L3
CO4	Apply object-oriented concepts to design and use of Scala in a variety of technologies and on different platforms.	L3

Syllabus		
Unit No	Contents	Mapped CO
I	**Scala:** Introduction, Scala Environment, Scala Shell, Scala ID, Implementing the Object **Scala Building Blocks:** Introduction, Apps and Applications, Basics of the Language **Scala Classes**: Introduction, Classes, Case Classes **Scala Methods**: Introduction, Method Definitions, Named Parameters	CO1
II	**Classes, Inheritance and Abstraction**: Introduction, Inheritance Between Types, Inheritance Between Classes, Restricting a Subclass, Abstract Classes, The Super Keyword, Scala Type Hierarchy, Polymorphism **Objects and Instances**: Introduction, Singleton Objects, Companion Objects **Value Classes**: Introduction, Value Classes, Simple Value Type Example,	CO1,CO2
III	**Scala Constructs**: Introduction, Numbers and Numeric Operators, Characters and Strings, Assignments, Variables, Messages and Message Selectors, Control and Iteration **Traits**: Introduction, Abstract Trait Members, Dynamic Binding of Traits, Sealed Traits, Marker Traits **Arrays:** Introduction, Arrays, Creating Square Arrays, Looping Through Arrays **Tuples**: Introduction, Tuple Characteristics, classes, Creating a Tuple,	CO1,CO3
IV	**Functional Programming in Scala**: Introduction, Scala as a Functional Language, Defning Scala Functions **Scala Collections Framework**: Introduction, Scala Collections **Immutable Lists and Maps**: Introduction, the Immutable List Collection	CO1,CO4
V	**Scala and JDBC Database Access**: Introduction, Working with JDBC, The Database Driver, Registering Drivers, Setting Up MySQL, Setting Up the Database **GUIs in Scala Swing**: Introduction, Windows as Objects, Windows in Scala, Scala Swing, Scala Swing Packages, Swing Scala Worked Examples **Scala& Java Interoperability**: Introduction, a Simple Example, Inheritance, Issues, Functions	CO1,CO4

Learning Resources
Text book:
1   A Beginner's Guide to Scala, Object Orientation and Functional Programming, Second Edition John Hunt, Midmarsh Technology Ltd, Bath, Wiltshire Springer publications
References :
1   Functional Programming in Scala by Paul Chiusano, RunarBjarnason ,MEAP Edition Manning Early Access Program ,version 10
e-Resources and other Digital Material
1   https://www.tutorialspoint.com/scala/index.htm