SEMESTER – I

Course Code	PCA20C01J	Course Name	PROGRAMMING USING JAVA	Course Category	C	Professional Core 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

		Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)
CLR-1 :	*An overview of Java and Buzz words*			
CLR-2 :	*Understand the object oriented features in Java*			
CLR-3 :	*Create and understand the Java program structure*			
CLR-4 :	*Understand the Java packages and Interfaces*			
CLR-5 :	*Use the multithreading programming scenario*			
CLR-6 :	*Create applet and use AWT tools*			

Course Learning Outcomes (CLO):	At the end of this course, learners will be able to:	Level of Thinking (Bloom)	Expected Proficiency (%)	Expected Attainment (%)
CLO-1 :	*Understand the difference between C++ and Java*	2	85	80
CLO-2 :	*Develop Java program using JVM*	3	85	80
CLO-3 :	*Use the various kinds of packages and interfaces*	3	85	80
CLO-4 :	*Apply the Exception handling methods in Java program.*	3	85	80
CLO-5 :	*Identify applet and application programming*	3	85	80
CLO-6 :	*Understand the Java I/O classes and collections interfaces.*	3	85	80

Program Learning Outcomes (PLO)														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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
H	H	H	H	H	-	-	M	M	L	-	H	-	-	-
L	H	H	H	H	-	-	M	M	L	-	H	-	-	-
L	H	H	H	H	-	-	M	M	L	-	H	-	-	-
L	H	H	H	H	-	-	M	M	L	-	H	-	-	-
L	H	H	H	H	-	-	M	M	L	-	H	-	-	-
L	H	H	H	H	-	-	M	M	L	-	H	-	-	-

Duration (hour)		15	15	15	15	15
S-1	SLO-1	*The Genesis of Java*	*Introducing classes- Class fundamentals- Declaring Objects*	*Inheritance Basics*	*Introduction to Java Thread model*	*Introduction to Event Handling - Understanding ActionEvent & ItemEvent*
	SLO-2	*How java changed the internet- Java's magic: Byte Code*	*Assigning object Reference variables- Introducing method*	*Understanding Types of Inheritance: Single, Multilevel, Hierarchical Inheritance*	*Creating a Thread by Extending Thread Class*	*Understanding KeyEvent & MouseEvent*
S-2	SLO-1	*Introduction to Java Buzzword- Understanding Java Buzzwords*	*What are Constructors? What are the Characteristics of constructors?*	*How does java support multiple inheritance? - using Super keyword*	*Creating a Thread by implementing Runnable Interface.*	*TextEvent,WindowEvent,ComponentEvent- Introduction to Event Listener Interfaces*

	SLO-2	*Simple, Object Oriented, Robust, Multithreaded, Architecture*	*Understanding Types of Constructors -Using this Keyword*	*What is Method Overriding?*	*Thread Class*	*Working with ActionListener &, AdjustmentListener*
S-3	SLO-1	*Neutral, Interpreted and high performance, Distributed, Dynamic*	*Introduction to Garbage Collection*	*Understanding Dynamic method dispatch - Introduction to Abstract keyword*	*Creating multiple threads*	*Working with ContainerListener, ItemListener, ComponentListener*
	SLO-2	*Evolution of Java*	*Using Finalize() method*	*Working with Abstract class and Method & Using final with inheritance*	*Assigning Thread priorities*	*Working with KeyListener & MouseListener*
S-4 to S-5	SLO-1	***Lab1: Learning to work with Java IDE and Writing Simple Conversion Programs***	***Lab 4: Classes and Objects***	***Lab 7: Inheritance, Method Overriding, Abstract classes and methods***	***Lab 10: Multithreading***	***Lab 13: Event Handling***
S - 6	SLO-1	*Introduction to Object Oriented Concepts of Java*	*Overloading methods- Overloading constructors*	*Introduction to Package - Creating a Package*	*Applying Synchronization- Inter-thread communication*	*Introduction AWT Controls - Working with Label controls*
	SLO-2	*Understanding Encapsulation, Polymorphism, Inheritance*	*Using objects as parameters- Argument Passing*	*Understanding Access Protection- Importing packages*	*Introduction to Legacy Classes- Working with Vector class*	*Working with Buttons controls- Working with CheckBoxes*
S-7	SLO-1	*Introduction to Lexical Issues of Java*	*Returning Objects-*	*Introduction to Interfaces- Defining an interface*	*Examples using Vector class*	*Working with CheckBoxGroup controls*
	SLO-2	*Understanding Whitespaces, Identifiers,Literals Comments, Separators, Keywords*	*Recursion*	*Implementing Interfaces*	*Understanding Stack class*	*Working with Choice controls controls*
S-8	SLO-1	*Introduction to Data types of Java, Understanding byte,short,int,long, float,double,chars,boolean*	*Introducing Access Control*	*How interfaces are extended?*	*Examples using Stack class - Introduction to Legacy Interfaces*	*Working with Lists controls*
	SLO-2	*What is variable?, Declaring a variable, dynamic initialization of variables, Scope and lifetime of variables*	*Understanding Static variables and methods*	*What is Exception?*	*Understanding Enumeration Interface- Examples using Enumeration interface*	*Working with TextField controls*
S-9 to S-10	***SLO-1***	***Lab2: Operators***	***Lab 5: Overloading Methods and Constructors, finalize() method***	***Lab 8: Packages and Interfaces***	***Lab 11: Legacy Classes and Interfaces***	***Lab 14: AWT Controls***
S-11	SLO-1	*Introduction to Operators,*	*Understanding Final variables and methods*	*Understanding Exception Types- Introduction to Exception handling*	*Introduction to Utility classes*	*Introduction to Layout Manager- Understanding Flow Layout*
	SLO-2	*Working with Arithmetic, Relational, Logical, Bitwise, Conditional, Assignment operators*	*Working with Nested Class*	*Working with try and catch*	*Working with StringTokenizer*	*Understanding Border Layout- Understanding Grid Layout*

S-12	SLO-1	*What is Array?, Initialization of Arrays, Understanding Types of Arrays*	*Understanding Inner Class*	*Using multiple catch clauses*	*Working with Date class- Working with Calendar*	*Introduction to I/O Streams*
	SLO-2	*Introduction to Control Statements - Working with Selection Statements- All forms of if & Switch*	*Introduction to String Class*	*Working with Finally, Throw and throws*	*Working with GregorianCalendar- Working with Random Class*	*Byte Streams classes*
S-13	SLO-1	*Introduction to Iterative Statements, Working with while, do-while, for, for each statements*	*Working with String Handling Methods*	*Understanding Built-in Exceptions*	*Working with Scanner Class*	*Character Streams classes*
	SLO-2	*Introduction to Jump Statements- Working with break, continue and return statements*	*Command Line arguments*	*Creating user defined Exceptions*	*Examples using utility classes*	*Examples using Byte and Character Streams*
S-14 to S-15	SLO-1	***Lab 3: Arrays, Control Statements***	***Lab 6: String Class, Command Line Arguments***	***Lab 9: Exception Handling***	***Lab 12: Utility Classes***	***Lab 15: Layout Managers, Byte and Character Streams***

Learning Resources	1. Herbert Schildt (2007), Java: The Complete Reference, Tata McGraw-Hill, Seventh Edition, New Delhi.	1. Horstmann S., Gray Cornell (2001), Core Java 2 Volume In, Fundamentals, Addition Wesley, New York. 2. Arnold and Gosling, J. (2000), The Java Programming Language, Addition Wesley, 2nd Edition, New Delhi. 3. Art Gittleman (2002), Ultimate Java Programming, Wiley Publications, New York.

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	20%	20%	15%	15%	15%	15%	15%	15%	20%	20%
	Understand										
Level 2	Apply	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
	Analyze										
Level 3	Evaluate	10%	10%	15%	15%	15%	15%	15%	15%	10%	10%
	Create										
	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