1.	**Course Title**	**Advanced programing Java**		
2.	**Course Code**	**CCPS2543**		
3.	**Status**	Elective Major		
4.	**Credit Hour**	3 (2+1) 2 lecture (2 hours lecture x 14 weeks) 1 tutorials (1.5 hours per x 14 weeks) using simulator & emulator supervised by tutor		
5.	**Semester/Year**	-		
6.	**Prerequisites**	CCPS2513 Data Structure		
7.	**Teaching method:**	Distance Learning (Electronic)		
8.	**Evaluation**	**Assessment and Marking Percentage:** Participation 5% Quizzes 10% Project 10% Mid Sem Exam 25% Final Examination 50%		
9.	**Lecturer**			
10.	**Objective of the Subject**	To initiate skills to write algorithms and programs and to introduce various programming paradigms, programming methodology and object oriented language Java		
11.	**Learning Outcomes**	By the end of the subject, students should be able to: • Develop and apply algorithms for various programming paradigm and methodology. • Demonstrate the implementation of object oriented programming concepts and design using a high-level programming language, like Java correctly and effectively.		
12.	**Synopsis**	The major areas of study include: Comparison of procedure oriented, structure oriented and object oriented programming paradigms, Top-down design, algorithm development, Fundamentals of object-oriented design, Classes, Attributes and Behaviour, Java fundamentals, Data members and member functions, Dynamic memory allocation, Concept of inheritance and polymorphism, Advanced Java concepts and applications		
13.	**Topics**	Details	Lecture (Hrs)	Tutorial (Hrs)
	Topic 1	**Introduction** Comparison of procedure oriented, structure oriented and object oriented programming paradigms - top-down design - algorithm development - refining algorithms - fundamental of object oriented design - identifying classes - attributes and behavior - features of object oriented programming	4	4.5
	Topic 2	**C++ Fundamentals** Standard I/O streams - function prototypes – JAVAenhancements to C – Default function parameters - inline functions – overloaded functions - reference variables comparison between pointers and references.	4	3
	Topic 3	**Classes** Creating new data type in JAVA- class declaration - members - constructors and destructors - access functions constant objects - member objects - static members - friend classes - arrays of class objects.	4	3
	Topic 4	**Dynamic Memory Allocation** Free store - new and delete operators - class with pointer members - this pointer assignment - initialization - copy constructor - passing and returning objects - advanced free store techniques – exception handling.	5	4.5
	Topic 5	**Inheritance and Polymorphism**	6	3

		Operator overloading - handling related types in JAVA-derived class – conversion between base and derived classes – virtual functions - dynamic binding - pure virtual functions - protected members – public and private base classes - new, delete operators overloading - inheritance applications.		
	Topic 6	**Advanced JAVAconcepts an applications** File handling - templates - container classes – class library - stack, queue and linked list applications - simple database applications.	5	3
		Total contact hours	28	21
		Equivalent lecture hours	28	14
		Total lecture hours	42	
		Credit hours	3	
14.	**Main reference: Textbook:**	*Y. Daniel Liang,* ***Introduction to Java Programming, Comprehensive Version*** *(7th Edition) (2008)*		
15.	**Additional References:**	1. *David J. Barnes and Michael Kolling,* ***Objects First With Java: A Practical Introduction Using BlueJ*** *(4th Edition) (Paperback - Sep 1, 2008)* 2. *Herbert Schildt,* ***Java: The Complete Reference****, Seventh Edition (Complete Reference Series) (2006)* 3. *Cay S. Horstmann,* ***Big Java*** *(2007)*		
	Other Materials:	All materials will be available to the students online.		