Syllabus of Skill Development Workshop on "Python"

SESSION 2020-21 (ODD)

Skill Development Workshop on Python Programming

Semester: 2nd Year / 3rd Semester **Course Duration: 30 Hrs.**

I. COURSE OBJECTIVE:

SR. NO	COURSE OBJECTIVE
1	To make student able to illustrate concepts in python programming.
2	To make student able to write program to solve a given problem.
3	To make student able to analyze topics such as control structure, data structure, Iterators, etc.
4	To make students evaluate concept such as control structure, data structure, Module, File Operation, I/O operations, MVC and Django etc. as per requirement of the given problem.
5	To make students able to develop an application to solve real world problems.

II. COURSE OUTCOME:

SR. NO	CO NO.	COURSE OUTCOME
After completing this course students will able to		
1	CO1	**Illustrate** concept of command line interface, python scripting, keywords, variables, operators and data types. (BL 2)
2	CO2	**Apply** knowledge of control structure, data structure, definition, Iterator, Module and I/O operations. (BL 3)
3	CO3	**Analyze** various data structure, generator, OOP concept, Iterator. (BL 4)
4	CO4	**Evaluate** different control structure, data structure, Module, I/O operations, MVC and Django as per requirement of the given problem. (BL 5)
5	CO5	**Develop** an application to solve real world problems.(BL 6)

III. SYLLABUS:

SR. NO.	TOPICS	CO MAPPED	NO. OF HOURS
1	**Introduction to Python [CO1]** • History of Python • Why Choose Python • What can you do with Python • Recent works	CO1	6 Hrs
2	Working with **python Command line interface[CO1]** • Introduction to variables & basic Data types. • Operators • Number operations • Number conversions (Bin, decimals, hex and octal) • Complex numbers	CO1	
3	**Understanding python script [CO1]** • Importance of code indentation in py • Getting started with Python prompt & it's use on Linux or windows **Working with print** and strings • Commenting and use of triple quotes • Data printing and formatting **Understanding Boolean (and, or and not)** **Binary operations on numbers**	CO1	
4	Python User Inputs **[CO2]** User input in python 3.6 and Python 2.7	CO2	
5	**Control structures [CO2]** • IF ELSE • Else &elif • Nesting if else block • Loops (for/else and while/else)	CO2	3 Hrs
6	**Control structures continued.....[CO2],[CO4]** • Programs based on control structures • Small applications development (Hands-on Practice)	CO2,CO4	
7	**Python List [CO2]** • Understanding mutable and immutable objects in python • List indexing • List slicing • Extending a list	CO2	3 Hrs
8	**Python List [CO2],[CO4]** • Appending a list • Sorting list • Recommended way to extend and append a list	CO2,CO4	
9	**List comprehension [CO3],[CO4]** • Code optimizations • Smaller and effective solutions to the problems	CO3,CO4	
10	**Dictionary** Data structure **[CO2],[CO3]** • General calculations • Getting minimum • Getting maximum • Sorting data	CO2,CO4	3 Hrs
11	**Tuple** and its operations **[CO2]** • Difference between list and tuple • Tuple operations	CO2	

	• Slicing and indexing **Set and set operations [CO2]** • Set union • Set intersection • Set difference • Set symmetric difference		
12	Writing **definitions** in python **[CO2]** • Working with functions • functions with return types • functions with default value parameters	**CO2**	**3 Hrs**
13	Writing **definitions** in python continued**[CO2]** • def as an object • def within def	**CO2**	
14	Python Inheritance **[CO3]** • Creating child and Parent class • Use of super() function	**CO3**	**3Hrs**
16	Python Iterators **[CO3],[CO4]** • Iterator vs Iterable • Looping Through an Iterator	**CO3,CO4**	
17	Python Modules **[CO2][CO4]** • Creating and Using module with import statement • Built in modules	**CO2,CO4**	
18	**File** Operations **[CO2]** • Opening Files • Read operation • Write operation	**CO2**	**3 Hrs**
19	**File** Operations **[CO4]** • Working with files • Working with directories	**CO4**	
20	**Introduction to Django [CO4] & [CO5]**	**CO4,CO5**	**6 Hrs**
21	**Django basics** and its use **[CO4] & [CO5]** Understanding web development basics Basic client-server architecture	**CO4,CO5**	
23	Understanding **Modal View and Controller** with Django **[CO4] & [CO5]** Use of such architecture in web development Django Architecture	**CO4,CO5**	
24	Installing Django **[CO4] & [CO5]** Understanding requirements of Django **Getting started** with Django Creating our first app in Django	**CO4,CO5**	
25	Understanding **directory structure** of Django **[CO4] & [CO5]** working with **view** mapping of view with URLs getting into regular expression based URLs	**CO4,CO5**	
26	Getting user input from the URLs **[CO4] & [CO5]** understanding GET and POST method processing user navigation input	**CO4,CO5**	
27	Small application development with Django **[CO4] & [CO5]**	**CO4,CO5**	

IV. REFERENCES:

1. Reference Books:

i. Allen B Downey, —Think PYTHON, O'Rielly, ISBN: 13:978-93-5023-863-9, 4th Indian Reprint 2015

ii. The Python 3 Standard Library by Example (Developer's Library) by Doug Hellmann, second edition

2. Video Links:

i. https://nptel.ac.in/courses/106/106/106106182/LINK-2

ii. https://www.python.org/

Syllabus of Skill Development Workshop on "Programming in JAVA"

SESSION 2020-21 (ODD)

Syllabus of Skill Development Workshop on Java Programming

Semester: 3rd Year / 5th Semester **Course Duration: 30Hrs.**

I. COURSE OBJECTIVE:

SR. NO.	COURSE OBJECTIVE
1	Gain knowledge about basic Java language syntax and semantics to write Java programs and use concepts such as variables, conditional and iterative execution methods etc.
2	Understand the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods etc and exception handling mechanisms.
3	Understand the principles of inheritance, packages and interfaces.

II. COURSE OUTCOME:

SR. NO.	CO NO.	COURSE OUTCOME
After completing this course, students will be able to:		
1	CO1	Write, compile, and execute Java programs that include basic data types and control flow constructs using J2SE or other Integrated Development Environments (IDEs) such as Eclipse, NetBeans, and JDeveloper.
2	CO2	Explain and apply object-oriented design and testing involving the following concepts: data abstraction, encapsulation, information hiding, inheritance, polymorphism, string manipulation.
3	CO3	Apply error handling techniques using exception handling, multithreading and the concept of interfaces and packages in java.
4	CO4	Use a development environment to design, code, test, and debug simple programs, including multi-file source projects, in an object-oriented programming language.
5	CO5	Apply appropriate problem-solving strategies.

III. SYLLABUS:

SR. NO.	TOPICS	CO MAPPED	NO. OF HOURS
1	**Importance of Java Programming as per industry need.** 1. Application Development 2. Web Application Development 3. IT industry	CO1	1 Hrs
1	**INTRODUCTION** 1. Why Java 2. Diff between Java & Others (C, C++) 3. Java history 4. Java features 5. Java program structure 6. Java Tokens 7. Java Statements 8. Java Data Types 9. Typecasting 10. Arrays Sample Assignment on above topics	CO1	2 Hrs
2	**Object Oriented Programming – Part 1** 1. Class 2. Object 3. Constructor 4. this Keyword 5. Method overloading Sample Assignment on above topics	CO2	3 Hrs
3	**Object Oriented Programming – Part 2** 1. Static Keyword 2. Inheritance 3. Super KeyWord 4. Method overriding, Polymorphism 5. Abstract classes and methods 6. Interface Sample Assignment on above topics	CO2, CO3	3 Hrs
4	**STRING MANIPULATIONS** 1. String 2. String Buffer 3. StringBuilder 4. toString 5. String Tokenizer Sample Assignment on above topics	CO2	4 Hrs
5	**PACKAGES** 1. Introduction to packages	CO4	2 Hrs

	2. User Defined Packages 3. Accessing Package 4. Sub-package 5. Access Specifiers Assignment on above topics		
6	**EXCEPTION HANDLING** 1. Introduction 2. Pre-Defined Exceptions 3. Try-Catch-Finally 4. Throws, throw 5. User Defined Exception examples Assignment on above topics	**CO3**	**4 Hrs**
9	**Java Database Connectivity 2** 1. DriverManager 2. Connection 3. Statement 4. ResultSet 5. PreparedStatement 6. ResultSetMetaData 7. DatabaseMetaData 8. StoreImage 9. Retrive Image Assignment on above topics	**CO5**	**4 Hrs**

I. REFERENCES:

1. Reference Books:

i. Sun Certified Java Programmer for Java 6 by Kathy Sierra.

ii. The JavaTM Programming Language(3rd Edition) by Arnold, Holmes, Gosling, Goteti

iii. Core Java for Beginners by Rashmi Kanta Das(III Edition) Vikas Publication

iv. Programming in Java(Second Edition) by Sachin Malhotra and Saurabh Choudhary. Oxford University Press

2. Video Links:

i. https://nptel.ac.in/courses/106/105/106105191/

ii. https://www.java.com/

Syllabus of Skill Development Workshop on "Salesforce"

S.B.JAIN INSTITUTE OF TECHNOLOGY, MANAGEMENT & RESEARCH, NAGPUR
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
To become a center for quality education in the field of Computer Science & Engineering and to create competent professionals

SESSION 2020-21 (ODD)

Skill Development Workshop on Salesforce

Semester: 3rd Year / 5th Semester **Course Duration: 30Hrs.**

I. COURSE OBJECTIVE:

SR. NO.	COURSE OBJECTIVE
1	To understand the concept of on-demand cloud computing
2	To understand Salesforce CRM software and its features.
3	To Implement automation, security, and debugging data.
4	To learn Standard List Controller and Configure the user interface

II. COURSE OUTCOME:

SR. NO.	CO NO.	COURSE OUTCOME
After completing this course, students will be able to:		
1	CO1	Explain the difference between cloud computing and its type.
2	CO2	Navigate the Salesforce platform and its different building blocks
3	CO3	Understand the Security Model and Controls Manage the data and workflow rules
4	CO4	Understand the data loader and generate reports.

III. SYLLABUS:

SR. NO.	TOPICS	CO MAPPED	NO. OF HOURS
1.	**Importance of Salesforce as per industry need.** 1. CRM 2. Cloud Solution for Industry	CO1	01 Hr.
2.	**INTRODUCTION** 1. What is Cloud Computing 2. Introduction to Aaas, Paas, Saas and difference 3. Why Salesforce? 4. Introduction to VisualForce.com	CO1	02 Hrs.

	Assignments on above Topics		
3.	**INTRODUCTION TO SALESFORCE** 1. Signup for Org 2. Adding logo to org 3. What is Data Models & Objects 4. Fields, Fields Types, Formulae Assignments on above Topics	CO2, CO3	04 Hrs.
4.	**RELATIONSHIP AMONG OBJECTS** 1. Introduction to Relationships 2. Lookup Relationship 3. Master Detail Relationship 4. Hybrid Relationship Assignments on above Topics	CO3	06 Hrs.
5.	**SECURITY IN SALESFORCE** 1. Object Level Security 2. Record Level Security 3. Field Level Security 4. Org Level Security Assignments on above Topic	CO3	08 Hrs.
6.	**DATA LOADER** 1. Insert External Record 2. Update External record 3. Upsert External Record 4. Delete and Hard Delete Record Assignments on above Topic	CO4	05 Hrs.
7.	**REPORTS AND DASHBOARDS** 1. Reports Types 2. Summary Report 3. Tabular Report 4. Dashboards working Assignments on above Topic	CO4	04 Hrs.

IV. REFERENCES:

1. Video Links:
   i. https://www.youtube.com/watch?v=qGNjRT7F-2Y
   ii. https://www.youtube.com/watch?v=l8Mop2fCjPg
2. Website:
   i. https://trailhead.salesforce.com/home