**JSPM Narhe Technical Campus**

**Department: MCA**

**Academic Year – 2020-21**

**Teaching, Learning and Assessment tool Plan**

**Name of Faculty: - Prof. N.D.Kumthekar Subject:- Python**

**Semester: II Year: 2021 Division: A Planned Duration: 37 Hr**

**Course outcome:**

**CO1**: Understand Demonstrate the concepts of python and modular programming. (Understand)

**CO2**: Apply the concepts of concurrency control in python (Apply)

**CO3**: Solve the real-life problems using object-oriented concepts and python libraries (Apply)

**CO4**: Demonstrate the concept of IO, Exception Handling, database (Apply)

**CO5**: Analyze the given dataset and apply the data analysis concepts and data visualization. (Analyze)

**Unit - 1 Introduction & Components of Python**

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| Sr. No | Content | Planned Date | Actual Date | Course outcome to fulfill | Teaching model | Teaching activity | Teaching material | References | Student activity | Student Learning material | Assessment tool |
| 1 | Syllabus structure and Co conveyed to students | 16-06-21 |  | CO-1 | Inductive thinking & concept attainment Model | Direct instructions |  |  |  |  |  |
| 2 | Understanding Python Role of Python in AI and Data science Installation and Working with Python | 17-06-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes | R-1  R-2 | Reading Notes | Notes | Feedback |
| 3 | The default graphical development environment for Python - IDLE , Types and Operation | 18-06-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes | Reading Notes | Notes,Assignments | Feedback |
| 4 | Python Object Types-Number, Strings, Lists, Dictionaries, Tuples, Files, User Defined Classes Understanding python blocks Python Program Flow Control | 23-06-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes | R-2 | Reading Notes | Notes,Assignments | Feedback |
| 5 | Conditional blocks using if, else and elif , Simple for loops in python , For loop using ranges, string, list and dictionaries | 24-06-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes | R-2 | Practical | Notes,Assignments | Feedback |
| 6 | Use of while loops in python , Loop manipulation using pass, continue, break and else , Programming using Python conditional and loops block | 25-06-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes | Practical | Notes,Assignments | Feedback |

**Unit - 2 - Python Functions, Modules & Packages**

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| 1 | Function Basics-Scope, nested function, non-local statements , built-in functions | 30-06-21 |  | CO-3 | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | R-4 | Reading Notes | Notes | Feedback |
| 2 | Arguments Passing, Anonymous Function: lambda | 01-07-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Reading Notes | Notes,Assignments | Feedback |
| 3 | Decorators and Generators | 02-07-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Practical | Notes,Assignments | Feedback |
| 4 | odule basic usage, namespaces, reloading modules. – math, random, datetime, etc. | 7-07-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Notes,Assignments | Feedback |
| 5 | Package: import basics | 8-07-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Notes,Assignments | Feedback |
| 6 | Python namespace packages , user defined modules and packages | 9-07-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Notes,Assignments | Feedback |

**Unit - 3 - Python Object Oriented Programming**

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| Sr. No | Content | Planned Date | Actual Date | Course outcome to fulfill | Teaching model | Teaching activity | Teaching material | References | Student activity | Student Learning material | Assessment tool |
| 1 | Concept of class, object and instances, method call , Constructor, class attributes and destructors | 14-07-21 |  | CO-4 | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | R-4 | Reading Notes | Notes | Feedback |
| 2 | Real time use of class in live projects | 15-07-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Reading Notes | Notes,Assignments | Feedback |
| 3 | Inheritance, super class and overloading operators, | 16-07-21 |  | Inductive thinking & concept attain. | Direct instructions | Notes, youtube Videos | Practical | Notes,Assignments | Feedback |
| 4 | Static and class methods | 21-07-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Notes,Assignments | Feedback |
| 5 | Adding and retrieving dynamic attributes of classes ,Programming using OOPS | 22-07-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Notes,Assignments | Feedback |
| 6 | Delegation and container | 23-07-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Notes,Assignments | Feedback |

**Unit - 4 - Python Regular Expression**

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| Sr. No | Content | Planned Date | Actual Date | Course outcome to fulfill | Teaching model | Teaching activity | Teaching material | References | Student activity | Student Learning material | Assessment tool |
| 1 | Powerful pattern matching and searching , Power of pattern searching using regex in python | 28-07-21 |  | CO-5 | Inductive thinking & concept attainment Model | Direct instructions | Notes,online tutorial | R-6 | Reading Notes | Notes,Assignments | Feedback |
| 2 | Real time parsing of data using regex , Password, email, URL validation using regular expression, Pattern finding programs using regular expression | 29-07-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes,online tutorial | Reading Notes | Notes,Assignments | Feedback |

**Unit - 5 - Python Multithreading and Exception Handling**

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| 1 | Exception Handling , Avoiding code break using exception handling , Safe guarding file operation using exception handling | 30-07-21 |  | CO-4 | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | R-4 | Reading Notes | Notes | Feedback |
| 2 | Handling and helping developer with error code | 04-08-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Reading Notes | Notes,Assignments | Feedback |
| 3 | Programming using Exception handling | 05-08-21 |  | Inductive thinking & concept attain. | Direct instructions | Notes, youtube Videos | Practical | Notes,Assignments | Feedback |
| 4 | Multithreading , Understanding threads | 06-08-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Notes,Assignments | Feedback |
| 5 | Synchronizing the threads ,Programming using multithreading | 11-08-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Notes,Assignments | Feedback |

**Unit - 6 - Python File Operation**

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| 1 | Reading config files in python , Writing log files in python , Understanding read functions, read(), readline() and readlines() , Understanding write | 12-08-21 |  | CO-4 | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | R-4 | Reading Notes | Notes | Feedback |
| 2 | functions write() and writelines() Manipulating file pointer using seek ,Programming using file operations | 13-08-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Reading Notes | Notes,Assignments | Feedback |

**Unit - 7 - Python Database Interaction**

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| 1 | introduction to NoSQL database Advantages of NoSQL database ,SQL Vs NoSQL | 18-08-21 |  | CO-4 | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | R-4 | Reading Notes | Notes | Feedback |
| 2 | Introduction to MongoDB with python ,Exploring Collections and Documents ,Performing basic CRUD operations with MongoDB and python | 19-08-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Reading Notes | Notes,Assignments | Feedback |

**Unit - 8- python for Data Analysis**

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| Sr. No | Content | Planned Date | Actual Date | Course outcome to fulfill | Teaching model | Teaching activity | Teaching material | References | Student activity | Student Learning material | Assessment tool |
| 1 | NumPy: Introduction to NumPy Creating arrays, Using arrays and Scalars Indexing Arrays, Array Transposition Universal Array Function ,Array Input and Output | 20-08-21 |  | CO-4 | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | R-4 | Reading Notes | Notes | Feedback |
| 2 | Pandas: What are pandas? Where it is used? Series in pandas, pandas DataFrames, Index objects, ReIndex Drop Entry, Selecting Entries Data Alignment, Rank and Sort Summary Statics, Missing Data, Index Hierarchy Matplotlib: Python for Data Visualization Introduction to Matplotlib Visualization Tools | 25-08-21 |  | Inductive thinking & concept attainment Model | Direct instructions | Notes, youtube Videos | Reading Notes | Notes,Assignments | Feedback |

Name and Signature: Faculty Program Coordinator HOD

Role: (Prepared By) (Reviewed by) (Approved by)

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Copy To: (Soft copy of Signed document be provided)

1. Program Coordinator
2. Website coordinator

Reference Book : 1. HTML5 & CSS3 , Castro Elizabeth 7th Edition

2.Node.js in Action, 2ed by Alex Young, Bradley Meck

3. Mastering Node.js by Pasquali Sandro

4. Angular Essentials by Kumar Dhananjay

5. Complete Ref. PHP