SVKM's Narsee Monjee College of Commerce & Economics(Autonomous)

Program: B.Com (Economics)	Semester : IV
Course : Python/R Software for Economics Academic Year: 2022-2023	Code: NMUBCOME403

Teaching Scheme				Evaluation Scheme	
Lectures	Practicals	Tutorials	Credits	Internal Continuous Assessment (ICA) (weightage)	Term End Examinations (TEE) (weightage)
45 Lab Lectures	Nil	Nil	03	25 Marks	75 Marks

Internal Component		
Class Test (Duration 20 minutes)	Projects / Assignments	Class Participation
10 Marks	15 Marks	NA

Learning Objectives :

1. To know about current applications of IT in Business
2. To learn basics of Word Editor
3. To learn basics of spreadsheet
4. To learn basics of presentations
5. To learn basics of networking, email usage

Learning Outcomes :

1. **Learner would know Python Programming Techniques**
2. **Learner would understand economical applications, time series analysis with python**

Pedagogy: Lecture, PowerPoint Presentations, Video Clips, Case Studies, Role Plays, Group Discussion

Detailed Syllabus: (per session plan)
Session Outline for : R/Python Software for Ecomonics
Each lecture session would be of one hour duration (30 sessions) to be conducted in Lab

Module	Module Content	Module Wise Pedagogy Used	Module Wise Duration
I	Introduction to Python , Built in Data Types, Array Functions, Basic Maths and Mathematical Expressions Shape Information and Transformation , Linear Algebra Functions Views.	Lecture, Case Study , video clips	15 Lectures

		and discussion	
II	Importing and Exporting Data , Importing Data using pandas Importing Data without pandas , Saving or Exporting Data using pandas , Saving or Exporting Data without pandas . inf and NaN , Floating point precision .	Lab Sessions	15 Lab Sessions
III	Probability and Statistical Functions ,Statistics Functions .continuous Random Variables ,Select Statistics Functions Select Statistical Tests Simulating Random Variables Generating Random Variates , Legacy Generation using RandomState Statistical Analysis with statsmodels , Regression Generalized Linear Models , Other Notable Models , Time-series Analysis	Lab Sessions	15 Lab Sessions

Reference Books

Introduction to Python for Econometrics, Statistics and Data Analysis 5th Edition Kevin Sheppard University of Oxford Monday 27th September, 2021

PAPER PATTERN

1. Internal Class Test 10 Marks Paper Pattern (Pen Paper based)

Que 1	Fill in the Blanks	
	i. ii. iii. iv.	(04)
Que 2	Descriptive Question	(03)
Que 3	Descriptive Question	(03)

2. 15 Marks Assignments / Case study / Mini Project

3. 75 Marks Final Exam Paper Pattern

i. Note: Examination shall be conducted in machine test form in Batches (Max Batch-size 30) in computer lab.
ii. One External examiner is required along with internal examiner for conduct of examination.
iii. Question paper should have maximum number of distinct sets, kept faced down on table, from which student will pick up one question paper.
iv. Duration of the examination is 3 Hours
v. Marks distribution as given below

SVKM's Narsee Monjee College of Commerce & Economics(Autonomous)

Que 1	Practical Question 1	(20)
Que 2	Practical Question 2	(20)
Que 3	Practical Question 3	(20)
Que 4	Viva Voce	(10)
Que 5	Journal	(05)

Evaluation shall be done by examiners on machine in computer lab.

Answer sheet/Print out of Code is required