



SYMBIOSIS INTERNATIONAL (DEEMED UNIVERSITY)

(Established under section 3 of the UGC Act 1956)

Re - accredited by NAAC with 'A' Grade

Founder: Prof. Dr. S. B. Mujumdar, M.Sc.,Ph.D. (Awarded Padma Bhushan and Padma Shri by President of India)

(Established under section 3 of the UGC Act 1956, by notification No.F.9-12/2001-U3
Government of India)

Sub Committee - Specialization for Curriculum Development Post Graduate/ Under Graduate

Course Name: Mastering Python for Finance

Course Code: T3500

(UG/PG): PG

Number of Credits: 3

Level: 2

Learning Objective(s): To learn different tools used for visual finance.

To learn applications of finance in real life applications.

Pedagogy:

Case study,

Real life application examples.

Pre-learning: Knowledge of basic concepts of python for Finance.

Course Outline:

Sr. No.	Topics	Hours
1	Introduction to Basic python programming for finance	2
2	Visual Finance via Matplotlib: Installing matplotlib via ActivePython, Alternative installation via Anaconda, Understanding how to use matplotlib, Understanding simple and compounded interest rates, Adding texts to our graph, Adding texts to our graph, Using colors effectively, Using different shapes,	12
3	Statistical Analysis of Time Series Installing and using Pandas and statsmodels, Open data sources, Important functions, return estimation, Merging dataset by date, T-test and F-Test, usefull applications ,Python for high frequency data, use of spyder.	8
4	The Black-Scholes-Merton Option Model Payoff and profit/loss functions for the call and put options, Cash flows, types of options, a right, and an obligation, Normal distribution, standard normal distribution, and cumulative standard normal distribution, The p4f module for options, Various trading strategies,	8
5	Monte Carlo Simulation and Options Generating random numbers from a standard normal distribution, Generating random numbers from a uniform distribution, Using simulation to estimate the pi value, Generating random numbers from a Poisson distribution, Distribution of annual returns Simulation of stock price movements, Long-term return forecasting,	5
6	Volatility Measures and GARCH Conventional volatility measure – standard deviation, Tests of normality, Lower partial standard deviation, Test of equivalency of volatility over two periods	10
	Total	45

Book Recommended:

1. Python for Finance by O'Reilly Media, Inc.
2. Python for Finance by Yuxin Yan , Packet publishing.

Suggested Assessment/ Evaluation Methods

Assignments
Presentations
Design Examples
Examination

Benchmarked against similar courses in other national/ international universities /organizations

S.No.	Name of the course	Name of the university where it is offered
1	Mastering Python for Finance	City University of Hong Kong
2	Advanced Programming for Financial Engineering	Columbia University, New York

Name of Member	Dr. Sachin Naik			
Designation	Assistant Prof.			
Org. / Inst.	SICSR			
Signature				

Name of Experts	Aniruddha chiney				
Designation	Consultant				
Org. / Inst.	NA				
Signature					

Signature of Dean:

Date: 16/06/2017

