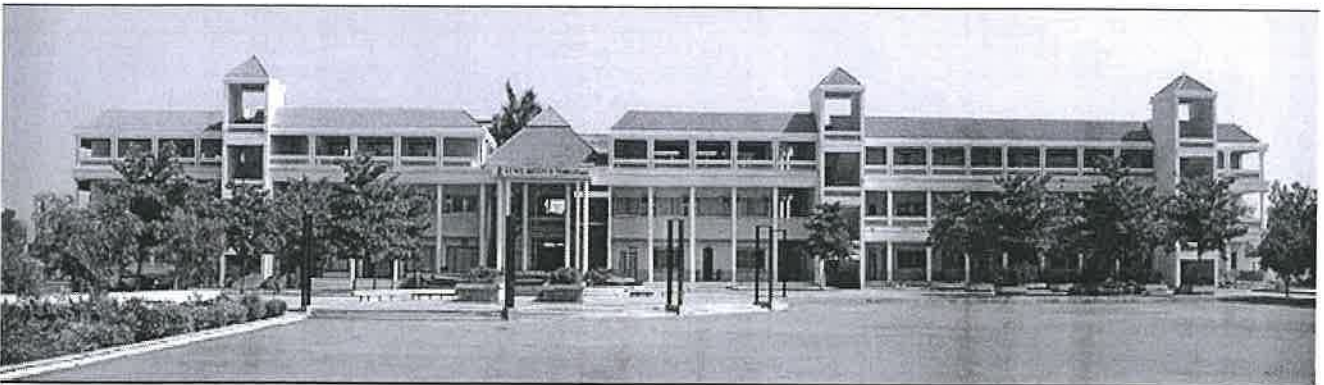Shirpur Education Society's

R. C. Patel Institute of Technology, Shirpur
(An Autonomous Institute)

Course Structure and Syllabus

Honors Degree Program in Computational Finance

Computer Science and Engineering (Data Science)

With effect from Year 2024-25

Shahada Road, Near Nimzari Naka, Shirpur, Maharashtra 425405
Ph: 02563 259 802, Web: www.rcpit.ac.in

Honors Degree Program in Computational Finance (w.e.f. 2024-25)

Sr	Course Category	Course Code	Course Title	Teaching Scheme L	T	P	CA — TA [A]	Term Test 1 (TT1)	Term Test 2 (TT2)	Average of (TT1 & TT2) [B]	ESE [C]	Total [A+B+C]	Credit
Sem-III													
1	H1	RCP23DCH1301	Financial Market and Risk Analysis	3			20	20	20	20	60	100	3
Sem-IV													
2	H1	RCP23DCH1401	Econometric Modelling	3			20	20	20	20	60	100	3
Sem-V													
3	H1	RCP23DCH1501	Computational Methods and Pricing Models	3			20	20	20	20	60	100	3
	H1	RCP23DLH1501	Computational Methods and Pricing Models Laboratory			2	25					25	1
Sem-VI													
4	H1	RCP23DCH1601	Quantitative Portfolio Management	3			20	20	20	20	60	100	3
	H1	RCP23DLH1601	Quantitative Portfolio Management Laboratory			2	25					25	1
Sem-VII													
5	H1	RCP23DCH1701	Stochastic Calculus for Financial Modelling	3			20	20	20	20	60	100	3
6	H1	RCP23DLH1701	Mini Project			2	50					50	1
			Total	15		6	200			100	300	600	18

Prepared by:
Dr. P. S. Sanjekar

Checked by:
Prof. S. M. Pardeshi

Prof. Dr. R. B. Wagh
BOS Chairman

Prof. S. P. Shukla
C.O.E.

Prof. Dr. P. J. Deore
Dean Academics/Dy. Director

Prof. Dr. J. B. Patil
Director

Honors Degree Program in Computational Finance(w.e.f. 2024-25)

Sr	Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme						Credit
							Continuous Assessment (CA)						
				L	T	P	TA	Term Test 1 (TT1)	Term Test 2 (TT2)	Average of (TT1 & TT2)	ESE	Total	
							[A]			[B]	[C]	[A+B+C]	
			Sem-III										
1	H1	RCP23DCH1301	Financial Market and Risk Analysis	3			20	20	20	20	60	100	3	3

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Director

Financial Market and Risk Analysis (RCP23DCH1301)

Teaching Scheme	Examination Scheme
Lectures : 03 Hrs./week	Term Test : 20 Marks
Credits : 03	Teacher Assessment : 20 Marks
	End Sem Exam : 60 Marks
	Total Marks : 100 Marks

Prerequisite: Basic Mathematics

Course Objectives:

1. To provide an understanding of various financial institutions, their functions, as well as to introduce various financial instruments and their associated risks.

2. Measurement, analysis and managing the risk using advanced techniques.

3. To introduce risk exposure in money markets, capital markets, and forex markets

CO	Course Outcomes	Blooms Level	Blooms Description
CO1	Understand the structures, functions, and operations of financial institutions and markets.	L2	Understand
CO2	Identify and evaluate various financial instruments and assess the risks associated with them.	L3	Apply
CO3	Assess the risk in money markets, capital markets and forex markets.	L2	Understand

Course Contents

Unit-I   06 Hrs.

Introduction to Financial Instruments:

Money, Equity, Debt instruments, Foreign Exchange and their risk structure. Introduction to crypto currency (or contemporary currency).

Unit-II   09 Hrs.

Money Market Instruments and Structure of Risk:

Interest rate and valuation: present value and future value computation, annuity valuation, loan amortization, capital recovery and sinking fund factory, money market instruments and structure of their risk and returns.

Equity Market and Risk Matrix:

Stocks, Ordinary and Preferential Stocks, primary and secondary stock market, Initial Public Offering (IPO), public equity and private equity, stock market index, market participants, trading risk in equity market.

Unit-III   08 Hrs.

Financial Markets and Products:

Structures and functions of financial institutions, structure and mechanics of Over – the – Counter (OTC) and exchange markets, Spot market, Commodity market, Foreign exchange market, Corporate bonds and mortgage-based-securities.

Unit-IV   07 Hrs.

Debt Market, Structure of Risk and Return: Risk and Return of Debt instruments, types of bonds, term structure for interest rates, yield curve, spot rate and forward rate, duration and convexity of yield curve.

Unit-V   09 Hrs.

International Finance:

Foreign exchange market, determination of foreign exchange rate, purchasing power parity theory, interest rate parity, Fisher effects, international Fisher effect.

Foreign Exchange Risk:

Currency derivatives, currency quotes, triangular currency arbitrage, exchange rate exposure.

Text Books:

1. Jimmy Skoglund, Wei Chen, "Financial Risk Management", Wiley Publication, 2015.

2. Bharti. V. Pathak, "The Indian Financial System", Pearson Publication, 2018.

Reference Books:

1. Saunders. A. and Cornett M, "Financial Markets and Institutions", McGraw Hill Education, 2014.

2. Hull. J. C, "Options, Future and other Derivatives", PHL publication 2013.

3. Brealey, Myers, Allen, "Principals of Corporate Finance", McGraw Hill, 2020.

Online Resources:

1. Financial Instruments:

   https://corporatefinanceinstitute.com/resources/wealth-management/financial-instrument/

2. NPTEL course in Financial Institution and Markets:

   https://nptel.ac.in/courses/110105121

Evaluation Scheme:

Theory :

Continuous Assessment (A):

Subject teacher will declare Teacher Assessment criteria at the start of semester.

Continuous Assessment (B):

1. Two term tests of 20 marks each will be conducted during the semester.

2. Average of the marks scored in both the tests will be considered for final grading.

End Semester Examination (C):

1. Question paper based on the entire syllabus, summing up to 60 marks.

2. Total duration allotted for writing the paper is 2 hrs.