



Shri Vile Parle Kelavani Mandal's  
Dwarkadas J. Sanghvi College of Engineering  
(Autonomous College Affiliated to the University of Mumbai)

Scheme and Detailed syllabus (DJS23)  
of  
Honors Degree Program  
in  
**Computational Finance**  
(Semester III)

*With effect from the Academic Year: 2025-2026*



**Scheme for Undergraduate Program in Computer Science and Engineering (Data Science)**  
**Honors in Computational Finance**  
**(Academic Year 2025-2026)**

Sr. No.	Course Code	Course	Teaching Scheme (hrs.)				Semester End Examination(A)						Continuous Assessment (B)						Aggregate (A+B)	Total Credits		
			Theory (hrs)	Practical (hrs)	Tut (hrs)	Credits	Duration (hrs)	Theory/Cb	Oral	Practical	Oral & Practical	Total SEE (A)	Term Test 1 (TT1)	Term Test 2 (TT2)	Term Test 3 (TT3)	Total (TT1,TT2,TT3)	Term Work Total	TotalC A(A)				
1	DJS23DH1201	Financial Market and Risk Analysis	3	--	--	3	2	60	--	--	--	60	15	15	10	40	--	40	100	3	3	
		Total	3	0	0	3	2	60	0	0	0	60	15	15	10	40	0	40	100	3	3	



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**DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING**

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NAAC Accredited with "A" Grade (CGPA : 3.18)



**Honors in Computational Finance**

**Semester: III**

**Program: Computer Science and Engineering (Data Science)**

**Course: Financial Market and Risk Analysis (DJS23DH1201)**

**Pre-requisite:**

1. Basic Mathematics

**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.

**Outcomes:** On completion of the course, the learner will be able to:

1. Understand the structures, functions, and operations of financial institutions and markets
2. Identify and evaluate various financial instruments and assess the risks associated with them.
3. Assess the risk in money markets, capital markets and forex markets.

<b>Financial Market and Risk Analysis (DJS23DH1201)</b>		
<b>Unit</b>	<b>Description</b>	<b>Duration</b>
<b>1</b>	<b>Introduction to Financial Instruments:</b> Money, equity, debt instruments, foreign exchange and their risk structure. Introduction to crypto currency (or contemporary currency)	06
<b>2</b>	<b>Money Market Instruments and Structure of Risk:</b> 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.  <b>Equity Market and Risk Matrix:</b> 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.	09
<b>3</b>	<b>Financial Markets and Products:</b> 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.	08
<b>4</b>	<b>Debt Market, Structure of Risk and Return:</b> 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.	07
<b>5</b>	<b>International Finance:</b> Foreign exchange market, determination of foreign exchange rate, purchasing power parity theory, interest rate parity, Fisher effects, international Fisher effect.  <b>Foreign Exchange Risk:</b> Currency derivatives, currency quotes, triangular currency arbitrage, exchange rate exposure.	09
	<b>Total</b>	<b>39</b>

**Books Recommended:***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

*Web Links:*

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>

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