Shri Vile Parle Kelavani Mandal's

Dwarkadas J. Sanghvi College of Engineering

(Autonomous College Affiliated to the University of Mumbai)

Scheme and Detailed Syllabus of DJS23 Honors Program in FinTech

Revision: 2025

With effect from the Academic Year: 2025-2026

Proposed scheme for Honors in FinTech in Artificial Intelligence and Machine Learning: Semester III (Autonomous)
Academic Year(2025-26)

Sr. No.	Course Code	Course	Teaching Scheme			Continuous Assessment (A)						Semester End Examination (B)						Aggregate (A+B)	Credits
			Theory (hrs.)	Practical (hrs.)	Tutorial (hrs.)	Term Test 1(TT1) -a	Term Test 2(TT2) -b	Assg/CP/GD/Presentation/Quiz) - c	Total (a+b+c)	Term work	CA Total	Duration	Theory	Oral	Pract	Oral & Pract	SEE Total		
Sem III																			
1	DJS23AH2201	Foundation of Finance	3	--	--	15	15	10	40	--	40	2	60	--	--	--	60	100	3
Sem IV																			
2	DJS23AH2251	Quantitative Finance	3	--	--	15	15	10	40	--	40	2	60	--	--	--	60	100	3
Sem V																			
3	DJS23AH2301	Econometric Modelling and Financial Analytics	3	--	--	15	15	10	40	--	40	2	60	--	--	--	60	100	3
4	DJS23AH2301L	Econometric Modelling and Financial Analytics Laboratory	--	2	--	--	--	--	--	25	25	2	--	25	--	--	25	50	1
Sem VI																			
5	DJS23AH2351	Intelligent Trading Systems & Risk Analytics	3	--	--	15	15	10	40	--	40	2	60	--	--	--	60	100	3
6	DJS23AH2351L	Intelligent Trading Systems & Risk Analytics Laboratory	--	2	--	--	--	--	--	25	25	2	--	25	--	--	25	50	1
Sem VIII																			
7	DJS23AH2451	Decentralized Systems	4	--	--	15	15	10	40	--	40	2	60	--	--	--	60	100	4
		Total	**16**	**4**	**--**	**75**	**75**	**50**	**200**	**50**	**250**	**14**	**300**	**50**	**--**	**--**	**350**	**600**	**18**

Prepared by: Name and Signatures (with date)	Head of Department	Vice-Principal	Principal
	Dr. Aruna Gawde	Dr. Narendra Shekokar	Dr. Hari Vasudevan
Checked By Name and Signatures (with date)			

DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING
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Continuous Assessment (A):

Course	Assessment Tools	Marks	Time (mins)
Theory	a. Term Test 1 (based on 40 % syllabus)	15	45
	b. Term Test 2 (on next 40 % syllabus)	15	45
	c. Assignment / course project / group discussion /presentation / quiz/ any other.	10	--
	Total marks (a + b + c)	40	
Audit course	Performance in the assignments / quiz / power point presentation / poster presentation / group project / any other tool.	--	As applicable
Laboratory	Performance in the laboratory and documentation.	25	
Tutorial	Performance in each tutorial & / assignment.	25	
Laboratory & Tutorial	Performance in the laboratory and tutorial.	50	

Continuous Assessment (B):

Course	Assessment Tools	Marks	Time (hrs.)
Theory / * Computer based	Written paper based on the entire syllabus.	60	2
	* Computer-based assessment in the college premises.		
Oral	Questions based on the entire syllabus.	25	As applicable
Practical	Performance of the practical assigned during the Examination and the output / results obtained.	25	2
Oral & Practical	Project based courses - Performance of the practical assigned during the examination and the output / results obtained. Based on the practical performed during the Examination and on the entire syllabus.	As per the scheme	2

Prepared by Checked by HoD Vice Principal Principal

Program: Artificial Intelligence & Machine Learning	S.Y.B.Tech	Semester: III
Course: Foundation of Finance(DJS23AH2201)		

Prerequisite: - None

Course Objectives:

By the end of this course, students will be able to:

1. Understand the structure and functioning of financial systems, markets, and instruments, with a focus on the Indian context.
2. Understand the core principles of finance theory including time value of money, risk-return trade-off, and diversification.
3. Gain knowledge of financial instruments, markets (money, equity, debt, forex, commodities, crypto), and their functioning.
4. Conduct financial statement analysis to assess corporate financial health using standard tools and indicators.

Course Outcomes:

Upon successful completion of the course, students will be able to:

1. Describe the components and functions of financial systems and structure and functioning of key financial markets and instruments.
2. Apply concepts of time value of money and evaluate the risk-return tradeoff of financial instruments using CAPM and diversification principles.
3. Differentiate between various market instruments including equity, debt, money markets, and cryptocurrency.
4. Evaluate company performance using financial statements and identify potential red flags through ratio and forensic analysis.

Foundation of Finance (DJS23AH2201)		
Unit	**Description**	**Duration**
1.	**Introduction to Financial Systems, Markets and Instruments:** Functions and organization of Financial systems, overview of Indian Financial System. Introduction to Money markets, Equity Markets, Debt instruments, Foreign exchange and their risk structure. Introduction to Crypto currency (or contemporary currency).	4
2.	**Introduction to Finance Theory:** Time value of money: (Present Value and Future Value, Compounding and Discounting, Annuities (Ordinary and Due), Perpetuities Risk and return: Return Measures, Risk Measures, Risk Return Trade off, Capital Asset Pricing Model (CAPM), Types of Risks, Diversification Principle	8

3.	**Money Markets:** money market instruments and structure of their risk and returns. **Equity Markets:** 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. **Debt instruments:** types of bonds, term structure for interest rates, yield curve	8
4.	**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.	5
5.	**Financial Statement Analysis:** Balance Sheet, Income Statement, Cash Flow Statement, Interrelation and adjustments, Liquidity, profitability, Ratio Analysis, leverage, efficiency, DuPont analysis, **Financial Health Indicators** - Working capital analysis, Earnings quality, Red flags and forensic accounting basics **Forecasting & Modelling:** Revenue and expense projections, Building a 3-statement model, Sensitivity & scenario analysis.	10
6.	**Financial Statement Analysis Using Python and Advanced Excel**	4
	TOTAL	**39**

Books Recommended:

Textbooks:

1. **M.Y.Khan,** *Indian Financial System***,** McGraw-Hill Education, 11th Edition, 2020.
2. **I M Pandey,** *Financial Management*, Vikas Publishing House Pvt Ltd, 11th Edition, 2018.
3. **M.Y. Khan, P.K. Jain,** *Financial Management Text, Problems and Cases*, McGraw-Hill Education, 8th Edition, 2019.
4. **K. R. Subramanyam**, *Financial Statement Analysis*, McGraw-Hill Education, 11th Edition, 2019.

Reference Books:

1. **Richard A. Brealey, Stewart C. Myers, Franklin Allen**, *Principles of Corporate Finance*, McGraw-Hill Education, 13th Edition, 2020.
2. **Steve Bell**, *Quantitative Finance for Dummies*, Wiley, 1st Edition, 2016.
3. **Mark S. Joshi**, *The Concepts and Practice of Mathematical Finance*, Cambridge University Press, 2nd Edition, 2008.
4. **Yves Hilpisch**, *Python for Finance: Mastering Data-Driven Finance*, O'Reilly Media, 2nd Edition, 2018.
5. **Marcos López de Prado**, *Machine Learning for Asset Managers*, Cambridge University Press, 1st Edition, 2020.
6. **Aswath Damodaran**, *Applied Corporate Finance*, Wiley, 4th Edition, 2014.

Web Links:

1. https://www.quantstart.com/articles/
2. https://quantpedia.com/
3. https://pages.stern.nyu.edu/~adamodar/
4. https://aswathdamodaran.blogspot.com/

Online Courses:

- Finance Theory:

https://ocw.mit.edu/courses/15-401-finance-theory-i-fall-2008/

- Finance and Capital Markets:

https://www.khanacademy.org/economics-finance-domain/core-finance

https://archive.nptel.ac.in/courses/110/105/110105121/

- Introduction to Corporate Finance:

https://www.coursera.org/learn/wharton-finance

https://onlinecourses.nptel.ac.in/noc21_mg93/preview