Course Type	Course Code	Name of Course	L	T	P	Credit
DE	NMSD502	Financial Analytics	3	0	0	3

Course Objective
This course will provide students the opportunity to learn about the applications of various analytical methods in Financial business problems. Students will also learn the foundations of FinTech and would focus on how FinTech has impacted the traditional finance industry and hence the nature of financial business problems
Learning Outcomes
Students will be able to develop financial models by implementing analytical methods on various financial business problems Students will be able to comprehend on the key concepts of FinTech and their impact on the future of financial services industry. They will also be able to understand how these new developments are going to impact the nature of financial business problems

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	Introduction to Financial Analytics: Concept, Evolution, Stylized facts of financial analytics: returns, yields, volatility, graphical analysis, and visualization using R Applications	6	Students will get an overview of financial analytics domain
2	Financial Risk analysis and Modeling: Introduction to Financial Risk factors, Sources of Risk, Types of Risk, Modeling Risk factors for various types of risk Financial Forecasting: Concept, Types, Application of market models in portfolio formation and performance using R	13	Students will learn and practice the business applications of various analytical methods in modeling various types of risks and financial forecasting
3	ML Techniques for Forecasting and Applications in Finance: Anomaly Detection: Introduction, Anomaly Detection Methods and their Applications in Finance Fraud Analytics: Concept, Types of Frauds, Fraud detection methods and their applications in Finance	10	Students will learn and practice application of fraud detection and anomaly detection methods. They will also learn when to use a particular method

4	FinTech: Concept, Emergence and Growth, Regulations, Impact on Banking Industry PayTech: Concept, Foundations of Payment Methods, Current Global Trends in Payment Technology, Future of Payment Technologies and related Regulations	6	Students will get an overview of FinTech followed by how FinTech has impacted the payment industry. Students will do hands-on learning using related case-studies
5	CreditTech: Concept, Platform Lending – Technology and business models, types and risks; Smart Banking – FinTech Banks, BaaS concept and implementation; InvestTech: Concept, Robo-Advising-Concept and Functions; Cryptocurrency: Concept, Evolution and Mechanism	7	In this section, students will get hold on how FinTech has impacted credit, investment, and payment industries. They will also be equipped with the cryptocurrency foundations. They will be able to visualize the future of financial industry with hands- on experience gained from relevant case- studies
	Total	**42**	

References

1. Bennett, M. J., and Hugen, D. L. (2016). *Financial Analytics with R: Building a Laptop Laboratory for Data Science.* Cambridge University Press. 1st ed.
2. Kolari, J.W., and Pynnonen, S. (2023). *Investment Valuation and Asset Pricing: Models and Methods.* Springer Nature Switzerland AG. 1st ed.
3. Barabasi, A.L., and Posfai, M. (2016). *Network Science*. Cambridge University Press. 1st ed.
4. Tatsat, H., Puri, S., and Lookabaugh, B. (2020). *Machine Learning and Data Science Blueprints for Finance: From Building Trading Strategies to Robo-Advisors Using Python.* O'Reilly Media, 1st ed.
5. Lee, D.K.C., and Low, L. (2018). *Inclusive Fintech: Blockchain, Cryptocurrency, and Ico.* World Scientific Publishing Company. 1st ed.