



FINANCIAL DERIVATIVES **23MBPE674**

(COURSE HANDBOOK)

MBA

COURSE FACULTY:

Asst. Prof. Akshathraj Jain

1. GENERAL INFORMATION

Welcome to Financial Derivatives!

This course is designed to equip students with a deep understanding of derivative markets and their crucial role in strategic investment decision-making. By blending theoretical concepts with real-world applications, the curriculum prepares students to navigate the complexities of financial derivatives with confidence and expertise.

Throughout this course, you will explore key topics such as commodity derivatives, futures and forwards, valuation of securities, financial swaps, credit derivatives, and forward rate agreements. The structured five-module approach ensures a seamless progression of learning, building a strong foundation before advancing to more complex financial instruments.

Beyond theoretical insights, this course emphasizes practical applications through interactive activities, case studies, and portfolio-building techniques. Module 5, in particular, will focus on numerical computations related to risk assessment, enhancing your ability to evaluate market uncertainties and make informed investment decisions. By mastering these analytical tools, you will gain the confidence needed to assess and mitigate financial risks effectively.

Active participation in discussions, collaborative projects, and problem-solving exercises is highly encouraged, as these will help refine your critical thinking and decision-making skills. Our goal is not just to impart knowledge but to inspire you to apply these insights meaningfully in your future careers.

We urge you to familiarize yourself with this course handbook, as it contains essential details on learning outcomes, assessments, and key resources that will support your academic journey. We look forward to guiding you through this enriching learning experience and helping you build a strong foundation in financial derivatives.

.

1.1.Course Objectives

This course is designed to:

- **Impart knowledge of derivatives market for making investment decisions:** Introduce key concepts of derivative market essential for decision making for investments
- **Impart the knowledge of fundamental concepts of financial derivative:** Impart the knowledge of fundamental concepts of derivatives market for better decision making.
- **Familiarize the students with the commodity derivatives:** Get the knowledge about commodity derivatives, its behaviour and predicting models.
- **Strengthen the essential knowledge about valuation of various securities:** Learn the art of computing values of various securities also learn the methodologies to calculate various risks associated with it.

1.2. Course Outcomes:

At the end of the course, students will be able to:

CO1: Summarize the fundamentals and functions of financial derivatives markets.

CO2: Apply futures and forwards for hedging and arbitrage for practical problem solving

CO3: Analyze derivative market and commodity option contracts for a solution

CO4: Analyze swap contracts to solve problems of international challenges

CO5: Apply various concepts of financial markets to derive a solution for better settlements

1.3. Set Text and Suggested Sources

All books are available in the library.

Text Books:

1. John C Hull & Sankaran Basu, “Options, Futures and other derivatives”, 1st Edition, Pearson Education, 2018.
2. Prakash Yaragol “Financial Derivatives – Texts and Cases”, 1st Edition Vikas Publishing House, 2019.

Reference books:

- Vohra and Bagri, “Options & Futures” 2nd Edition, Tata McGraw Hill 2017

Important Web Links

1. Link to the equity derivatives section of NSE
<https://www.nseix.com/markets/about-our-products/list-of-underlying/equity-derivatives>
2. Overview of Derivatives IIT Roorkee
<https://www.youtube.com/watch?v=pJDMgEpn-bM&t=1765s>
3. Introduction to Commodity Derivatives and Risk Management
<https://www.youtube.com/watch?v=aV8Cy0c2LZw&list=PLG-s-5NTHBFw2m-7PLyRnY0qrhhWiKkW>
4. Forwards and Future Prices exposure
<https://www.youtube.com/watch?v=FS670JTUYIY>
5. Commodity Options and Commodity Spreads
https://www.youtube.com/watch?v=TXtjr00NGWQ&list=PLG-s-5NTHBFw2m-7PLyRnY0qrhhWiKkW_&index=6
6. Black and Scholes Model
<https://www.youtube.com/watch?v=9QS2FduuvTk>

2. THE COURSE

2.1.Course Description

FINANCIAL DERIVATIVES			
Semester	IV	CIE Marks	50
Course code	23MBPC674	SEE Marks	50
Teaching Hrs/Week (L:T:P)	4:0:0	Exam Hrs	03
Total Hrs	52	Credits	04

The Financial Derivatives course is designed to provide students with foundational knowledge on derivatives Market over a 13-week period during Semester 4. The course consists of five modules covering essential topics in financial derivatives of industry. Each week includes four lectures, with Prof. Akshathraj Jain. These lectures focus on theoretical concepts, practical applications, and course-related activities. Spanning a total of 52 hours, this 4-credit course is assessed through Continuous Internal Evaluation (CIE) for 50 marks and a Semester-End Examination (SEE) for 50 marks, a 3-hour written examination. This structure ensures a balanced and engaging learning experience for students.

2.2.Initiating Contact with Staff and Other Students

We welcome your inquiries about the course. Please use email and office hours thoughtfully, and check previous communications and handbook materials before reaching out with administrative questions. Engage with peers for discussions and collaborative learning to enhance your understanding and foster a supportive academic community.

2.3.Resources

Resources include digital libraries, e-learning platforms, and research databases, offering students anytime, anywhere access to academic materials and interactive courses. On the college website, students can access the VTU Consortium, open-access repositories (e.g., NPTEL, NDLI), e-books, research papers, video lectures, and interactive tutorials, providing a flexible and comprehensive learning experience.

E-learning and digital library can be accessed via the college website <https://mite.ac.in/> (Campus Life section > Library > VTU Consortium/e-learning platforms/additional sources).

2.4.Staff

Course Lecturer: Prof. Akshathraj Jain
Cabin: 3rd floor, PG Block
Email: akshathraj@mite.ac.in

2.5.Topics and Reading Materials for each module

Module 1

(No. of Hours: 10)

- **Topic: Introduction to Derivatives.**
- **Financial Derivatives:** Factors causing growth of derivatives, functions of derivatives market, Derivative market players, Derivatives market in India.
- **Commodity Derivative Market:** Commodity derivative exchanges (with commodities traded) in India, trading and settlement system of commodity derivatives - SEBI guidelines for commodity market-commodities traded, case study.
- **Essential Readings**
 - o John C Hull & Sankaran Basu, “Options, Futures & Other Derivatives”. 1st Edition, Pearson Education, 2018. Module 2
- **Additional Reading**
 - o Vohra and Bagri, Options & Futures, 2nd Edition, Tata McGraw-Hill, 2017. Module 1
- **Additional Web Links**
 - o Introduction of derivatives - <https://nptel.ac.in/courses/110107128>
 - o A Study on derivatives market in India https://www.researchgate.net/publication/338660819_A_Study_on_the_Derivatives_Market_in_India#fullTextFileContent

Module 2

(No. of Hours: 9)

- **Topic: Futures and Forwards**
- Hedging through futures/forwards, marking-to-market (MTM) process, index and commodity futures, valuation of futures/forwards using cost of carry model. Arbitrage process, interest rate futures & options.
- **Activities/Lab Components**
 - o Assignment on practical problems
 - o Students group presentation on forwards and futures market in India
- **Essential Readings**
 - o John C Hull & Sankaran Basu, “Options, Futures & Other Derivatives”. 1st Edition, Pearson Education, 2018. Module 16
- **Additional Reading**
 - o Vohra and Bagri, Options & Futures, 2nd Edition, Tata McGraw-Hill, 2017. Module 2
- **Additional Web Links**
 - o Introduction to forwards and futures - <https://nptel.ac.in/courses/110107128>

- Understanding financial derivatives: Forwards, futures and options -
<https://online.hbs.edu/blog/post/understanding-financial-derivatives-forwards-futures-options>
- Futures and forward contract -
https://www.researchgate.net/publication/288228197_Futures_and_forward_contract_as_a_route_of_hedging_the_risk#fullTextFileContent

Module 3

(No. of Hours: 12)

- **Topic: Valuation of Securities**
 - Option pricing, factors affecting option pricing, valuation of option contracts using Black & Scholes model and Binomial model, put-call parity theory. Option Greeks, option trading strategies, interest rate options, case study.
- **Activities/Lab Components]**
 - Assignment on practical problems
- **Essential Readings**
 - John C Hull & Sankaran Basu, “Options, Futures & Other Derivatives”. 1st Edition, Pearson Education, 2018. Module 8 and 13
- **Additional Reading**
 - Vohra and Bagri, Options & Futures, 2nd Edition, Tata McGraw-Hill, 2017. Module 5
- **Additional Web Links**
- Introduction to Black & Scholes model
<https://nptel.ac.in/courses/110107128>
- Valuation and securities analysis
<https://www.london.ac.uk/sites/default/files/uploads/ac31430-valuation-securities-analysis.pdf>
- Industry-specific stock valuation methods
<https://www.emerald.com/insight/content/doi/10.1108/jal-04-2023-0065/full/pdf?title=industry-specific-stock-valuation-methods-a-literature-review>

Module 4

(No. of Hours: 10)

- **Topic: Financial Swaps**
 - Introduction to swaps, types of financial swaps: interest rate swaps, currency swaps, equity swap and commodity swap, Mechanics of interest rate swaps, currency swaps and triangular swap, valuation interest rate swaps
- **Activities/Lab Components**
 - Case study: Analyze the exchange rate fluctuation in the international market against various currencies
 - Assignment on practical problems

- **Essential Readings**
 - John C Hull & Sankaran Basu, “Options, Futures & Other Derivatives”. 1st Edition, Pearson Education, 2018. Module 7
- **Additional Reading**
 - Vohra and Bagri, Options & Futures, 2nd Edition, Tata McGraw-Hill, 2017. Module 7
- **Additional Web Links**
 - Introduction to Swaps
<https://nptel.ac.in/courses/110107128>
 - Swaps
https://www.researchgate.net/publication/273382339_Swaps#fullTextFileContent
 - Interest rate swaps and corporate default
<https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1590.pdf>

Module 5

(No. of Hours: 11)

- **Topic: Credit Derivatives & Value-at-Risk**
 - Credit Derivatives, total return swap (TRS), credit default swap (CDS), asset backed securities (ABS), collateralized debt obligation (CDO).
 - Forward rate agreement (FRA), zero rates, forward rate. Value-at-Risk-meaning, VaR models-stress testing and back testing. (Numerical problems only on VaR, Zero Rate and Forward rate), case study.
- **Activities/Lab Components**
 - Assignment on practical problems
- **Essential Readings**
 - John C Hull & Sankaran Basu, “Options, Futures & Other Derivatives”. 1st Edition, Pearson Education, 2018. Module 20 and 23
- **Additional Reading**
 - Vohra and Bagri, Options & Futures, 2nd Edition, Tata McGraw-Hill, 2017. Module 12
- **Additional Web Links**
 - Introduction to Value at Risk
<https://nptel.ac.in/courses/110107128>
 - Credit derivatives risk management
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2033661
 - Credit Derivatives: Systemic Risks and Policy Options
<https://www.imf.org/external/pubs/ft/wp/2009/wp09254.pdf>

3. ASSESSMENT

The assessment for the Financial Derivatives module is divided into two components: Continuous Internal Evaluation (CIE) and Semester End Examination (SEE), each accounting for 50% of the total marks.

Continuous Internal Evaluation (CIE) comprises two internal tests, scheduled for 8th and 14th week, which together contribute 30% of the total marks. Additionally, students can earn 20% through the completion of assignments (10 marks is allotted for completion of module wise assignments, 10 marks for student group presentation on the exchange rate fluctuation in the international market against various currencies).

Semester End Examination (SEE) constitutes the remaining 50% of the total marks. Key information regarding examination dates and related details can be accessed via the college website (Academics and Courses section > Calendar of Events > PG Even Sem).

Rubrics for Other Assessment (Total: 20 Marks / 40% of CIE)

1. Module wise assignment (10 Marks)				
Criteria	10-8 Marks (Excellent)	8-6 Marks (Good)	6-4 Marks (Fair)	3-2 Marks (Poor)
Completion	Completed all modules and tasks.	Completed most modules.	Completed some modules.	Incomplete or missed modules.
Timeliness	Completed on time.	Completed slightly late.	Completed much later than due.	Missed the deadline.

2. Student group presentation on the exchange rate fluctuation in the international market against various currencies (10 Marks)				
Criteria	10-8 Marks (Excellent)	8-6 Marks (Proficient)	6-4 Marks (Adequate)	3-2 Marks (Basic)
Financial Concepts	Strong fundamental analysis, active in all stages	Good fundamental analysis, involved in most stages	Moderate fundamental analysis and contribution	Minimal fundamental analysis and contribution
Fluctuation in international Market	Clear, well-defined structure	Clear, but some details missing/unclear	Unclear or incomplete structure	Poorly explained or missing components