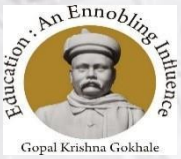

Gokhale Institute of Politics and Economics

(Deemed to be University)

Pune

Post-graduate Diploma in Financial Economics (PGDFE)

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About the Course

This course is aimed at all students who would like to gain knowledge in the domain of financial economics with exposure to sophisticated econometric tools and software along with the extensive underpinning of financial theory.

This course will provide a bridge between the aspirants who would like to work in the most competitive and rewarding market but lack the required understanding.

The PG diploma aims to impart knowledge related to the financial market using sophisticated tools and technics. The pedagogy of the course would be a mix of robust theory-based classroom teaching amalgamated with the analysis of high-frequency financial data. This course will equip the student to provide real-time solutions to the issue related to the financial markets.

Intake

There are in total 40 seats. A few seats are reserved for the B Sc Students of the Gokhale Institute. This course is also open to NRI students. The course will follow all other reservation rules as prescribed by the Government of India.

Eligibility

Students who have completed an undergraduate degree in any discipline/stream have statistics as one of the courses.

Fees

Rs 1,50,000 per year (Rupees One Lakh and Fifty Thousand per year)

Enrollment

Direct entry to the students who have completed B.Sc. Economics at GIPE.

1. **Internal Students**: T.Y. B.Sc. Economics students at GIPE would have to apply for this course on or before 31st March 2022. 25% fees (on a non-refundable basis) need to be paid by 5th April 2022 to confirm their admission to this course. Post the 5th of April, if a student chooses to withdraw from the course, they may do so, but refunds will not be possible.

2. **External Students**: Candidates from other universities willing to apply will be selected through an interview process. The important date for the admission process is as follows:

Event	Date
Last date to submit a complete filled application	5th July 2022
Interviews of eligible candidates shortlisted	11-12th July 2022
Announcement of 1st list of selected candidates	15th July 2022

Mode of Teaching

This course is a full-time course and will be conducted on the institute campus. This course would be offered in offline mode. In-person attendance for at least 75% of lectures will be mandatory.

Pattern

The course will follow a trimester pattern and will be structured as follows:

Trimester	Component	Duration
First	Classroom-based learning	Classes commence on the 15th of August and continue till November
Second	Classroom-based learning	From the 15th of December until February
Third	Academic Research under a professor or /Corporate Internship	Work beginning the third week of March until May

Evaluation and Credit system

1. Each student shall be required to complete the Diploma within a maximum period of two years from the date of admission.

2. **Trimesters:** Each trimester will consist of 8-10 weeks of academic work equivalent to 40 working days. The first trimester may be scheduled from August to November, the Second trimester from December to February and the third trimester from March to May.

3. **Course:** Usually referred to as 'Paper', a course is a component of the Post-Graduate Diploma. The objective of the course and learning outcomes are defined in the detailed syllabus of the programme. A course may be designed to comprise lectures/ tutorials/ fieldwork/ outreach activities/ vocational training/ viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination thereof.

4. Each course will be of 100 marks. Continuous internal assessment during the semester (based on periodical tests/ assignments) will account for 60 marks, and the semester-end examination for 40 marks.

5. Continuous internal assessment shall comprise three periodical tests of 30 marks each (of 1-hour duration each) for every course in each semester. Of the three tests, the two best performances will be counted to arrive at total periodical test marks for each course.

   Students must appear/write at least two out of three periodical tests/ assignments, failing which the students will not be eligible to appear/ write semester end examinations for the course(s). In this case, a student has to stay back in the same semester and complete the requirements mentioned above. Unless a student completes the basic requirement of appearing at least two periodical tests, they will not be promoted to the next trimester. The statement of marks will carry the remark "Not Eligible" against the said course/ paper. In this case, the student has to wait for one year and complete the course with the new batch of students in the following year. No fees would be refunded in case of leaving the course in between. *If a student fails more than three courses in total, they will no longer be eligible to write exams the following year; they will no longer be a part of the program.*

   Of the three periodical tests, the third shall be a test, while the first and second examinations shall be either a test or an assignment.

6. Passing a course: A candidate must obtain a minimum of 50% marks in the aggregate; taking together the marks obtained in the periodical tests and the semester-end examinations, in a course, in order to pass in that course.

7. Fractional marks shall be rounded off in the case of the aggregate of periodical tests and semester-end examinations.

8. For the final trimester, grades will be based on report submission and a viva-voce. The submission can be either an academic research project or a report on the internship experience acquired during this trimester.

9. Attendance in at least 75% of the lectures delivered in each course and appearance for at least two out of three periodical tests/assignments is compulsory, failing which the student

shall not be allowed to appear for the semester-end examination for the course(s). In this case, the consolidated statement of marks will carry the remark "Not Eligible" against the said course.

10. A student shall be eligible for a maximum of one attempt for each course to clear the semester-end examination, i.e. the main examination. There will be no backlog exam for the course in the year of enrolment. The student has to wait for one year and complete the course with a new batch. The syllabus for the examination will be as per the prevailing syllabus at the time of appearing for the examination. Under no circumstances shall the student be eligible to answer the semester-end examination in a course more than one time in an academic year.

To reiterate:

a. The end-semester examination can be written only once in an academic year
b. A subject can be attempted a maximum of twice (once in the enrollment year, once in the next)
c. Failure in more than three courses in the enrolment year results in suspension

Grades and Credit System

1. **Credit:**

   A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial). For each Course, there will be 4 hours of teaching every week and 40 contact hours during a semester of 8-10 weeks. Contact hours shall include classroom instruction, remedial teaching and time spent on all forms of continuous assessment including tutorials.

2. **Credit Based Semester System (CBSS):**

   Under the CBSS, the requirement for awarding a degree is prescribed in terms of the number of credits to be completed by the students. For this one-year PG Diploma Programme, the student has to complete 48 credits. The split will be 16 credits per trimester, with the last trimester worth 16 credits for internship/ research project. No examination will be conducted in the last trimester; the report prepared by the student, in addition to a viva voce will be the only submission required.

3. **Letter Grade:**

   It is an index of the performance of students in a said course. Grades are denoted by the letters O, A+, A, B+, B, C and F.

4. Letter Grade and Grade Points:

It is a numerical weight allotted to each letter grade on a 10-point scale. For this program, each course will be evaluated for 100 marks. Continuous internal assessment during the semester based on periodical tests/ assignments will account for 60 marks and the semester-end examination 40 marks. The Institute follows an absolute grading system for conversion of marks to grades, where grades are assigned as

For course with 4 credits

Marks	Grade	Grade Point
90 and above	O (Outstanding)	10
80 to 89.9	A+ (Excellent)	9
70 to 79.9	A (Very Good)	8
60 to 69.9	B+ (Good)	7
55 to 59.9	B (Above Average)	6
50 to 54.9	C (Average)	5
Below 50	F (Fail)	0
Absent	Ab (Absent)	0
Not Eligible	NE (Not Eligible)	0

5. Passing a course:

A student shall pass a course only if he/she has appeared for at least two periodical tests out of three periodical tests and appeared in the semester-end examination and secured a weighted grade higher than "F" in the course.

6. Credit Point:

It is the product of grade point and the number of credits for a course.

7. Semester Grade Point Average (SGPA):

It is a measure of performance of work done in a semester. It is the ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

8. Cumulative Grade Point Average (CGPA):

It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

9. Transcript or Grade Certificate:

Based on the grades earned, a grade card shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester. At the completion of the programme, a consolidated transcript indicating the performance in all semesters along with CGPA will be issued to the student.

10. Conversion of CGPA to Percentages:

Conversion of CGPA to percentages can be done by multiplying the CGPA by ten.

11. Award of degree:

A student in order to be eligible for the award of the PG Diploma in Financial Economics of GIPE must meet the following requirements within a period of two years from the date of admission.

(i) Clear all the 8 courses and complete the internship/research project

(ii) Must have a CGPA of 5 or more at the end of the program.

The results of the successful candidates will be classified as indicated below on the basis of CGPA

S. No.	CGPA	Class/ Division
1	CGPA of 8 and above	High First Class
3	CGPA of 7.0 and above, less than 8.0	Middle First Class
4	CGPA of 6.0 and above, less than 7.0	Lower First Class
5	CGPA of 5.5 and above, less than 6.0	Second Class
6	CGPA of 5.0 to 5.49	Average

Courses

Sr. No.	Course Code	Name of the Course
Trimester 1		
1	1.1	Principles of Finance Using MS Excel
2	1.2	Econometrics for Finance
3	1.3	Financial Economics - 1
4	1.4	Financial Modeling
Trimester 2		
5	2.1	Financial Econometrics
6	2.2	Financial Economics - 2
7	2.3	International Finance
8	2.4	Developmental Finance and Programme Evaluation

Trimester 1

1.1 Principles of Finance Using MS Excel

Learning Outcomes

1. To introduce and reinforce basic concepts and principles in finance using MS-Excel
2. To use these principles to solve real-world financial case studies
3. To understand bond pricing using these principles.

Module 1: Basic financial concepts using MS Excel

- Simple and compound interest rates, interest rates using continuous compounding
- The mathematics behind annuities, perpetuities
- Nominal and real rates of interest
- Loan amortization schedules
- Risk, return and the statistical theory underpinning risk and return

Module 2: Real-World Financial Case Studies

- Investment evaluation using NPV, IRR, XNPV, MIRR
- PV, FV, PMT, PPMT, CUMPRINC, CUMIPMT and NPER functions in MS Excel
- Solver for Capital Budgeting
- Monte Carlo Simulations using MS Excel
- Pricing Stock Options Using MS Excel

Module 3: Bond Pricing Using MS Excel

- Pricing a zero-coupon bond
- Bond pricing, case studies
- Convexity and bond duration using MS Excel
- Calculating default risk

Suggested Readings:

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1. *Wayne L. Winston, Data Analysis and Decision Making, 1st Edition, Microsoft Press*

1.2 Econometrics for Finance

Learning Outcomes

1. To build and enhance grasp of basic concepts and techniques for statistical and econometric analysis
2. To help students understand the appropriate application of econometric techniques to analyze financial data and interpret the results
3. To enable students to use the results of the analysis in financial decision making

Module 1: Review of Basic Statistical and Mathematical Concepts

- Distributions: The Poisson Distribution, The Normal Distribution, The Geometric Distribution, The Negative Binomial Distribution, The Gamma Distribution, the Central Limit Theorem,
- Trinity of classical tests (Wald test, Lagrange multiplier, Likelihood ratio)
- Parametric and Nonparametric tests.

Module 2: The basic linear regression model

- Estimating the regression parameters by Ordinary Least Squares (OLS), Issues related to Dummy Variable
- Appropriateness and relevance of the choice of functional form
- Violation of OLS assumptions and Diagnosis test and remedies for the Heteroscedasticity, Autocorrelation, multicollinearity, normality

Module 3: Discrete and Limited Dependent variable

- Linear Probability Model, Problems relating to LPM, Logit and Probit Model
- Multinomial Choice Models: Ordered Response Model; Unordered Response Model
- Censored and Truncated Regression Model

Note: This course will be taught with the help of Python/ R and it is expected that students acquire some knowledge of Python or R before the course begins.

Suggested Readings:

Books:

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1. *Judge, G.G. et al., Introduction to the theory and Practice of econometrics, 2 nd Edition John Wiley and Sons.*
2. *Greene, William H., Econometric Analysis, Prentice Hall. • Johnston and Dinardo, Econometric Methods, 4 th Edition McGraw-Hill International Edition.*

3. *Wooldridge J., Introductory Econometrics: A Modern Approach, South-Western College Pub.*
4. *Studenmund, A.H., Using Econometrics: A Practical Guide, Addison Wesley Publishing Company. Boston,*
5. *Gujarati, Damodar, Basic Econometrics, 4 th Edition, Tata McGraw Hill Publishing Company, New Delhi*

Recommended Python course (to be completed before the course) -

- *https://www.datacamp.com/courses/intro-to-python-for-data-science*

References for Python (coding) & Financial Econometrics -

6. *Forecasting: Principles and Practice (2nd ed) - Rob J Hyndman and George Athanasopoulos*

   https://otexts.com/fpp2/

7. *Practical Time Series Analysis - Dr. Avishek Pal, Dr. PKS Prakash*

   https://www.oreilly.com/library/view/practical-time-series/9781788290227/

8. *Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow - Aurélien Géron*

   https://www.knowledgeisle.com/wp-content/uploads/2019/12/2-Aur%C3%A9lien-G%C3%A9ron-Hands-On-Machine-Learning-with-Scikit-Learn-Keras-and-Tensorflow_-Concepts-Tools-and-Techniques-to-Build-Intelligent-Systems-O%E2%80%99Reilly-Media-2019.pdf

9. *Hands-on Time Series Analysis with Python - Vishwas B V, Patel Ashish*

1.3 Financial Economics - 1

Learning Outcomes

1. To acquaint students with the building blocks of derivatives (Module I)
2. To introduce concepts of futures contracts and their applications, including swaps (Module II)
3. To familiarize the students with thinking analytically about options (Module III)

Module I: The Building Blocks of Derivatives

- An introduction to the concept of futures and forwards contracts
- An introduction to the mechanics of options
- How do futures contracts work on exchanges? An introduction to margins
- Hedging and the uses of hedging
- Interest rates, bonds and bond pricing

Module II: Futures Contracts, Their Applications and Swaps

- Forwards and Futures in Detail
- Different types of Futures and Forward Contracts
- Carry Trades | Contango | Backwardation
- Plain Vanilla Swaps and their Pricing
- An introduction to CDS' and their role in the financial crisis of 2008

Module III: An Analytical Introduction to Options

- Options and Their Pricing
- European and American Options
- Put-Call Parity Theorem
- Options Trading Strategies

Suggested Readings:

Books:

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1. *John C Hull: OFOD (8th Edition)*
2. *Fabozzi, Frank, Modigliani, Franco, Jones, Frank (Feb 2009), Foundations of Financial Markets*
3. *Howells, Peter, Bain, Keith (2007), Financial Markets and Institutions, 5th Edition.*

1.4 Financial Modeling

Learning Outcomes

1. To acquaint students with the basic building blocks of financial modeling using MS Excel (Module I)
2. To introduce to the students core financial models (Module II)
3. To familiarize students with case studies in portfolio-management using financial modeling

Module 1: Introduction to Valuation

Valuation of Equity Shares A Philosophical Basis for Valuation − The Role of Valuation − **Comparable Company Analysis, Precedent Transactions Analysis, Discounted Cash Flow (DCF) analysis** Dividend Discount Models − Free Cash Flow to Equity Discount Models − Free Cash Flow to the Firm

Module II: Financial Models

IRR and Multiple IRR, Calculating Cost of Capital, Gordon Model, CAPM, Calculating Cost of Debt, Financial Statement Modeling, Sensitivity procedure

Module III: Options valuation/ Bonds

Introduction to portfolio models, Calculating efficient portfolios, Computing Variance Covariance Matrix, Estimating Betas and Security Market Line, The single-index model

Suggested Readings:

Books:

1. *Simon Benninga, Financial Modeling with Excel, 3rd Ed., MIT Press.*
2. *Bill Dalton, Financial Products-An Introduction using Mathematics and Excel, Cambridge.*
3. *Danielle Stein Fairhurst, Using Excel for Business Analysis: A Guide to Financial Modeling Fundamentals, Wiley .*
4. *Day Alastair, Mastering Financial Modeling in Microsoft Excel 3rd Edn: A Practitioner's Guide to Applied Corporate Finance (3rd Edition), FT Press, 2012.*
5. *Das, Satyajit, Structured Products, Vol.1 & 2, Wiley, (Latest Edition).*

Trimester 2

2.1 Financial Econometrics

Learning Outcomes

1. To introduce Time Series Econometrics
2. To familiarize students with Time Series Econometrics techniques for solving the issue related to Financial Economics
3. To enable students to use Python and R to handle big data and provide hands-on exercises by providing real-world financial data

Module I : Introduction to Time Series Analysis

- Structure, Processing and Visualization of Time series data, Stationarity process, Modeling Stationary and Non-stationary Univariate Time Series
- Construction of ARMA, ARIMA, SARIMA and GRIMA Models
- Forecasting using an ARMA, ARIMA, SARIMA and GRIMA etc Model.

Module 2: Time-varying Volatility Models

Properties, Types and Estimation of ARCH, GARCH, E-GARCH, T GARCH etc Model-

Module 3: Multivariate Time Series Analysis

Estimation and Forecasting with VAR and SVAR Models, Impulse responses and variance decompositions, Cointegration and Error Correction Models: Linear Combinations of Integrated Variables, Co-integration and Common Trends, Cointegration and Error Correction, Testing for Cointegration- Engle-Granger methodology, Johansen Test

Note: This course will be taught with the help of Python/ R.

Suggested Readings:

Books:

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1. *Walter Enders (2008), Applied Econometrics Time series, Wiley India Hamilton, JD (1994) Time Series Analysis. Princeton University Press, New Jersey.*
2. *Judge, G.G., Griffiths, W.E., Hill, R.C., Lutkepohl, H. and Lee, T.C. (1985), The Theory and Practice of Econometrics, 2nd edition John Wiley and Sons, New York.*
3. *Johnston, J. and Dinardo, D., Econometric Methods, McGraw Hill, New York.*
4. *Lutkepohl, Helmut (2007) New Introduction to Multiple Time Series Analysis, Springer,*

New York

5. *Rao, P., Miller, R. L. (1971), Applied Econometrics, Wadsworth Publishing Company.*

Recommended Python course (to be completed before the course) -

- *https://www.datacamp.com/courses/intro-to-python-for-data-science*

References for Python (coding) & Financial Econometrics -

6. *Forecasting: Principles and Practice (2nd ed) - Rob J Hyndman and George Athanasopoulos*

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7. *Practical Time Series Analysis - Dr. Avishek Pal, Dr. PKS Prakash*

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8. *Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow - Aurélien Géron*

   https://www.knowledgeisle.com/wp-content/uploads/2019/12/2-Aur%C3%A9lien-G%C3%A9ron-Hands-On-Machine-Learning-with-Scikit-Learn-Keras-and-Tensorflow_-Concepts-Tools-and-Techniques-to-Build-Intelligent-Systems-O%E2%80%99Reilly-Media-2019.pdf

9. *Hands -On Time Series Analysis with Python - Vishwas B V, Patel Ashish*

2.2 Financial Economics - 2

Learning Outcomes

1. To acquaint students with basic trading strategies using derivatives (Module I)
2. To introduce to the students the underlying theories about options (Module II)
3. To familiarize students with the applications of futures, derivatives and options theory (Module III)

Module I: The Black Scholes Model

- An introduction to the concept of pricing options
- Black Scholes and other pricing models
- What happens when pricing models go awry?

Module II: Options, Greeks and Case Studies

- The role of the 'Greeks' in pricing options
- An introduction to CDOs and CDS', including synthetic CDO's
- The Evolution of modern finance: a brief

Module III: Case Studies in Modern Finance

- LTCM
- Barings Bank
- The Global Financial Crisis of 2008

Suggested Readings:

Books:

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4. *John C Hull: OFOD (8th Edition)*
5. *Money, 10th EdJohn Wiley & sons.*
6. *Goldstein, Morris (2006), Financial Regulation after the Subprime and Credit Crisis, Washington: Peterson institute.*

2.3 International Finance

Module I: International flow of funds and International Monetary system

- Balance of Payments (BOP)
- Fundamentals of BOP; Accounting components of BOP
- Factors affecting International Trade and capital flows
- Agencies that facilitate International flows
- Equilibrium & Disequilibrium
- Trade deficits
- Capital account convertibility (Problems on BOP)
- International Monetary System:- Evolution
- Gold Standard
- Bretton Woods System
- The flexible exchange rate regime
- The current exchange rate arrangements
- The Economic and Monetary Union (EMU)

Module II: Foreign Exchange Market & Foreign Exchange exposure

- Function and Structure of the Forex markets
- Foreign exchange market participants
- Types of transactions and Settlements Dates
- Exchange rate quotations
- Nominal, Real and Effective exchange rates
- Determination of Exchange rates in Spot markets
- Exchange rates determinations in Forward markets
- Exchange rate behavior- Cross Rates- Arbitrage profit in foreign exchange markets
- Swift Mechanism ; Triangular and locational arbitrage
- Management of Translation exposure
- Management of Economic exposure
- Management of political Exposure
- Management of Interest rate exposure

Module III : International Financial Markets and Instruments

- Foreign Portfolio Investment ;International Bond & Equity market
- GDR, ADR, Cross-listing of shares Global registered shares
- Foreign Bonds & Eurobonds
- Global Bonds; Floating rate Notes, Zero-coupon Bonds

- International Money Markets International Banking services -Correspondent Bank, Representative offices, Foreign Branches
- Forward Rate Agreements

Module IV : International Parity Relationships & Forecasting Foreign Exchange rate

- Measuring exchange rate movements
- Exchange rate equilibrium
- Factors affecting foreign exchange rate
- Forecasting foreign exchange rates; Interest Rate Parity, Purchasing Power Parity & International Fisher effect
- Covered Interest Arbitrage

Suggested Readings:

Books:

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1. *Pilbearn, Keith (2006), International Finance, Palgrave Macmillan*
2. *Heller, H.R (1974), International Monetary Economics, Prentice- Hall, Englewood Cliffs, N.J.*
3. *Thirlwal, A.P (1999)., Balance of Payments Theory, 6th edition, Oxford University Press, New York*
4. *Stern, R.M.(1973), The Balance of Payments, Aldine Publishing Company, New York*
5. *Stern, R.M. (2007), Balance of Payments: Theory and Economic Policy, Aldine Transaction*
6. *Stern, R.M., Forward Exchanges, Speculation and Arbitrage, Quantitative International Economies, Boston Ally and Bacon.*

2.4 Development Finance and Programme Evaluation

Learning Outcomes

1. To acquaint students with development finance (Module I)
2. To introduce basics of program evaluation (Module II)
3. To help students understand DF and PE using three case studies related to DF & PE(Module III)

Module I: Development Finance, An Introduction

- An introduction to the concept of development finance
- The history of development finance in the 20th century
- The limitations of development finance

Module II: The Basics of Programme Evaluation

- The need for systematic evaluation of ongoing programmes
- An introduction to the hurdles in PE, and ways to overcome them
- Frameworks for PE

Module III: Case Studies in Modern Finance

- Public Health
- Public Infrastructure
- Education

Suggested Readings:

Books:

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1. *John C Hull: OFOD (8th Edition)*
2. *Giles, Susan L., Blakely, Edward J. (2004), Fundamentals of Economic Development Finance, Sage Publications.*
3. *Atkinson, A. B. (Editor) (2004), New Sources of Development Finance, Nuffield College, Oxford University.*

Trimester 3

Internship/Academic Research

Students may choose to pursue either an academic research topic under the guidance of faculty member(s) approved by GIPE, ***or*** choose to undergo a corporate internship.

While assistance will be provided, students are primarily expected to arrange for internships on their own.

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