



No. AAMS\_UGS/ICC/2025-26/6

Date: 21<sup>st</sup> April, 2025

**CIRCULAR:-**

Attention of all the Principals of the Affiliated Colleges, Directors of the Recognized Institutions and the Head, University Departments is invited to this office Circular No. AAMS\_UGS/ICC/2024-25/110 dated 22<sup>nd</sup> August, 2024 relating to the Syllabus for the M.Com (Business Economics) (Sem. III).

They are hereby informed that the recommendations made by the Board of Studies in **Business Economics** at its meeting held on 18<sup>th</sup> January, 2025 and subsequently passed by the Board of Deans at its meeting held on 26<sup>th</sup> March, 2025 vide item No. 7.1 (N) have been accepted by the Academic Council at its meeting held on 28<sup>th</sup> March, 2025 vide item No. 7.1 (N) and that in accordance therewith syllabus for the **M.Com (Business Economics) (Sem.- IV)** is introduced as per appendix (NEP 2020) with effect from the academic year 2025-26.

(The said circular is available on the University's website [www.mu.ac.in](http://www.mu.ac.in)).

MUMBAI – 400 032  
21<sup>st</sup> April, 2025

(Dr. Prasad Karande)  
REGISTRAR

To,

The Principals of the Affiliated Colleges, Directors of the Recognized Institutions and the Head, University Departments.

**AC 7.1 (N) /28/03/2025**

Copy forwarded with Compliments for information to:-

- 1) The Chairman, Board of Deans,
- 2) The Dean, Faculty of Commerce & Management,
- 3) The Chairman, Board of Studies in **Business Economics**,
- 4) The Director, Board of Examinations and Evaluation,
- 5) The Director, Department of Students Development,
- 6) The Director, Department of Information & Communication Technology,
- 7) The Director, Centre for Distance and Online Education (CDOE), Vidyanagari,
- 8) The Deputy Registrar, Admissions, Enrolment, Eligibility & Migration Department (AEM).

| <b>Copy forwarded for information and necessary action to :-</b> |                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                                | The Deputy Registrar, (Admissions, Enrolment, Eligibility and Migration Dept)(AEM),<br><a href="mailto:dr@eligi.mu.ac.in">dr@eligi.mu.ac.in</a>                                                                                                                                |
| 2                                                                | The Deputy Registrar, Result unit, Vidyanagari<br><a href="mailto:drresults@exam.mu.ac.in">drresults@exam.mu.ac.in</a>                                                                                                                                                         |
| 3                                                                | The Deputy Registrar, Marks and Certificate Unit,. Vidyanagari<br><a href="mailto:dr.verification@mu.ac.in">dr.verification@mu.ac.in</a>                                                                                                                                       |
| 4                                                                | The Deputy Registrar, Appointment Unit, Vidyanagari<br><a href="mailto:dr.appointment@exam.mu.ac.in">dr.appointment@exam.mu.ac.in</a>                                                                                                                                          |
| 5                                                                | The Deputy Registrar, CAP Unit, Vidyanagari<br><a href="mailto:cap.exam@mu.ac.in">cap.exam@mu.ac.in</a>                                                                                                                                                                        |
| 6                                                                | The Deputy Registrar, College Affiliations & Development Department (CAD),<br><a href="mailto:deputyregistrar.uni@gmail.com">deputyregistrar.uni@gmail.com</a>                                                                                                                 |
| 7                                                                | The Deputy Registrar, PRO, Fort, (Publication Section),<br><a href="mailto:Pro@mu.ac.in">Pro@mu.ac.in</a>                                                                                                                                                                      |
| 8                                                                | The Deputy Registrar, Executive Authorities Section (EA)<br><a href="mailto:eau120@fort.mu.ac.in">eau120@fort.mu.ac.in</a><br>He is requested to treat this as action taken report on the concerned resolution adopted by the Academic Council referred to the above circular. |
| 9                                                                | The Deputy Registrar, Research Administration & Promotion Cell (RAPC),<br><a href="mailto:rapc@mu.ac.in">rapc@mu.ac.in</a>                                                                                                                                                     |
| 10                                                               | The Deputy Registrar, Academic Appointments & Quality Assurance (AAQA)<br>dy.registrar.tau.fort.mu.ac.in<br><a href="mailto:ar.tau@fort.mu.ac.in">ar.tau@fort.mu.ac.in</a>                                                                                                     |
| 11                                                               | The Deputy Registrar, College Teachers Approval Unit (CTA),<br><a href="mailto:concolsection@gmail.com">concolsection@gmail.com</a>                                                                                                                                            |
| 12                                                               | The Deputy Registrars, Finance & Accounts Section, fort<br><a href="mailto:draccounts@fort.mu.ac.in">draccounts@fort.mu.ac.in</a>                                                                                                                                              |
| 13                                                               | The Deputy Registrar, Election Section, Fort<br><a href="mailto:drelection@election.mu.ac.in">drelection@election.mu.ac.in</a>                                                                                                                                                 |
| 14                                                               | The Assistant Registrar, Administrative Sub-Campus Thane,<br><a href="mailto:thanesubcampus@mu.ac.in">thanesubcampus@mu.ac.in</a>                                                                                                                                              |
| 15                                                               | The Assistant Registrar, School of Engg. & Applied Sciences, Kalyan,<br><a href="mailto:ar.seask@mu.ac.in">ar.seask@mu.ac.in</a>                                                                                                                                               |
| 16                                                               | The Assistant Registrar, Ratnagiri Sub-centre, Ratnagiri,<br><a href="mailto:ratnagirisubcentar@gmail.com">ratnagirisubcentar@gmail.com</a>                                                                                                                                    |
| 17                                                               | The Director, Centre for Distance and Online Education (CDOE),<br>Vidyanagari,<br><a href="mailto:director@idol.mu.ac.in">director@idol.mu.ac.in</a>                                                                                                                           |
| 18                                                               | Director, Innovation, Incubation and Linkages,<br>Dr. Sachin Laddha<br><a href="mailto:pinkumanno@gmail.com">pinkumanno@gmail.com</a>                                                                                                                                          |
| 19                                                               | Director, Department of Lifelong Learning and Extension (DLLE),<br><a href="mailto:dlleuniversityofmumbai@gmail.com">dlleuniversityofmumbai@gmail.com</a>                                                                                                                      |

| <b>Copy for information :-</b> |                                                                                                                     |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------|
| 1                              | P.A to Hon'ble Vice-Chancellor,<br><a href="mailto:vice-chancellor@mu.ac.in">vice-chancellor@mu.ac.in</a>           |
| 2                              | P.A to Pro-Vice-Chancellor<br><a href="mailto:pvc@fort.mu.ac.in">pvc@fort.mu.ac.in</a>                              |
| 3                              | P.A to Registrar,<br><a href="mailto:registrar@fort.mu.ac.in">registrar@fort.mu.ac.in</a>                           |
| 4                              | P.A to all Deans of all Faculties                                                                                   |
| 5                              | P.A to Finance & Account Officers, (F & A.O),<br><a href="mailto:camu@accounts.mu.ac.in">camu@accounts.mu.ac.in</a> |

**To,**

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | The Chairman, Board of Deans<br><a href="mailto:pvc@fort.mu.ac.in">pvc@fort.mu.ac.in</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2 | <b>Faculty of Humanities,</b><br><b>Offg. Dean</b><br>1. Prof.Anil Singh<br><a href="mailto:Dranilsingh129@gmail.com">Dranilsingh129@gmail.com</a><br><b>Offg. Associate Dean</b><br>2. Prof.Manisha Karne<br><a href="mailto:mkarne@economics.mu.ac.in">mkarne@economics.mu.ac.in</a><br>3. Dr.Suchitra Naik<br><a href="mailto:Naiksuchitra27@gmail.com">Naiksuchitra27@gmail.com</a>                                                                                                                                                                    |
|   | <b>Faculty of Commerce &amp; Management,</b><br><b>Offg. Dean,</b><br>1 Prin.Ravindra Bambardekar<br><a href="mailto:principal@model-college.edu.in">principal@model-college.edu.in</a><br><b>Offg. Associate Dean</b><br>2. Dr.Kavita Laghate<br><a href="mailto:kavitalaghate@jbims.mu.ac.in">kavitalaghate@jbims.mu.ac.in</a><br>3. Dr.Ravikant Balkrishna Sangurde<br><a href="mailto:Ravikant.s.@somaiya.edu">Ravikant.s.@somaiya.edu</a><br>4. Prin.Kishori Bhagat<br><a href="mailto:kishoribhagat@rediffmail.com">kishoribhagat@rediffmail.com</a> |

|   |                                                                                                                                                                                                                                                                                                                                                                                                      |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <b>Faculty of Science &amp; Technology</b><br><b>Offg. Dean</b><br>1. Prof. Shivram Garje<br><a href="mailto:ssgarje@chem.mu.ac.in">ssgarje@chem.mu.ac.in</a><br><b>Offg. Associate Dean</b><br>2. Dr. Madhav R. Rajwade<br><a href="mailto:Madhavr64@gmail.com">Madhavr64@gmail.com</a><br>3. Prin. Deven Shah<br><a href="mailto:sir.deven@gmail.com">sir.deven@gmail.com</a>                      |
|   | <b>Faculty of Inter-Disciplinary Studies,</b><br><b>Offg. Dean</b><br>1. Dr. Anil K. Singh<br><a href="mailto:aksingh@trcl.org.in">aksingh@trcl.org.in</a><br><b>Offg. Associate Dean</b><br>2. Prin. Chadrashekhhar Ashok Chakradeo<br><a href="mailto:cachakradeo@gmail.com">cachakradeo@gmail.com</a><br>3. Dr. Kunal Ingle<br><a href="mailto:drkunalingle@gmail.com">drkunalingle@gmail.com</a> |
| 3 | Chairman, Board of Studies,                                                                                                                                                                                                                                                                                                                                                                          |
| 4 | The Director, Board of Examinations and Evaluation,<br><a href="mailto:dboee@exam.mu.ac.in">dboee@exam.mu.ac.in</a>                                                                                                                                                                                                                                                                                  |
| 5 | The Director, Board of Students Development,<br><a href="mailto:dsd@mu.ac.in">dsd@mu.ac.in</a> <b>DSW</b> <a href="mailto:directr@dsd.mu.ac.in">directr@dsd.mu.ac.in</a>                                                                                                                                                                                                                             |
| 6 | The Director, Department of Information & Communication Technology,<br><a href="mailto:director.dict@mu.ac.in">director.dict@mu.ac.in</a>                                                                                                                                                                                                                                                            |

# **As Per NEP 2020**

## **University of Mumbai**



**Title of the program**  
**M.Com. (Business Economics)**

**Syllabus for**  
**Semester – Sem- IV**

**Ref: GR dated 16<sup>th</sup> May, 2023 for Credit Structure of PG**

**(With effect from the academic year 2024-25)**

# University of Mumbai



(As per NEP 2020)

| Sr.No. | Heading                              | Particulars                                                                                                                    |
|--------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 1      | Title of program<br>O: _____         | M.Com. (Business Economics)                                                                                                    |
| 2      | Scheme of Examination<br>R: _____    | NEP<br>50% Internal<br>50% External,<br>Semester End Examination<br>Individual Passing in Internal and External<br>Examination |
| 3      | Standards of Passing<br>R: _____     | 40%                                                                                                                            |
| 4      | Credit Structure<br>R: <u>CP-25B</u> | Attached herewith                                                                                                              |
| 5      | Semesters                            | Sem. IV                                                                                                                        |
| 6      | Program Academic Level               | 6.5                                                                                                                            |
| 7      | Pattern                              | Semester                                                                                                                       |
| 8      | Status                               | New                                                                                                                            |
| 9      | To be implemented from Academic Year | 2024-25                                                                                                                        |

Sign of the BOS  
Coordinator  
Dr. Atul Salunkhe  
Board of Studies in  
Business Economics

Sign of the  
Offg. Associate Dean  
Prin. Kishori Bhagat  
Faculty of Commerce

Sign of the  
Offg. Associate Dean  
Prof. Kavita Laghate  
Faculty of  
Commerce &  
Management

Sign of the  
Offg. Dean  
Prin. Ravindra  
Bambardekar  
Faculty of  
Commerce &  
Management

# Preamble

## 1) Introduction

M. Com. in Business Economics is a comprehensive two-year postgraduate program designed to equip students with a strong foundation in economics and its application in the business world. This program offers a diverse range of subjects that delve into various facets of economics, enabling students to develop a deep understanding of economic principles and their implications for decision-making in the corporate realm. The course will provide the necessary tools to analyze market dynamics, comprehend macroeconomic trends, and grasp the factors influencing economic progress.

This Programme will enrich the students with rich history of economic thought and gain insights into the contributions of prominent thinkers. To strengthen your research skills, this program includes a subject on Research Methodology, allowing you to develop the expertise required for conducting empirical studies and formulating evidence-based solutions to complex economic problems. This program will empower you with the knowledge, analytical acumen, and critical thinking abilities required to excel in the field of business economics. By combining theoretical foundations with practical applications, this curriculum seeks to prepare them for the challenges and opportunities that lie ahead in the professional sphere.

## 2) Aims and Objectives

- The program aims to provide students with a comprehensive understanding of economic principles and theories, enabling them to analyze and interpret economic phenomena in the business context.
- Students will acquire the ability to apply economic concepts, theories, and models to evaluate business decisions, assess market conditions, and formulate effective strategies.
- By studying the history of economic thought, students will gain insights into the evolution of economic ideas, understand different schools of thought, and appreciate the intellectual foundations of modern economics.
- The program aims to familiarize students with macroeconomic concepts, such as aggregate demand and supply, inflation, unemployment, and fiscal and monetary policies, and their implications for business operations and decision-making.
- Students will examine the factors that drive economic growth and development at national and international levels, studying the role of institutions, policies, technological advancements, and human capital in promoting sustainable economic progress.

- The program offers a wide range of specialized subjects, including demographic economics, behavioral economics, urban economics, agricultural economics, and environmental economics, to provide students with a diverse skill set and understanding of various economic domains.
- The course emphasizes the development of research skills, equipping students with the tools and methodologies necessary to conduct economic research, analyze data, and derive meaningful conclusions for practical applications.
- Students will explore the Indian financial system, understand the functioning of financial markets, and analyze the impact of monetary and fiscal policies on economic stability, investment decisions, and capital allocation.
- The program aims to enhance students' understanding of international economics, including trade theories, exchange rates, trade policies, and the impact of globalization on businesses and economies.
- Through a combination of theoretical learning, case studies, and practical applications, the program aims to develop students' critical thinking skills, enabling them to analyze complex economic problems, propose effective solutions, and make informed decisions in a dynamic business environment.

### **3) Learning Outcomes**

- **Profound understanding of economic principles:** Graduates will demonstrate a deep comprehension of economic theories, concepts, and models, enabling them to analyze complex economic issues, evaluate market dynamics, and make informed decisions in a business context.
- **Application of economic knowledge to real-world scenarios:** Graduates will be able to apply economic theories and concepts to real-world situations, effectively utilizing economic tools to solve business problems, devise strategies, and optimize decision-making processes.
- **Analytical and critical thinking skills:** Graduates will develop strong analytical and critical thinking skills, allowing them to dissect complex economic problems, identify relevant variables, assess alternative solutions, and evaluate their potential impact on businesses and economies.
- **Research and empirical analysis proficiency:** Graduates will acquire solid research skills and the ability to conduct empirical analysis, enabling them to gather, analyze, and interpret data effectively. They will be equipped to generate evidence-based insights and recommendations for economic and business decision-making.

- Interdisciplinary understanding: Graduates will develop an interdisciplinary perspective, integrating economic knowledge with insights from other fields such as finance, sociology, psychology, and environmental studies. This interdisciplinary approach will facilitate a holistic understanding of economic phenomena and their multifaceted implications.
- Effective communication and presentation skills: Graduates will possess strong communication skills, both written and oral, allowing them to effectively articulate complex economic concepts, present research findings, and convey economic insights to diverse stakeholders, including business professionals, policymakers, and the general public.
- Ethical awareness and social responsibility: Graduates will be equipped with an understanding of ethical considerations in economic decision-making, recognizing the social and environmental impact of business activities. They will be committed to promoting sustainable and responsible economic practices that benefit society as a whole.
- These learning outcomes will empower graduates of the M. Com. in Business Economics program to excel in various professional roles, such as economic analysts, consultants, policy advisors, financial managers, market researchers, and business strategists. They will be well-prepared to navigate the complexities of the modern business world, contribute to informed economic decision-making, and drive positive change in their organizations and communities.

**4) Any other point (if any)**

## Credit Structure of the program (Sem-I, II, III & IV)

R: CP-25B

Post Graduate Programs in University

Parishishta 1

| Exit option: PG Diploma (44 Credits after Three Year UG Degree) |     |                             |                                                                                                                                                           |                                                                                                                                                                                                    |   |    |    |    |                          |
|-----------------------------------------------------------------|-----|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----|----|----|--------------------------|
| II                                                              | 6.5 | Sem III                     | Monetary Economics Credits 4<br><br>International Economics Credits 4<br><br>Agricultural Economics Credits 4<br><br>Gandhian Economic Thoughts Credits 2 | Credits 4<br><br>Money and Banking OR<br><br>Import and Export OR<br><br>Rural Economics<br><br>Fundamental of Econometrics                                                                        |   |    | 4  | 22 | PG Degree After 3-Yr. UG |
|                                                                 |     | Sem IV                      | Financial Economics Credits 4<br><br>Environmental Economics Credits 4<br><br>Economics of Services Credits 4                                             | Credits 4<br><br>Economics of Artificial Intelligence OR<br><br>Health and Welfare Economics OR<br><br>Customer Services and Relationship Management<br><br>Advanced Econometrics and Applications |   |    | 6  | 22 |                          |
|                                                                 |     | Cum. Cr. For 1 Yr PG Degree |                                                                                                                                                           | 26                                                                                                                                                                                                 | 8 |    |    | 10 |                          |
| Cum. Cr. For 2 Yr PG Degree                                     |     | 54                          | 16                                                                                                                                                        | 4                                                                                                                                                                                                  | 4 | 10 | 88 |    |                          |

Note:- \*The number of courses can vary for totaling 14 Credits for Major Mandatory Courses in a semester as illustrated

# Semester-IV

# Syllabus

## Mandatory Course - 1

**Programme Name: M.Com. (Business Economics)**

**Course Name: Financial Economics**

**Total Credits: 4**

**University Assessment: 50 marks**

**Pre-Requisite:** This course Requires students to have a foundational understanding of basic concept of economics. It is recommended that students have completed introductory courses in macro-economic, financial concepts and also have prior knowledge of fundamentals of money and banking and financial system.

### **Course Outcomes:**

C1: Understand the meaning, scope, and importance of financial economics, along with fundamental concepts like financial markets, instruments, risk-return trade-off, and the time value of money.

C2: Analyze portfolio theory, asset pricing models, and risk management techniques to optimize investment decisions.

C3: Gain knowledge of money and derivative markets, their instruments, pricing mechanisms, and hedging strategies.

C4: Evaluate capital market functioning, security valuation methods, regulatory frameworks, and corporate governance practices.

### **Module I: Fundamentals of Financial Economics**

**(2 Credits)**

#### **Unit 1: Meaning, scope, importance and basic concepts of Financial Economics**

**Introduction:** Definition of financial Economics-Relationship between finance and economics-  
Scope of financial economics: micro and macro perspectives.

**Importance:** Role of financial economics in decision-making in areas of corporate finance, investments, and financial markets.

**Basic concepts:** Financial markets and Instruments-Risk and return trade-off-Time value of money and its applications.

## Unit 2: Portfolio Theory and Asset Pricing

**Modern Portfolio Theory (MPT):** Risk minimization and optimal portfolio construction- Assumptions and limitations of MPT.

**Capital Asset Pricing Model (CAPM):** Assumptions and Derivation-Security Market Line (SML) and risk-free assets-Beta as a measure of systematic risk.

**Arbitrage Pricing Theory (APT):** Foundations of APT and comparison with CAPM-Arbitrage opportunities and implications for pricing

## Module II: Fundamentals of Financial Markets

(2 Credits)

### Unit 3: Money and Derivative Markets

Institutions and constituents - Call Money Market - The Discount Market -The 'Parallel' Markets – The Interbank Market -The Market for Certificates of Deposit - The Commercial Paper Market - The Local Authority Market - Repurchase Agreements.

**An introduction to financial derivatives:** Types and uses of derivatives; Forward Contracts: determination of forward prices, Futures Contract: theories of future prices- the cost of carry model, the expectation model, capital asset pricing model.

Relation between Spot and Future Prices, forward vs future contract, Hedging in Futures; Options: types, value of an option, the Pay-Offs from Buying and Selling of Options; the Put Call.

### Unit 4: Capital Market

The Importance of Capital Markets - Characteristics of Bonds and Equities - The Trading of Bonds and Equities - Bonds: Supply, Demand and Price - Equities: Supply, Demand and Price.

**Fundamentals of Valuation of Securities:** Valuation of Bonds and Stocks; Bond Yield, Yield to Maturity. Equity Valuation: Dividend Discount Model, The P/E Ratio Approach; Irrelevance of Dividends: Modigliani and Miller Hypothesis.

Regulations - Securities and Exchange Board of India Act, 1992 - Prohibited Transactions - Insider Dealing -Market Abuse - Money Laundering -Corporate Governance and Management Guidance And Supervision - Role of stock exchanges and NSDL.

### Suggested References:

1. Fabozzi, Frank, Modigliani, Franco, Jones, Frank (Feb 2009), Foundations of Financial Markets and Institutions, International Edition, 4th Edition, Pearson Higher Education.
2. Eakins, Stanley G. (2005), Financial Markets and Institutions (5th Edition), Addison Wesley.

3. Howells, Peter, Bain, Keith (2007), Financial Markets and Institutions, 5th Edition.
4. Madura, Jeff (2008), Financial Markets and Institutions, 8th edition, Thomson Publications.
5. Kidwell, David, Blackwell, David W., Whidbee, David A. et.al. (2008) Financial Institutions, Markets, and Money, 10th Ed., John Wiley & sons.
6. Barth, James R., Caprio, Gerard, and Levine, Ross (2008), Bank Regulations are Changing: For Better or Worse?, Association for Comparative Economic Studies.
7. Goldstein, Morris (2006), Financial Regulation after the Subprime and Credit Crisis,
  - a. Washington: Peterson institute.
8. Wymeersch, Eddy (2006), The Structure of Financial Supervision in Europe: About Single, Twin Peaks and Multiple Financial Supervisors, Social Science Electronic Publishing, Inc.
9. G Yoganandham, (2021) Financial Economics
10. Satya R. Chakravarty (2014) An Outline of Financial Economics
11. L. M. Bhole and J. Mahukud, Financial Institutions and Markets, Tata McGraw Hill, 5th edition, 2011.
12. Hull, John C., Options, Futures and Other Derivatives, Pearson Education, 6th edition, 2005.
13. David G. Luenberger, Investment Science, Oxford University Press, USA, 1997.
14. Thomas E. Copeland, J. Fred Weston and Kuldeep Shastri, Financial Theory and Corporate Policy, Prentice Hall, 4th edition, 2003.
15. Richard A. Brealey and Stewart C. Myers, Principles of Corporate Finance, McGrawHill, 7th edition, 2002.
16. Stephen A. Ross, Randolph W. Westerfield and Bradford D. Jordan, Fundamentals of Corporate Finance. McGraw-Hill, 7th edition, 2005.

## Mandatory Course - 2

**Programme Name: M.Com. (Business Economics)**

**Course Name: Environmental Economics**

**Total Credits: 4**

**University Assessment: 50 marks**

**Pre-Requisite:** This course Requires students to have a foundational understanding of basic concept of micro and macro-economics. It is recommended that students have completed introductory courses in international economics or have prior knowledge of fundamental economic concepts and macro-economics.

### **Course Outcomes:**

- C1. Explain key economic principles such as production possibility curves, externalities, and cost-benefit analysis, and apply these principles to analyze trade-offs between economic growth and environmental sustainability.
- C2. Assess the impact of market failures on the environment, and use valuation techniques like Cost-Benefit Analysis and Contingent Valuation Method to measure the worth of environmental goods and services.
- C3. Analyze how various policy approaches, such as taxes and tradable permits, impact industries, employment, and consumer prices, and understand the economic benefits of these policies.
- C4. Evaluate the economic effects of climate change, identify key international agreements and understand financing mechanisms for climate action, including the role of international funding bodies.

### **Module I: Fundamentals of Environmental Economics**

**(2 Credits)**

#### **Unit 1: Introduction to Environmental Economics**

**Environmental economics:** Meaning, importance, scope and inter-linkages between the economy and the environment.

**Concepts related to environmental economics:** Production Possibility Curve, Demand and Supply and Marginal Benefits and Marginal Costs.

**Establishing environmental objectives:** Environmental Quality, Sustainable Development and Biodiversity.

#### **Unit 2: Market Failures and Environmental Valuation**

**Market failures:** Meaning, identification and their environmental consequences.

**The tragedy of the commons:** Meaning, features, consequences and measures to prevent.

**Techniques for valuing environmental goods and services:** Cost-Benefit Analysis (CBA), Contingent Valuation Method (CVM) and Hedonic Pricing Method.

## **Module II: Environmental Policy and Economic Impacts**

**(2 Credits)**

### **Unit 3: Environmental Policy Instruments and their Economic Impacts**

**Non-market instruments:** Regulator instruments like emission standards, bans and economic incentives like taxes, subsidies and financial incentives.

**Market-based instruments:** Tradable permits, cap-and-trade systems, and pollution credits.

**Economic implications of regulations:** Direct and indirect effects on industries, employment, compliance costs and consumer prices.

### **Unit 4: Economics of Climate Change: International Agreements and India's Environmental Initiatives**

**Economic impacts of climate change:** Physical damages, on agricultural productivity, on workers productivity, on health and environmental induced migration

**Overview of major international agreements:** the Kyoto Protocol, the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC) and the Conference of the Parties negotiations.

**India's environmental initiatives:** The National Action Plan on Climate Change, Energy composition and efficiency, Voluntary Carbon Market, and Finance for sustainable development.

#### **Suggested References:**

1. Aldy, J. E., & Stavins, R. (2012). The Promise and Problems of Pricing Carbon: Theory and Experience. *Journal of Environment and Development*, 21 (2), 152-180.  
<https://scholar.harvard.edu/jaldy/publications/promise-and-problems-pricing-carbon-theory-and-experience>.
2. Champ, P. A., Boyle, K. J., & Brown, T. C. (Eds.). (2017). *A primer on nonmarket valuation* (2nd ed.). Springer.
3. Freeman, A. M., Herriges, J. A., & Kling, C. L. (2014). *The measurement of environmental and resource values: Theory and methods* (3rd ed.). RFF Press.
4. Fullerton, D., & Ta, C. (2019). Costs of alternative environmental policy instruments in the presence of industry compensation requirements. *Journal of Public Economics*, 92, 1236-1253.  
<https://econweb.ucsd.edu/~m3jacobs/CostsofAlternativePolicyInstruments.pdf>
5. Government of India: *Climate Change and Energy Transition*, pg.179-208, Economic Survey, 2023-2024, Ministry of Finance.  
<https://www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap06.pdf>

6. Goulder, Lawrence H. and Parry, Ian W. H., Instrument Choice in Environmental Policy (April 1, 2008). RFF Discussion Paper No. 08-07, Available at SSRN: <http://dx.doi.org/10.2139/ssrn.1117566>.
7. Hanley, N., Shogren, J. F., & White, B. (2019). Introduction to environmental economics (3rd ed.). Oxford University Press.
8. Newell, Richard G., William A. Pizer, and Daniel Raimi. 2013. "Carbon Markets 15 Years after Kyoto: Lessons Learned, New Challenges." *Journal of Economic Perspectives*, 27 (1): 123–46. <https://www.aeaweb.org/articles?id=10.1257/jep.27.1.123>
9. Perman, R., Ma, Y., McGilvray, J., & Common, M. (2012). Natural resource and environmental economics (4th ed.). Pearson Education Limited.
10. Stavins, R. N. (Ed.). (2019). *Economics of the environment: Selected readings* (7th ed.). Edward Elgar Publishing Ltd.
11. Stern, Nicholas, 2018. "Public economics as if time matters: Climate change and the dynamics of policy," *Journal of Public Economics*, Elsevier, vol. 162(C), pages 4-17. <https://ideas.repec.org/a/eee/pubeco/v162y2018icp4-17.html>
12. Sterner, T., & Coria, J. (2011). *Policy instruments for environmental and natural resource management* (2nd ed.). RFF Press.
13. Tietenberg, T., & Lewis, L. (2018). *Environmental and natural resource economics* (11th ed.). Routledge.
14. United Nations Environment Programme. (2019). *Global environment outlook – GEO-6: Healthy planet, healthy people*. Cambridge University Press. [https://wedocs.unep.org/bitstream/handle/20.500.11822/27539/GEO6\\_2019.pdf?sequence=1&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/27539/GEO6_2019.pdf?sequence=1&isAllowed=y)

## **Mandatory Course - 3**

**Programme Name: M.Com. (Business Economics)**

**Course Name: Economics of Services**

**Total Credits: 4**

**University Assessment: 50 marks**

**Pre-Requisite:** This course Requires students to have a foundational understanding of basic concept of micro and macro-economics. It is recommended that students have completed introductory courses in Indian economy.

### **Course Outcomes:**

- C1. Students will comprehensively understand the service economy and its classification.
- C2. They will learn to analyze the knowledge economy, focusing on its sub-sectors.
- C3. Students will gain insight into the concepts of value, measurement, and productivity in the service economy.
- C4. They will develop a critical understanding of the dynamics of Trade in Services.

### **Module I: Introduction to Economics of Services and its Measurement. (2 Credits)**

#### **Unit 1: Scope and Significance of Economics of Services**

Relationship between Economic Growth and Services, Shift to Service Sector - Nature, Characteristics and Classification of services; Activities in the Service Sector; Estimating its contribution to GDP in different Developed and Developing Countries

Service Economy- Concept and its role in development, Knowledge-Economy- Concept and Characteristics, Innovation and R&D

Theory of Unbalanced Growth Three Sector Hypothesis, Fuchs model of inter-sectoral shift in employment, , Neo-Industrial Theory of Self-Services

#### **Unit 2: Value and Measurement of Services**

Calculation of the value of a service product, the definition of a unit of service, characteristics of nonmarket Services, Service production and distribution costs

The provision of services in a market economy, Subscription Business model

Measurement of output and productivity in the services sector; issues and measures

**Unit 3: The growth of the service sector in India**

Dynamics of services sector growth in India, Three-sector hypothesis and India, Role of service in the Indian Economy, Decomposition of Services sector growth in India and its implications.

Business services, financial services, trading, construction, tourism, IT and ITES in India, and e-commerce.

FDI in the Service Sector, Inter-Sectoral Shift in Employment, Service Sector and Employment Prospects for Women.

**Unit 4: World Trade and Service Sector**

Basic Economics of Trade in Services –Causes of Trade in Services, Pattern of Trade in Services, Melvin Approach to Trade in Services, Jones and Ruane theory of trade in services;

General Agreement on Trade in Services (GATS), GATS and Mode of Supply of Services Barriers to trade in services and Methods to measure them; Regionalism in Trade in Services, World trade in Services

Financial Services and International Trade Agreements, Trends in India's Trade in Services

**Suggested References:**

1. Akehurst, G. and J. Gadrey, The Economics of Services, Routledge.
2. Maroto-Sanchez, "Growth and productivity in the service sector, the state of the art", Institute of Social and Economic Analysis, WP No.07/2010, 2010.  
<http://www.iaes.es/iuressp/publications.htm>
3. Baumol, W.J., Blackman, S.A. Batey and Wolff, E.N., Unbalanced Growth Revisited: Asymptotic Stagnancy and New Evidence. American Economic Review 75:806-17, 1985.
4. Bosch, G., & Lehdorff, S. (Eds.). (2005). Working in the Service Sector: A Tale from Different Worlds (1st ed.). Routledge.
5. Chanda, R., Trade in Services and India: Prospects and Strategies, Wiley India, 2006
6. Chanda, R., Globalization of Services: India's Opportunities and Constraints, Oxford University Press, New Delhi, 2002
7. Fuchs, V., Economic Growth and the Rise of Service Employment, Prepared for the conference.
8. Towards Explaining Economic Growth, Institute of World Economics, Kiel, Federal Republic of Germany, 1980.
9. Glasmeier, A. and Howland, M., Service-led Rural Development: Definitions, Theories and Empirical Evidence, International Regional Science Review, 16, 197-229, 1994
10. Gordon, J. and P. Gupta, Understanding India's Services Revolution, IMF Working Paper WP/04/171, September, 2004
11. Hindley, B. and A. Smith, Comparative Advantage and Trade in Services, World Economy, December, 7(4), 369-89, 1984

12. Jansson, J. O., *The Economics of Services, Development and Policy*, Edward Elgar Publishing, 2006
13. Mattoo, A, Robert S., and Gianni Z. (Eds) (2008), *A Handbook of International Trade in Services*, Oxford Academic,.
14. Mattoo, A., R. Rathindran, and A. Subramanian, *Measuring Services Trade Liberalization and Its impact on Economic Growth: An Illustration*. Policy Research Working Papers. No.2655, The World Bank, Washington, D.C., 2001
15. Melvin, J. R., *Trade in Producer Services: A Heckscher-Ohlin Approach*, *Journal of Political Economy*, 97(5), October, 1180-1196, 1989.
16. Pattanaik, F., & Nayak, N.C. (2011). *Employment Intensity of Service Sector in India: Trend and Determinants*.
17. Schettkat, Ronald & Yocarini, Lara. (2003). *The Shift to Services: A Review of the Literature*. Institute for the Study of Labor (IZA), IZA Discussion Papers. 10.2139/ssrn.487282.
18. Seth, V. K., *Economics of Services*, Ane Books India, 2007

## **Elective Course - 1**

**Programme Name: M.Com. (Business Economics)**

**Course Name: Economics of Artificial Intelligence**

**Total Credits: 04**

**University assessment: 50**

**Pre-Requisites:** This course requires students to have a foundational understanding of basic concepts of economics and current development of AI. As the course involves analyzing case studies and practical scenarios, the ability to think critically and solve problems is important.

### **Course Outcomes:**

- C1. Understand the fundamentals of AI-Powered Economy and its place in economic theory.
- C2. Explore how AI technologies are transforming labor markets and the economy.
- C3. Analyze how AI drives innovation and economic growth, and how it impacts global economies.
- C4. Examine the role of governments and public policy in regulating AI technologies and addressing their economic impacts.

### **Module I: Overview of the AI-Powered Economy (2 Credits)**

#### **Unit 1: Introduction to Artificial Intelligence and AI-Powered Economy:**

Concept and definitions of AI and AI-Powered Economy; Types of AI; Key technologies: machine learning, deep learning, neural networks, and natural language processing.

Basic Economic Principles & AI: AI's Impact on Supply and Demand in the context of AI-driven industries; Production functions and productivity in the age of automation.

AI and Market Structure: Impact of AI on competition and market concentration; The role of network effects and economies of scale in AI firms.

#### **Unit 2: The AI-driven economy and Workforce Transformation.**

Skills and education for the AI-powered economy: Core Technical and Nontechnical Skills for the AI Workforce; The importance of STEM education; The Skills Gap: Understanding the gap between current workforce capabilities and AI-related demands.

Labor Markets and AI: New jobs and industries emerging from AI technologies; Job Creation

and Transformation; Automation and Job Displacement.

Case studies: How AI and automation affect employment across industries-

- Manufacturing: AI in Production and Workforce Adaptation
- Agriculture: AI's Impact on Farming and Agricultural Work
- Retail: The Role of AI in Shaping Retail Jobs
- Healthcare: Transforming Medical Work and Patient Care
- Services: Automation's Effect on Service-Industry Jobs

## **Module II: AI, Technological Innovation, and the Shaping of Economic Policy (2 Credits)**

### **Unit 3: AI, Innovation, and Economic Growth.**

AI as a General-Purpose Technology: The transformative potential of AI for industries and sectors; Historical context: AI alongside other GPTs (e.g., electricity, the internet)

AI and Global Competitiveness: The AI arms race - How countries and firms are competing to lead in AI development; Case studies: China, the U.S., and EU AI strategies

Intellectual Property and Innovation Policy: AI and IP rights: Patents, copyright, and data ownership; Incentivizing innovation in AI technologies while addressing monopolistic tendencies

### **Unit 4: AI Regulation, Competition, and Future Economic Policy:**

AI Regulation and Governance: The role of government in regulating AI (data privacy, safety, ethics); The debate over AI regulation: Overregulation vs. fostering innovation

AI, Competition, and Antitrust Policy: Market concentration in AI-driven sectors and its effects on competition; Antitrust concerns: AI monopolies and oligopolies (e.g., Google, Amazon, and Facebook)

The Future of AI and Economic Policy: Preparing for the economic challenges posed by advanced AI; Long-term considerations: Sustainability, environmental impact, and AI in the global economy

## **Suggested References:**

### **Books**

1. **AI and Economic Growth:** *Prediction Machines: The Simple Economics of Artificial Intelligence* by Ajay Agrawal, Joshua Gans, and Avi Goldfarb
2. **AI and Innovation:** *The Fourth Industrial Revolution* by Klaus Schwab
3. **AI and Labor Markets:** *Rise of the Robots: Technology and the Threat of a Jobless Future* by Martin Ford

4. **Ethics and Policy:** *AI Superpowers: China, Silicon Valley, and the New World Order* by Kai-Fu Lee
5. **AI Strategy and Management:** *Human + Machine: Reimagining Work in the Age of AI* by Paul R. Daugherty and H. James Wilson

### Academic Papers

1. **AI and Productivity:** Brynjolfsson, Erik, and McAfee, Andrew (2017). *"The Business of Artificial Intelligence."*
2. **AI in Labor Markets:** Acemoglu, Daron, and Restrepo, Pascual (2020). *"Robots and Jobs: Evidence from US Labor Markets."*
3. **Network Effects:** Goldfarb, Avi, Gans, Joshua, and Agrawal, Ajay (2019). *"The Economics of Artificial Intelligence: An Agenda."*

### Online Resources and Articles

1. **Websites**
  - AI Index Report (Stanford University): Comprehensive data on AI trends and impacts.
  - Partnership on AI: Resources on ethical AI and societal impacts.
2. **Videos and Podcasts**
  - TED Talk: *How AI Can Save Our Humanity* by Kai-Fu Lee.
  - Podcast: *AI in Business and Economics* (The AI Alignment Podcast).

## **Elective Course - 2**

**Programme Name: M.Com. (Business Economics)**

**Course Name: Health and Welfare Economics**

**Total Credits: 04**

**University assessment: 50**

**Pre-Requisites:** This course Requires students to have a foundational understanding of basic principles of micro, macro and public policies. It is recommended that students have completed introductory courses in economics or have prior knowledge of fundamental economic concepts.

### **Course Outcomes:**

C1: The learner would be able to understand how economic principles are to be applied in health and welfare-related studies and policies.

C2: The learner would enhance their understanding by understanding the outcome of health and welfare economics.

C3: To understand the economic dimensions of family welfare and its impact on socio-economic development.

C4: To analyze the role of government policies and programs in promoting family welfare

### **Module I: Introduction to Health Economics**

**(2 CREDITS)**

#### **Unit 1: Health Economics, structure and Segments**

Scope and importance and challenges related to Health Economics.

Market structure in the healthcare (Monopolistic and oligopoly) sector; pricing, accessibility.

Healthcare sector segments and growth (PCPs, Clinics, Specialty care, nursing homes, long-term care etc. - Competitive strategies in the healthcare sector.

#### **Unit 2: Cost-Benefit Evaluation in Healthcare, Innovation and Policy.**

Cost-benefit analysis, Cost-utility analysis, Quality-adjusted life years.

Digital health technologies in India. (AI, telemedicine, Mobile (m-Health), big data etc.)

Case studies of public-private partnerships in India; Ayushman scheme, RSBY, KITTP, CHIRANJIVI YOJNA, KARUNA TRUST (NGO).

## Module II: Family welfare and Health Policies

(2 CREDITS)

### Unit 3: Introduction to Family Welfare Economics

Meaning, History, scope and importance of family welfare economics in socio-economic development. Population dynamics: Fertility and Mortality, Age structure and economic implication for family welfare. Role of maternal and child health in Family Welfare, economic determinants of family health and nutrition.

### Unit 4: Government Health Policy and Programmes in India

National Health Policy (NHM), National Rural Health Mission and objectives and achievements. Ayushman Bharat, Janani Suraksha Yojana (JSY), PM Matru Vandana Yojana. Mission Indradhanush, Integrated Child Development Services (ICDS), Poshan Abhiyan, PMSSY and National Mental Health Programme.

### Suggested References:

1. Phelps, C. E. (2017). *Health Economics* (6th ed.). Routledge.
2. Folland, S., Goodman, A. C., & Stano, M. (2016). *The Economics of Health and Health Care* (8th ed.). Routledge.
3. Boadway, R., & Bruce, N. (1984). *Welfare Economics*. Basil Blackwell.
4. Feldman, A. M., & Serrano, R. (2006). *Welfare Economics and Social Choice Theory*. Springer.
5. Purohit, Brijesh C. (2016). *Health Economics in India* (1st ed.). Routledge India.
6. Purohit, Brijesh C. (2014). *Economics of Public and Private Healthcare and Health Insurance in India* (1st ed.). Sage Publications India Pvt Ltd.
7. Nagarajan, R. (Ed.) (2009). *Health Economics and Policy: Perspectives from Developing Countries* (1st ed.). Concept Publishing Company.
8. Tyagi, Dinesh Kumar (2008). *Health Care Reforms in India: Making Up for the Lost Decade* (1st ed.). Northern Book Centre.
9. Radhakrishna, R., & Ray, S. (Eds.) (2015). *Poverty, Inequality, and Inclusive Growth in India: Essays in Honour of Suresh D. Tendulkar* (1st ed.). Springer India.
10. Rao, M. (2004). *From Population Control to Reproductive Health: Malthusian Arithmetic*. Sage Publications.
11. Kabeer, N. (1994). *Reversed Realities: Gender Hierarchies in Development Thought*. Verso. Ministry of Health and Family Welfare, Government of India. *National Family Health Survey (NFHS-5)*.

## **Elective Course - 3**

**Programme Name: M.Com. (Business Economics)**

**Course Name: Customer Services and Relationship Management**

**Total Credits: 04**

**University assessment: 50**

**Pre-Requisite:** Basic knowledge of management principles, business economics, marketing concepts, and consumer behavior.

### **Course Outcomes:**

- C1. Understand the strategic importance of customer service and relationship management in driving business growth and profitability.
- C2. Analyze and apply the principles of customer relationship management (CRM) to real-world business problems.
- C3. Evaluate CRM tools and technologies, and understand their application in different sectors such as retail, banking, and hospitality.
- C4. Design and implement customer service strategies that enhance customer satisfaction, retention, and loyalty.

### **Module I: Introduction to Customer Services and Relationship Management (2 Credits)**

#### **Unit 1: Introduction to Customer Services**

Definition and Scope of Customer Service, Role and Importance of customer service in modern business, Types of Customer Service, Pre-sales and post-sales services, Personal and online customer service, In-house and outsourced customer service.

Role of Customer Service in Relationship Management, Linking customer service to business performance, Customer service as a tool for building long-term customer relationships

Technology in Customer Service, Use of CRM software, Role of automation and AI in customer service, Social media as a platform for customer service

#### **Unit 2: Customer Relationship Management (CRM) - Framework and Strategies**

Definition, scope, and evolution of CRM, Objectives and benefits of CRM in different sectors, Types of CRM Systems: Operational CRM (sales force automation, customer support), Analytical CRM (customer data analysis, behavior prediction), Collaborative CRM (partner and channel management)

CRM Strategies for Business, Building a customer-centric organization, Customer lifetime value (CLV) and its importance, Strategies for customer acquisition, retention, and

development.

CRM Implementation and Challenges: Steps for successful CRM implementation, Common challenges in implementing CRM systems and overcoming them, Case studies: CRM success stories from industries like banking, e-commerce, and hospitality

## **Module II: Enhancing Customer Loyalty and Innovation in CRM**

**(2 Credits)**

### **Unit 3: Customer Satisfaction, Loyalty, and Retention**

Measuring Customer Satisfaction, Methods and tools to assess customer satisfaction (surveys, Net Promoter Score, etc.), The importance of feedback in improving services.

Building Customer Loyalty, Difference between customer satisfaction and loyalty, Loyalty programs (rewards, membership benefits, etc.), Creating emotional connections with customers.

Customer Retention Strategies, Factors influencing customer retention, Tactics for improving customer retention: personalizing customer experiences, responsive customer service, addressing complaints, Case Studies on Customer Retention: Real-world examples of successful customer retention strategies, Best practices from industries such as telecommunications, hospitality, and retail.

### **Unit 4: Technology and Innovation in CRM**

Digital Transformation in CRM, The impact of digital technologies on CRM, Omnichannel CRM: Integrating online and offline customer interactions, Role of websites, apps, chatbots, and social media in CRM. Role of Data Analytics in CRM, Using customer data to derive insights (big data, predictive analytics),

Emerging Trends in CRM, Mobile CRM: Serving customers through smartphones and mobile devices, Cloud-based CRM solutions for small and medium-sized enterprises (SMEs), Applications of AI and machine learning in CRM (personalized marketing, sentiment analysis)

Challenges in Modern CRM, Privacy and security concerns in managing customer data, Ethical concerns in personalized marketing, Future directions and innovations in CRM.

### **Suggested References:**

1. Berry, L. L. (1995). *On Great Service: A Framework for Action*. Free Press.
2. Bligh, P., & Turk, D. (2004). *CRM Unplugged: Releasing CRM's Strategic Value*. Wiley.
3. Buttle, F., & Maklan, S. (2019). *Customer Relationship Management: Concepts and Technologies*. Routledge.
4. Jain, P., & Bhatt, A. (2022). *Customer Engagement: Contemporary Issues and Challenges in the Indian Market*. Sage Publications India.

5. Kumar, R., & Dutta, S. (2023). *Customer-Centric Strategies for Growth in the Indian Service Sector*. Emerald Publishing.
6. Kumar, V., & Reinartz, W. (2018). *Customer Relationship Management: Concept, Strategy, and Tools*. Springer.
7. Nair, A., & Jain, S. (2020). *CRM in the Digital Era: Strategies for Indian Businesses*. Wiley India.
8. Payne, A. (2006). *Handbook of CRM: Achieving Excellence in Customer Management*. Butterworth-Heinemann.
9. Peppers, D., & Rogers, M. (2016). *Managing customer experience and relationships: A strategic framework*. John Wiley & Sons.
10. Sharma, R., & Suri, P. (2021). *Strategic CRM: Approaches to Enhance Customer Experience in India*. Himalaya Publishing House.
11. Srivastava, P., & Rajesh, M. (2022). *Artificial Intelligence and CRM: Emerging Trends in Indian Businesses*. Springer.
12. Verma, H.V. (2021). *Customer Relationship Management: Concepts and Cases (3rd Edition)*. Pearson Education India.

**Elective Course - 4**  
**Programme Name: M.Com. (Business Economics)**  
**Course Name: Advanced Econometrics and Applications**

**Credits: 4**

**University Assessment: 50 marks**

**Pre-Requisite:** This course requires students to have a foundational understanding of micro and macro-economics. as well as introductory knowledge about statistics and fundamentals of basic econometric techniques.

**Course Outcomes:**

- C1. Understand econometric findings and explain them clearly.
- C2. Identify common issues in econometric models, such as multicollinearity and autocorrelation.
- C3. Use advanced methods like time series analysis and panel data models to analyze economic data.
- C4. Plan and carry out research projects using the right econometric tools to analyze real-world data.

**Module I: Basic of Econometrics and Generalized Linear Models (2 Credits)**

**Unit 1: Review of Basic Econometrics**

Overview of linear regression models: Assumptions and diagnostic testing

Handling of multicollinearity, heteroskedasticity and autocorrelation

Review of hypothesis testing and confidence intervals

**Unit 2: Generalized Linear Models (GLMs)**

Introduction to GLMs: Concepts and applications

Logistic regression, probit models, and their applications in economics, finance and commerce

Poisson regression models for count data

## **Module II: Time Series and Panel Data Econometric**

**(2 Credits)**

### **Unit 3: Time Series Econometrics**

ARIMA models: Identification, estimation, and forecasting - Stationarity and unit root testing.

ARCH/GARCH models for volatility analysis.

Cointegration and error correction models.

### **Unit 4: Panel Data Econometrics**

Introduction to panel data: Structure and benefits. - Fixed effects and random effects models

Dynamic panel data models: GMM estimators

Application to project based real-world case study in economics, finance and commerce

### **Suggestive Reference:**

1. Gujarati, D. N., & Porter, D. C. (2009). *Basic Econometrics*.
2. Enders, W. (2014). *Applied Econometric Time Series* (4th Edition).
3. Wooldridge, J. M. (2016). *Introductory Econometrics: A Modern Approach* (6th Edition).
4. Tsay, R. S. (2010). *Analysis of Financial Time Series* (3rd Edition).
5. Greene, W. H. (2018). *Econometric Analysis* (8th Edition).
6. Baltagi, B. H. (2021). *Econometric Analysis of Panel Data* (6th Edition).

## Internal Examination

Internal: 50 marks for (4 credit)  
25marks for (2 credit)

50 or 25 marks can be divided into following.

Quiz/ Assignment and paper presentation /Class Test / Project Presentation

## Semester End Examination Question Paper Pattern

Max. Marks: 50

Max. Time: 2 Hours

**All the questions are COMPULSORY**

|     |                                                     |      |
|-----|-----------------------------------------------------|------|
| Q.1 | Attempt any 1 question:                             |      |
| (a) |                                                     | (10) |
| (b) |                                                     | (10) |
| Q.2 | Attempt any 1 question:                             |      |
| (a) |                                                     | (10) |
| (b) |                                                     | (10) |
| Q.3 | Attempt any 1 question:                             |      |
| (a) |                                                     | (10) |
| (b) |                                                     | (10) |
| Q.4 | Attempt any 1 question:                             |      |
| (a) |                                                     | (10) |
| (b) |                                                     | (10) |
| Q.5 | Write explanatory notes on any two: (05 Marks Each) | (10) |
| (a) |                                                     |      |
| (b) |                                                     |      |
| (c) |                                                     |      |
| (d) |                                                     |      |

## Semester End Examination Question Paper Pattern

Max. Marks: 25

Max. Time: 1 hour

**All the questions are COMPULSORY**

|     |                                                |      |
|-----|------------------------------------------------|------|
| Q.1 | Attempt any 1 question:                        |      |
| Q.1 | Attempt any 1 question:                        |      |
| (a) |                                                | (10) |
| (b) |                                                | (10) |
| Q.2 | Attempt any 1 question:                        |      |
| (a) |                                                | (10) |
| (b) |                                                | (10) |
| Q.5 | Write explanatory notes on any two: (05 Marks) | (05) |
| (a) |                                                |      |
| (b) |                                                |      |

### Letter Grades and Grade Points:

| Semester GPA/ Programme<br>CGPA Semester/ Programme | % of Marks    | Alpha-Sign/<br>Letter Grade Result | Grading<br>Point |
|-----------------------------------------------------|---------------|------------------------------------|------------------|
| 9.00 - 10.00                                        | 90.0 - 100    | O (Outstanding)                    | 10               |
| 8.00 - < 9.00                                       | 80.0 - < 90.0 | A+ (Excellent)                     | 9                |
| 7.00 - < 8.00                                       | 70.0 - < 80.0 | A (Very Good)                      | 8                |
| 6.00 - < 7.00                                       | 60.0 - < 70.0 | B+ (Good)                          | 7                |
| 5.50 - < 6.00                                       | 55.0 - < 60.0 | B (Above<br>Average)               | 6                |
| 5.00 - < 5.50                                       | 50.0 - < 55.0 | C (Average)                        | 5                |
| 4.00 - < 5.00                                       | 40.0 - < 50.0 | P (Pass)                           | 4                |
| Below 4.00                                          | Below 40.0    | F (Fail)                           | 0                |
| Ab (Absent)                                         | -             | Ab (Absent)                        | 0                |



**Sign of the BOS  
Coordinator  
Dr. Atul Salunkhe  
Board of Studies in  
Business Economics**

**Sign of the  
Offg. Associate Dean  
Prin. Kishori Bhagat  
Faculty of Commerce**

**Sign of the  
Offg. Associate Dean  
Prof. Kavita Laghate  
Faculty of  
Commerce &  
Management**

**Sign of the  
Offg. Dean  
Prin. Ravindra  
Bambardekar  
Faculty of  
Commerce &  
Management**



