ಬೆಂಗಳೂರು
ನಗರ ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

BENGALURU
CITY UNIVERSITY

Office of the Registrar, Central College Campus, Dr. B.R. Ambedkar Veedhi, Bengaluru – 560 001.
PhNo.080-22131385, E-mail: registrarbcu@gmail.com

No.BCU/BoS/Syllabus-PG/Arts/ 221 /2025-26 Date: 23.09.2025

NOTIFICATION

Sub: Syllabus for the Post Graduate Courses in the Faculty of Arts –reg
Ref: 1. Recommendations of the Boards of Studies in the Faculty of Arts
2. Academic Council resolution No.02 dated.22.09.2025
3. Orders of Vice-Chancellor dated. 23.09.2025

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The Academic Council in its meeting held on 22.09.2025 has approved the syllabus prepared by different Board of Studies for the Post Graduate Courses in the Faculty of Arts. Accordingly, the following CBCS Syllabus for the Semester PG Courses of Arts Faculty are hereby notified for implementation effective from the academic year 2025-26.

Sl. No.	Programmes
1.	M.A Kannada – I to IV Semester
2.	M.A English – I & II Semester
3.	M.A French – I to IV Semester
4.	M.A Spanish – I to IV Semester
5.	M.A German – I to IV Semester
6.	M.A Economics – I & II Semester
7.	M.A Mass Communication & Journalism – I & II Semester
8.	M.A Political Science – I to IV Semester
9.	M.A History – I & II Semester
10.	M.A Sociology – I & II Semester
11.	MSW – I to IV Semester

The detailed Syllabi for above subjects are notified in the University Website: www.bcu.ac.in for information of the concerned.

REGISTRAR

Copy to;

1. The Registrar(Evaluation), Bengaluru City University
2. The Dean, Faculty of Arts, BCU.
3. The Principals of the concerned affiliated Colleges of BCU- through email.
4. The P.S. to Vice-Chancellor/Registrar/Registrar (Evaluation), BCU.
5. Office copy / Guard file / University Website: www.bcu.ac.in

BANGALORE CITY UNIVERSITY, BENGALURU

MA

Economics

1st Semester

2025-26 AY onwards

Dear Fellow Teachers,

I am pleased to share with you the latest updates to our M.A. Economics Programme, which now offers a balanced combination of core courses, skill enhancement papers, and experiential learning opportunities.

The core papers—ranging from Advanced Microeconomics, Advanced Macroeconomics, Econometrics, Indian Economics, Development Economics, International Economics, Environmental Economics, Financial Economics, and Indian Economic Thought—continue to provide a strong theoretical and analytical foundation.

In addition, several skill-based soft-core papers have been introduced to enhance employability and bridge classroom learning with practical applications. These include:

- *Agri-Business, Economics of Banking and Financial Markets, Business Intelligence and Big Data, Game Theory and Information, Programming with R, Data Visualisation (Excel-based), Cooperative Economics, Economics and Stock Market Operations, Economics and Data Analytics,* and *Economics of Dairy Farming (Practical Approach).*

Further, new-age areas like Artificial Intelligence and Machine Learning in Economics and Advanced Computer Applications are integrated to align with current industry trends. The programme culminates in a Project Work / Internship, ensuring students gain hands-on exposure and work-ready skills.

In this light, I humbly request all my colleagues to adopt experiential learning approaches in their teaching. More emphasis on hands-on practice, case studies, simulations, and field-based learning will empower our students with not just knowledge but also practical skills, thereby enhancing their employability in an increasingly competitive job market.

Together, let us make this programme a model of excellence in higher education and a launchpad for our students' professional success.

With warm regards,

Dr. S. R. Keshava
Chairperson, BOS PG Economics

Acknowledgment

I also take this opportunity to sincerely thank our former Vice Chancellor, Prof. Gandhi, and our present Vice Chancellor, Prof. Ramesh, for providing me the opportunity to serve on the BOS (PG Economics). My gratitude also extends to the Vice Chancellor's and Registrar's Secretariat for their continuous support in facilitating the logistics of this important academic exercise.

- Dr S.R.Keshava, Prof S.T.Bagalkoti, Dr Rangappa K.B., Dr Bharadi, Dr Krishnaraj, Dr Navitha Thimmaiah., Dr Prema Kumar, Dr. Huchhe Gowda,

BCU MA Economics Syllabus Credit Structure

Category	Sl.No	Papers	No. of Credits	Total Credits
I Semester				
Core Papers	1.1	Advanced Microeconomics I	4	26
	1.2	Advanced Macroeconomics I	4	
	1.3	Mathematical Economics	4	
	1.4	Public Economics	4	
	1.5	Behavioral Economics	4	
Skill-Based Soft Core Papers (Choose 2)	1.6.1	Agri Business	3	
	1.6.2	Economics of Banking and Financial Markets	3	
	1.6.3	Business Intelligence and Big Data	3	
	1.7.1	Karnataka Economics	3	
	1.7.2	Foundation to Data Visualisation using Excel	3	
	1.7.3	Game Theory and Information	3	
II Semester				
Core Papers	2.1	Advanced Microeconomics II	4	26
	2.2	Advanced Macro Economics II	4	
	2.3	Statistical Methods for Economists	4	
	2.4	Research Methodology for Economics	4	
	2.5	Indian Economy: Growth, Policy, and Contemporary Issues	4	
Skill-Based Soft Core Papers (Choose 2)	2.6.1	Economics and Stock Market Operations	3	
	2.6.2	Economics and Data Analytics	3	
	2.6.3	Empirical Methods in Finance	3	
	2.7.1	Programming with R for Economists	3	
	2.7.2	Advanced Data Visualisation using Excel	3	
	2.7.3	Cooperative Economics	3	
III Semester				
Core Papers	3.1	Development Economics	4	26
	3.2	International Economics	4	
	3.3	AI and ML in Economics	4	
	3.4	Advanced Computer Application in Economics - 1	4	

	3.5	Econometrics I	4	
Skill-Based Soft Core Paper (Choose 1)	3.6.1	Introduction to Academic Writing in Economics	2	
	3.6.2	Economics of Human Resource Planning	2	
Open Electives Core Papers (Choose 1)	3.7.1	Economics for Everyone	4	
	3.7.2	Indian Economy Since Economic Reforms	4	
IV Semester				
Core Papers	4.1	Environmental Economics	4	26
	4.2	Econometrics -II	4	
	4.3	Indian Economic Thought	4	
	4.4	Computer Applications in Economics II	4	
	4.5	Financial Economics	4	
Project work / Internship	4.6.1	Project work / Internship	4	
Skill-Based Soft Core Papers (Choose 1)	4.7.1	Budgetary Theory and Practice	2	
	4.7.2	Economics of Dairy Farming: A Practical Approach	2	
		Grand Total of Credits		**104**

MA–ECONOMICS
Ist SEMESTER

Program Name	**MA in Economics**	**Semester**	**First Semester**
Course Title	**Advanced Microeconomics**		
Course Code:	**ECO-DSC-1.1**	**No. of Credits**	**4**
Contact hours	**60 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives

- To deepen understanding of microeconomic theory with advanced analytical tools.
- To introduce modern approaches in consumer and producer theory, including duality and welfare analysis.
- To equip students with rigorous methods of analysing firm behaviour, costs, and production decisions.
- To integrate classical market theory with contemporary models of imperfect competition and strategic behaviour.

Course Outcomes

After completing this paper, students will be able to:

- Apply advanced consumer and producer theories to analyse real-world economic problems.
- Demonstrate critical understanding of duality in consumption and production.
- Evaluate welfare implications of market structures using advanced equilibrium concepts.
- Compare and contrast classical and modern approaches to market competition.
- Employ mathematical reasoning for equilibrium analysis under various market conditions.

MODULES	DESCRIPTION	60 Hours
Module I	**CONSUMER BEHAVIOUR AND DEMAND**	**10**
	Consumer choice in the cardinal utility framework; Ordinal theory and indifference curve analysis - Assumptions on consumer's preferences and representation of preferences - Budget constraint, slope of indifference curve, and marginal rate of substitution - Consumer's equilibrium: Utility maximization and expenditure minimization - Marshallian and Hicksian demand functions – Price and income effects; Slutsky decomposition - Duality in consumption**:** Indirect utility and expenditure function; Roy's Identity; Shepherd's Lemma - Comparative statics in demand theory.	
Practicum	• Conduct a field visit to a local supermarket to collect price and quantity data for two related goods (e.g., tea and coffee) to estimate and decompose their cross-price elasticity using Slutsky's equation. • Debate the real-world applicability of the rationality assumption in consumer theory, using examples from behavioural economics	

	• Derive Hicksian and Marshallian demand functions for a given utility function and use Roy's Identity and Shephard's Lemma to verify the results.	
Module II	**FIRM'S BEHAVIOUR AND PRODUCTION**	**17**
	Costs of production: Fixed, variable, average, marginal, and long-run cost functions - Revenues: Total, average, and marginal revenue - Production function and returns to scale – Elasticity of substitution – Isoquants – MRTS - Profit maximization and cost minimization; Input demand functions - **Duality in production**: Profit and cost functions, Hotelling's Lemma - Forms of production functions: Cobb-Douglas, Leontief, CES, and Translog - Producer's welfare: Surplus measurement and efficiency conditions.	
Practicum	• Visit a local manufacturing unit (e.g., bakery, textile unit) to observe production processes, classify costs (fixed/variable), and discuss with the manager their approach to cost minimization and output pricing. • Analyze how technological adoption (e.g., automation in MSMEs) impacts production functions, returns to scale, and long-run cost curves • Solve a profit maximization problem using a Cobb-Douglas production function and interpret the economic meaning of the resulting Lagrange multiplier.	
Module III	**THEORY OF MARKETS IN PARTIAL EQUILIBRIUM**	**15**
	Market structure and classification: Factor vs. product markets; spot, futures, and forward markets; perishable vs. durable goods markets - Concept of market equilibrium and disequilibrium – stability and efficiency analysis. **Perfect Competition:** Assumptions, demand and supply curve of firm and industry - Short-run and long-run equilibrium – welfare implications - Efficiency properties of perfectly competitive equilibrium. **Monopoly and Monopsony:** Types of monopoly; price and output determination under monopoly - Comparison with perfect competition - Monopoly power, price discrimination (first, second, third degree) - Bilateral monopoly and monopsony equilibrium - Welfare effects: Deadweight loss, consumer and producer surplus. **Monopolistic Competition:** Imperfect competition and product differentiation- Market equilibrium in the short and long run – welfare outcomes -Excess capacity, sunk costs, and selling costs -Comparison with monopoly and perfect competition. **Oligopoly:** Features of oligopolistic market -Collusive vs. non-collusive models -Cournot and Stackelberg duopoly models -Bertrand competition and kinked demand curve -**Game theoretic approach**: Strategic interaction, Nash equilibrium, and applications in oligopoly theory.	
Practicum	• Analyse a real-case example of oligopolistic market structure (e.g., telecom sector in India) and discuss how firms engage in non-price competition and strategic behaviour using game theory concepts. • Interact with a local agricultural market committee (APMC) to understand price determination, market efficiency, and government intervention in a perfectly competitive setting. • Compare monopoly and perfect competition by calculating deadweight loss and change in social surplus under assumed cost and demand conditions.	
Module IV	**Risk and uncertainty**	**18**

	Measurement of risk (probability distributions, variance, standard deviation); expected utility theory and alternative models (prospect theory); risk aversion, risk premiums; investment decisions under uncertainty; portfolio selection (Markowitz model – introductory); insurance markets under risk and uncertainty.	
Practicum	• Visit an insurance company office or bank to understand how products are designed accounting for risk aversion and moral hazard. • Debate the ethical and economic implications of using predictive algorithms for insurance premium calculation and credit scoring. • Use Excel to model a portfolio selection problem and demonstrate how diversification reduces risk without necessarily lowering expected returns.	

Reading List	
	Campbell McConell, Stanley Brue, and Sean Flynn. (2014). Microeconomics: Principles, Problems, & Policies. McGraw-Hill Series in Economics
	David M. Kreps. (2013). Microeconomic Foundations I: Choice and Competitive Markets. Princeton University Press, New Jersey USA
	Felix Muñoz-Garcia. (2017). Advanced Microeconomic Theory: An Intuitive Approach with Examples. MIT Press
	H L Ahuja. (2016). Advanced Economic Theory-Microeconomic Analysis. S. Chand Publishing
	Karl E. Case, Ray C. Fair and Sharon E. Oster. (2013). Principles of Microeconomics. Pearson India
	Koutsoyiannis A. (1985). Modern Microeconomics. ELBS/Macmillan, Hong Kong.
	N. Gregory Mankiw. (2014). Principles of Microeconomics. Cengage Learning Paul
	Krugman and Robin Wells. (2014). Microeconomics. Worth Publishers RJD Allen.
	(1978). Theory of firms. Penguin
	Robert S. Pindych, Daniel L. Rubinfeld and Prem L. Mehta. (2009). Miroeconomics. Pearson International Edition
	W. D. A. Bryant and William David. (2017). Advanced Microeconomics: Theory, Applications and Tests. World Scientific Publishing Company Pte Limited.

MA–ECONOMICS
Ist SEMESTER

Program Name	**MA in Economics**	**Semester**	**First Semester**
Course Title	**Advanced Macroeconomics**		
Course Code:	**ECO-DSC-1.2**	**No. of Credits**	**4**
Contact hours	**60 Hours**	**Duration of SEA/Exam**	**3 Hrs.**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

- Provide a comprehensive understanding of classical, Keynesian, monetarist, new classical, and new Keynesian frameworks for analysing output, employment, inflation, and policy effectiveness.
- Develop analytical skills to evaluate macroeconomic models, including IS–LM, AD–AS, Phillips curve, and DSGE approaches.
- Explore the role of expectations, credibility, and rational behaviour in shaping monetary and fiscal policy effectiveness.
- Examine the dynamics of financial frictions, crises, and unconventional monetary policies in modern economies.
- Critically assess institutional aspects of central banking, including autonomy, credibility, and coordination with fiscal policy.
- Apply theoretical insights to real-world events such as the Global Financial Crisis, COVID-19 disruption, and current debates on inflation targeting, unemployment, and financial stability.

Course Outcomes:

After completing this course, students will be able to:

- Analyse different macroeconomic schools of thought (Classical, Keynesian, Monetarist, New Classical, New Keynesian) and their implications for output, employment, and inflation.
- Apply IS–LM, AD–AS, and Phillips curve frameworks to study short-run and long-run macroeconomic equilibria.
- Evaluate the role of expectations, credibility, and time inconsistency in monetary and fiscal policy design.
- Interpret the effects of financial frictions, credit market imperfections, and asset price cycles on macroeconomic instability.
- Assess the effectiveness of conventional and unconventional monetary policies, including Taylor rules, QE, and yield curve control.
- Examine institutional aspects of central banking—autonomy, rules vs. discretion, and policy coordination—in achieving stability.
- **Critically apply** macroeconomic theory to explain major crises (2008 GFC, COVID-19) and policy responses.
- **Develop** the ability to use modern macroeconomic models (DSGE/OLG) to understand inflation, unemployment, and output dynamics.

MODULES	DESCRIPTION	60 Hours
Module I	**Macroeconomic Theories of Output, Employment, Inflation, and Policy**	**15**
	Classical, Keynesian and Monetarist approaches; Determination of output, employment, and prices; IS–LM model and the Neoclassical Synthesis; Aggregate demand and supply; Phillips curve (short-run and long-run), NRU and NAIRU; Expectations, interest rates, inflation, and the inflation–unemployment trade-off; Policy effectiveness debates.	
Practicum	• Comparative chart of Classical, Keynesian, and Monetarist models with assumptions, policies, and limitations. • IS–LM exercise: construct IS and LM curves with given functions, find equilibrium output and interest rates. • Phillips curve plotting using India's data to analyse short-run vs. long-run trade-offs.	
Module II	**New Classical and New Keynesian Macroeconomics: Expectations, Policy, and Dynamics**	**15**
	New Classical and New Keynesian economics: Rational expectations, Lucas critique, policy ineffectiveness; Lucas supply function; Keynesian reappraisal (Clower, Leijonhufvud, Malinvaud); Expectations and credibility in monetary policy; Time inconsistency and rules vs discretion; Central bank independence and inflation targeting; Hysteresis in unemployment; Supply-side and income policies; Crowding-out effect; DSGE approach to modelling inflation and output dynamics.	
Practicum	• Solve a rational expectations problem using Lucas supply function. • Plot and analyse RBI's inflation targeting performance (CPI vs Repo trends). • Policy simulation: design fiscal or supply-side measures to reduce unemployment without accelerating inflation. • Crowding-out case study: e.g., India's fiscal expansion during COVID-19.	
Module III	**Financial Frictions, Crises, and Macroeconomic Stability**	**15**
	Financial frictions and macro instability; Credit market imperfections (Bernanke–Gertler); Asset price booms and busts – Minsky moment and financial accelerator; Global Financial Crisis 2008 and COVID-19 disruption; Liquidity trap and unconventional monetary policies (QE, yield curve control); Interaction of monetary policy and financial stability; Shadow banking and financialization; DSGE/OLG perspectives on cycles.	
Practicum	• Analyse India's GDP volatility and credit growth pre- and post-pandemic. • Simulate a financial shock in a business cycle framework using graphing tools. • Case study: systemic risk and policy mix during a crisis (e.g., COVID-19 vs 2008)	

Module IV	**Monetary Institutions & Monetary Policy**	**15**
	Monetary transmission mechanism and targeting, Inflation, Money growth, and interest rates, Interest rate rules, Taylor rule, Rules versus discretion, Central Bank Autonomy, Dynamic inconsistency of monetary policy, credibility, and reputation. Coordination of fiscal and monetary policy.	
Practicum	• Monetary **Transmission & Inflation Targeting:** Trace how a change in policy interest rate affects output, inflation, and investment through different transmission channels; evaluate the effectiveness of inflation targeting in stabilising prices. • Rules **versus Discretion & Taylor Rule:** Simulate interest rate setting using the Taylor rule with given inflation and output gap data; compare outcomes under rule-based policy versus discretionary decision-making. • Central Bank Credibility & Policy Coordination: Analyse the problem of dynamic inconsistency and how central bank independence builds credibility; examine case studies of fiscal–monetary coordination during crises.	

References

Begg, D. K. H. (1982). *The rational expectation revolution in macroeconomics*. Oxford: Basil Blackwell.

Branson, W. H. (1989). *Macroeconomic theory and policy* (3rd ed.). New York, NY: Harper & Row.

Carlin, W., & Soskice, D. (1996). *Macroeconomics and the wage bargain*. Oxford, UK: Oxford University Press.

Davidson, P. (1994). *Post-Keynesian macroeconomic theory*. Aldershot, UK: Edward Elgar.

Dornbusch, R., & Fischer, S. (2004). *Macroeconomics* (9th ed.). New Delhi, India: Tata McGraw-Hill.

Jha, R. (1991). *Contemporary macroeconomic theory and policy*. New Delhi, India: Wiley Eastern.

Levacic, R., & Rebman, A. (1986). *Macroeconomics* (2nd ed.). London, UK: Macmillan.

Mankiw, N. G. (2000). *Macroeconomics* (4th ed.). New York, NY: Worth Publishers.

Mankiw, N. G., & Romer, D. (Eds.). (1991). *New Keynesian economics*. Cambridge, MA: MIT Press.

Romer, D. (1996). *Advanced macroeconomics*. New York, NY: McGraw-Hill.

Lucas, R. (1981), Studies in Business Cycle Theory, MIT Press, Cambridge, Massachusetts.

Shapiro, E. (1996), Macroeconomics Analysis, Galgotia Publications, New Delhi.

MA–ECONOMICS
Ist SEMESTER

Program Name	**MA in Economics**	**Semester**	**First Semester**
Course Title	**Mathematical Economics**		
Course Code:	**ECO-DSC-1.3**	**No. of Credits**	**4**
Contact hours	**60 Hours**	**Duration of SEA/Exam**	**3 Hrs.**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives

1. To develop an understanding of the relationship between Mathematics and Economics: Students will learn how mathematics serves as a tool for expressing and analysing economic relationships.
2. To equip students with mathematical methods: Providing students with the necessary skills to apply mathematical techniques such as calculus, matrix algebra, and optimisation to economic problems.
3. To enhance analytical and problem-solving skills: Students will gain proficiency in solving complex economic problems involving optimisation, equilibrium, and dynamic systems.
4. To introduce basic economic models and applications: Students will learn to use mathematical models for analysing economic phenomena such as market equilibrium, consumer and firm behaviour, and economic growth.
5. To apply mathematical methods to real-world economic issues: Practical application of mathematical techniques in areas such as taxation, subsidies, production, and economic modelling.

Course Outcomes

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

1. Understand and apply fundamental mathematical tools: Students will be able to solve problems using sets, relations, functions, and algebraic techniques, including simultaneous equations and geometric analysis.
2. Solve optimisation problems: Students will be able to apply basic optimisation techniques (including differentiation) to economic models such as market equilibrium, consumer behaviour, and profit maximisation.
3. Apply matrix algebra to economic analysis: Students will be proficient in using matrices for solving systems of linear equations, understanding economic models like input-output analysis, and applying Cramer's rule in economic contexts.
4. Use calculus in economic analysis: Students will be able to apply differentiation and integration to analyse economic behaviours like consumer surplus, producer surplus, and equilibrium conditions.
5. Understand and solve linear programming problems: Students will learn how to formulate and solve constrained optimisation problems using graphical and simplex methods, and will be introduced to the duality theorem.
6. Analyse input-output models: Students will be able to understand and solve static, open, and closed input-output models to analyse interdependencies in an economy.

MODULES	DESCRIPTION	60 Hours

Module I	**Basic Mathematics for Economic Analysis**	**15**
	Relationship between Mathematics and Economics - Applications of Mathematics in Economic Analysis - Its Uses and Limitations - Logic, Sets and Relations - Functions - Meaning and Types: Linear and Non-Linear, Power, Exponential and Logarithm - Simultaneous Equations - Solutions for Two Variables Application to Market Equilibrium: Derivation of Demand and Supply Functions Effect of Taxes and Subsidies, Indifference Curves, Interest: Compounding and Discounting, National Income, Changes in Aggregate Demand and Supply Functions, Consumption Function.	
Practicum	Solve problems involving linear and nonlinear functions in economic contexts. Derive and graph demand and supply functions; analyse effects of taxes and subsidies.	
Module II	**Elementary Matrix Algebra**	**15**
	Basic Concepts - Types of Matrix - Matrix Operations - Transpose - Inverse Matrix -Determinants: Meaning, Properties, Rank of Matrix, Minor, Co-factor. Functions of Several Variables - Cramer's Rule and Its Applications in Economics.	
Practicum	Perform matrix operations: addition, multiplication, transpose, and finding inverses. Calculate determinants, minors, cofactors, and rank of matrices with given data. Solve systems of linear equations using Cramer's Rule.	
Module III	**Calculus**	**15**
	Differential Calculus: Limits - Derivations - Rules of Differentiation - Partial Derivatives, Total Derivatives - Maxima and Minima for One and Two Variables. **Applications to Economic Analysis**: Consumer Behaviour: Elasticity of Demand, Relationship between Price Elasticity and TR, AR and MR, Consumer' Equilibrium and Utility Maximization Firm's Behaviour: Production Function - Cost Function - Revenue Function - Equilibrium of Firm and its Profit Maximisation - Homogeneous Function - Cobb-Douglas Production Function - CES Production Function - Euler's Theorem - Monopoly and Joint Production -Duopoly, Monopolistic Competition and Oligopoly. **Integral Calculus**: Techniques of Integration - Definite and Indefinite Integration. **Applications to Economic Analysis:** Consumer's Surplus - Producer's Surplus. Introduction to Frontier Analysis: Technical Efficiency - Technological Change and Total Productivity - Multi-Market Equilibrium. **Difference and Differential Equations** **Difference Equations:** Definitions and Concepts - Solutions to First Order and Second Order Difference Equations. Applications to Economics: Cob-web Model. **Differential Equations:** Definitions and Concepts - Solutions to First Order and Second Order Differential Equations. Applications to Economics: Harrod-Domar Model, Multiplier and Accelerator.	
Practicum	Solve optimisation problems (maxima/minima) for consumer and firm behaviour. Apply integration to compute consumer and producer surplus.	

	Model and solve first and second-order difference and differential equations related to the Cobweb and Harrod-Domar models.	
Module IV	**Linear Programming and Input-Output Analysis**	**15**
	Linear Programming: Basic Concepts - Constrained Optimization - Formulation of Linear Programming Problem - Nature of Feasible and Optimal Solutions - Solution through Graphical Methods - Introduction to Simplex method - Duality Theorem. Input-Output Analysis: Basic Concepts, Static, Open and Closed Input-Output Models	
Practicum	Build and analyze static input-output tables for given economic sectors. Model simple open and closed input-output systems and interpret results.	

References: [Please refer to the Latest Editions]

- Allen R.G.D. (2015). Mathematical Analysis for Economists. Macmillan.
- Bose D., (2003) *An Introduction of Mathematical Economics*, Himalaya Publishing House, Mumbai.
- Chiang A.C. (1995). Fundamental Methods of Mathematical Economics. McGraw-Hill Higher Education.
- Simon, C. P., & Blume, L. (1994). *Mathematics for Economists*. W. W. Norton & Company.
- Veerachami R., (2002) *Quantitative Methods for Economists*, New Age International Pub., New Delhi
- Yamane Taro, (2002**)** *Mathematics for Economists - An Implementer Analysis,* Phi Learning Publishers.

MA–ECONOMICS
Ist SEMESTER

Program Name	**MA in Economics**	**Semester**	**First Semester**
Course Title	**Public Economics**		
Course Code:	**ECO-DSC-1.4**	**No. of Credits**	**4**
Contact hours	**60 Hours**	**Duration of SEA/Exam**	**3 Hrs.**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. To provide a comprehensive understanding of the role of government in a mixed economy and the rationale for public intervention.
2. To familiarise students with major theories of public choice, public goods, and allocation of resources.
3. To analyse public policies in terms of efficiency, equity, stabilisation, and growth objectives.
4. To study trends in public expenditure, taxation, and fiscal federalism with reference to India and global experiences.
5. To develop the ability to critically evaluate contemporary fiscal challenges such as recession, inflation, inequality, and public debt.

Course Outcomes:

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

1. Explain the theoretical foundations of public economics, including market failure, public goods, and externalities.
2. Apply concepts of public choice, voting systems, and bureaucracy theories to understand decision-making in the public sector.
3. Analyse the allocation of resources, stabilisation policies, and distributional issues in both developed and developing economies.
4. Evaluate public expenditure, investment projects, and budgeting techniques using cost-benefit analysis.
5. Interpret the impact of fiscal policies on employment, inflation, inequality, and regional development.
6. Critically assess India's fiscal system—Centre–State relations, Finance Commissions, taxation reforms, and current fiscal challenges.
7. Integrate theoretical insights with contemporary developments in global and Indian public finance for practical policy analysis.

MODULES	DESCRIPTION	60 Hours
Module I	**Introduction to the Role of Government**	**15**
	The role of government in an organised society; changing perspectives in a mixed economy—public and private sector relations: cooperation, competition, and partnership. Government as an instrument for planning, regulation, and welfare delivery. The economics of private goods, public goods, merit goods,	

	and common-pool resources. Market failures—imperfect competition, decreasing costs, externalities, and public goods provision. Contemporary issues: digital public goods, climate change, and sustainable development as drivers of government intervention.	
Practicum	• Case Study Analysis – Study India's role in providing digital public goods (like UPI, Aadhaar) and discuss whether they qualify as public or merit goods. • Market Failure Simulation – Using graphical analysis, show how externalities (e.g., air pollution) justify government intervention and evaluate alternative policy tools (taxes, subsidies, regulation). • Debate – "Should climate change be treated as a global public good requiring global government cooperation?"	
Module II	**Public Choice and Governance**	**15**
	Public choice theory and voting mechanisms; Arrow's impossibility theorem and its implications for collective decision-making. Normative and positive approaches to public choice (Musgravian and Buchanan models). Group interests, alliances, and rent-seeking behaviour. Public choice and the bureaucracy—efficiency, accountability, and governance challenges. Directly unproductive profit-seeking (DUP) activities in modern economies. New developments: behavioural public choice, political economy of populism, and governance in the digital era (e.g., e-governance, open data, transparency reforms).	
Practicum	• Voting Experiment – Conduct a classroom voting exercise (majority rule, Borda count, or Arrow's criteria) and analyse the outcome for consistency with rational choice. • Case Study on Rent-Seeking – Examine a recent policy reform (e.g., telecom spectrum allocation, mining rights) to identify examples of DUP activities or rent-seeking. • Policy Evaluation Exercise – Compare traditional bureaucracy with digital governance reforms (e.g., e-governance in India, Estonia's digital state) and evaluate efficiency and accountability gains.	
Module III	**Rationale for Public Policy and Policy Challenges**	**15**
	Allocation of resources and provision of public goods—voluntary exchange models, Samuelson's and Musgrave's contributions, and the impossibility of decentralised provision. Demand-revealing mechanisms, the Tiebout model, and the theory of club goods. Stabilisation policy—Keynesian rationale, uncertainty, and expectations. Contemporary policy challenges: tackling inequality, poverty, and regional imbalances; climate change mitigation and adaptation policies; and the role of government in health, education, and digital inclusion. Current global trends: recession and recovery, inflation (including food and energy crises), fiscal and monetary responses, and lessons from the COVID-19 pandemic.	
Practicum	• Public Goods Provision Exercise – Use Samuelson's model to show why decentralised provision of a public good (like street lighting) is inefficient; propose an alternative mechanism. • Policy Impact Analysis – Evaluate the effectiveness of government policies during COVID-19 (fiscal stimulus, food security, health interventions) in reducing inequality and stabilising the economy.	

	• Group Presentation – Discuss whether climate policy (like carbon taxes or subsidies for renewables) should be framed as allocation, stabilisation, or redistribution policy.	
Module IV	**Public Expenditure and Fiscal Reforms**	**15**
	Theories of public expenditure—Wagner's law, the Wiseman–Peacock hypothesis, and modern perspectives. Structure, growth, and composition of public expenditure in developed and developing economies. Criteria for public investment and social cost–benefit analysis, including project evaluation and choice of discount rate. Budgetary reforms: program budgeting, zero-based budgeting, and performance-based budgeting. Recent developments: fiscal responsibility frameworks (e.g., FRBM in India), green budgeting, sustainable finance, digitalisation of public expenditure, and international experiences with outcome-based budgeting.	
Practicum	• Expenditure Trend Analysis – Using budget data (e.g., India's Union Budget), analyse trends in social sector expenditure and assess whether they follow Wagner's law. • Cost–Benefit Exercise – Select a proposed public project (metro rail, rural electrification, green energy) and perform a simplified social cost–benefit analysis, including discounting. • Budget Reform Simulation – Prepare a mini zero-based budget (ZBB) for a small department (like education or health) and present how programs would be prioritised under fiscal constraints.	

References	
	Stiglitz, J. E., & Rosengard, J. K. (2015). *Economics of the Public Sector* (4th ed.). W. W. Norton & Company. Atkinson, A. B., & Stiglitz, J. E. (2015). *Lectures on Public Economics* (Updated ed.). Princeton University Press. Rao, M. Govinda. (2022). *Studies in Indian Public Finance*. Oxford University Press. Chakraborty, P. (Ed.). (2023). *Fiscal Policy and Public Financial Management*. Oxford University Press. Bhatia, H. L. (2018). *Public Finance* (29th ed.). Vikas Publishing House. Mundle, S. (1999). *Public Finance: Policy Issues for India* (latest reprint ed.). Oxford University Press. Musgrave, R. A., & Musgrave, P. B. (1984). *Public Finance in Theory and Practice* (5th ed.). McGraw-Hill. Rosen, H. S., & Gayer, T. (2014). *Public Finance* (10th ed.). McGraw-Hill Education. — good modern treatment of tax incidence, public goods, and externalities. Tullock, G., Seldon, A., & Brady, G. L. (2002). *Government Failure: A Primer in Public Choice*. Cato Institute. — useful for modern public choice theory and criticism of government intervention.

MA–ECONOMICS
Ist SEMESTER

Program Name	**MA in Economics**	**Semester**	**First Semester**
Course Title	**Behavioral Economics**		
Course Code:	**ECO-DSC-1.5**	**No. of Credits**	**4**
Contact hours	**60 Hours**	**Duration of SEA/Exam**	**3 Hrs.**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives

- Introduce psychological foundations of economic decision-making.
- Explain deviations from rational choice assumptions.
- Analyse experimental and empirical evidence in behavioural economics.
- Apply behavioural insights to public policy and markets.
- Strengthen analytical, experimental, and applied research skills.

Course Outcomes

- Understand limits of traditional rational choice models.
- Identify common behavioural biases affecting decision-making.
- Differentiate between classical and behavioural approaches.
- Apply behavioural models to consumer and investor behaviour.
- Evaluate policy interventions informed by behavioural economics.
- Design experiments and nudges for behavioural studies.

MODULES	DESCRIPTION	60 Hours
Module I	**Introduction to Behavioural Economics**	**14**
	Origins, scope, and development of behavioral economics - Bounded rationality, satisficing, and adaptive behavior - Psychology and economics: integration and differences - Prospect theory: reference points, loss aversion, probability weighting - Expected utility vs. prospect theory applications - Role of experiments in economics: controlled and natural - Limits of traditional rational choice assumptions	
Practicum	Conduct a simple experiment demonstrating prospect theory (e.g., framing gains vs. losses) and analyse participant choices. Write a reflection report comparing expected utility theory and prospect theory using experimental data.	
Module II	**Heuristics, Biases, and Anomalies**	**14**
	Heuristics: representativeness, availability, and anchoring - Cognitive biases in decision-making and judgment - Overconfidence, optimism bias, and hindsight bias - Status quo bias and endowment effect - Framing effects, preference reversals, and choice overload - Market anomalies: bubbles, herd behaviour, and investor psychology - Behavioural finance: limits to arbitrage and investor irrationality.	

Practicum	Design a survey or experiment to identify common cognitive biases (e.g., anchoring or availability bias) in decision-making. Analyse a recent financial bubble or market anomaly and explain it using behavioral finance concepts.	
Module III	**Behavioural Models and Applications**	**18**
	Time inconsistency, procrastination, and hyperbolic discounting - Mental accounting and budgeting behavior - Self-control problems and commitment devices - Social preferences: fairness, reciprocity, altruism, inequality aversion - Nudges and choice architecture in practice - Behavioural game theory: trust, coordination, and signalling - Behavioural industrial organization and consumer behaviour - Applications in health, savings, taxation, and sustainable practices.	
Practicum	Perform a time discounting exercise to observe procrastination or hyperbolic discounting in participants. Create a case study on nudges used in public policy or consumer behaviour, evaluating effectiveness.	
Module IV	**Policy, Institutions, and Welfare**	**14**
	Behavioural insights in policy design and implementation - Behavioural approaches to health, education, and environment - Savings, pensions, insurance, and financial behaviour - Behavioural aspects of poverty, inequality, and development - Use of nudges in government policy (global and Indian context) - Ethical concerns and criticisms of nudging - Future directions: integration with AI, digital platforms, and big data.	
Practicum	Develop a policy proposal using behavioural insights to improve a social issue (e.g., increasing savings or health behaviours). Critically review a government nudge program (local or global), assessing ethical concerns and outcomes.	

Suggested Readings / References	
1	1. Kahneman, D. (2011). *Thinking, Fast and Slow.* Farrar, Straus and Giroux, New York. 2. Thaler, R.H. & Sunstein, C.R. (2009). *Nudge: Improving Decisions about Health, Wealth, and Happiness.* Penguin Books, London. 3. Thaler, R.H. (2016). *Misbehaving: The Making of Behavioural Economics.* W.W. Norton & Company, New York. 4. Camerer, C.F. (2003). *Behavioural Game Theory: Experiments in Strategic Interaction.* Princeton University Press, Princeton. 5. Ariely, D. (2008). *Predictably Irrational: The Hidden Forces That Shape Our Decisions.* HarperCollins, New York. 6. Mullainathan, S. & Shafir, E. (2013). *Scarcity: Why Having Too Little Means So Much.* Times Books, Henry Holt & Co., New York. 7. Camerer, C.F., Loewenstein, G., & Rabin, M. (2004). *Advances in Behavioral Economics.* Princeton University Press, Princeton. 8. Dhami, S. (2016). *The Foundations of Behavioral Economic Analysis.* Oxford University Press, Oxford. 9. Shiller, R.J. (2015). *Irrational Exuberance* (3rd ed.). Princeton University Press, Princeton. 10. Angner, E. (2020). *A Course in Behavioral Economics* (3rd ed.). Red Globe Press (Macmillan), London.

MA–ECONOMICS
Ist SEMESTER

Program Name	**MA in Economics**	**Semester**	**First Semester**
Course Title	**Agri Business**		
Course Code:	**ECO-SBSC-1.6.1**	**No. of Credits**	**3**
Contact hours	**45 Hours**	**Duration of SEA/Exam**	**3 Hrs.**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. To provide a conceptual and analytical understanding of agri-business in the Indian economy.
2. To examine agri-business enterprises, value chains and marketing reforms.
3. To introduce agri-finance, risk management and entrepreneurship opportunities.
4. To develop practical skills in project planning, business model preparation and field-based analysis.

Course Outcomes:

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

1. Explain the scope, role, and emerging trends in agri-business.
2. Analyze agri-business enterprises, value chains and marketing reforms.
3. Apply financial and risk management tools to assess agri-business projects.
4. Evaluate government policies, institutional support and trade opportunities.
5. Develop and present a practical agri-business plan or model.

MODULES	DESCRIPTION	45 Hours
Module I	**Fundamentals of Agri-Business**	**15**
	Concept, scope, and importance of agribusiness; linkages between agriculture, industry, and services; role of agribusiness in rural development and employment generation; emerging trends—digital platforms, agri-tech startups, and e-commerce; case studies of Indian agribusiness (Amul, ITC e-Choupal, NAFED); preparation of farm budgets and feasibility studies.	
Practicum	• Preparation of farm budgets and enterprise feasibility studies. • Case analysis of Amul, ITC e-Choupal, and NAFED models. • Field survey/interview of a local Agri-tech startup or FPO to study business linkages.	
Module II	**Agribusiness Enterprises, Marketing and Trade**	**15**
	Types of agribusiness enterprises—inputs, processing, exports; value chains and food processing industries; Farmer-Producer Organisations (FPOs) and contract farming; agricultural marketing reforms—APMC Acts, e-NAM, direct marketing; commodity futures markets and agri-exports; WTO Agreement on Agriculture and global competitiveness of Indian products; preparation of business plans and value chain mapping.	
Practicum	• Designing a mock business plan/project proposal for an agribusiness venture.	

	• Value chain mapping exercise for a selected crop/product (e.g., rice, dairy, vegetables). • Market visit to study e-NAM, direct marketing, or commodity trading practices.	
Module III	Agri-Finance, Risk Management and Entrepreneurship	**15**
	Sources of agri-finance—NABARD, commercial banks, microfinance, SHGs; risk and uncertainty in agriculture—crop insurance, price volatility, financial risk tools; government schemes—Startup India, Agri Export Policy, Atmanirbhar Bharat; entrepreneurship opportunities in dairy, fisheries, horticulture, organic farming, and agro-tourism.	
Practicum	• Preparation of a financial plan for a small agribusiness unit with sources of funding. • Case study analysis of government schemes (Startup India, Agri Export Policy, Atmanirbhar Bharat). • Entrepreneurial project identification in areas such as dairy, fisheries, horticulture, organic farming, or agro-tourism	

	References Books
1	• Beierlein, J. G., Jenner, M. W., Schneeberger, K. C., & Osburn, D. D. (2026). *Principles of Agribusiness Management* (6th ed.). Waveland Press. • Chand, R., & Joshi, P. K. (2011). *Agricultural Marketing in India*. New Delhi, India: Educational Publishers and Distributors. • Food and Agriculture Organisation. (2020). *Value Chain Development for the Agri-Food Sector*. Rome, Italy: FAO. • Khanka, S. S. (2020). *Entrepreneurship Development* (4th ed.). New Delhi, India: S. Chand Publishing. *(Updated to more recent edition)* • Singh, K. K. (2022). *Agri-Business Management* (3rd ed.). New Delhi, India: A. K. Publications. Singh, S. S. (2018). *Agricultural Finance and Management*. New Delhi, India: CBS Publishers & Distributors Pvt Ltd. • Government of India. (2024). *Economic Survey of India*. New Delhi, India: Ministry of Finance. • Government of India. (2023). *Agricultural Statistics at a Glance*. New Delhi, India: Ministry of Agriculture & Farmers Welfare. • NABARD. (2023). *Annual Report*. Mumbai, India: National Bank for Agriculture and Rural Development.

MA–ECONOMICS
Ist SEMESTER

Program Name	**MA in Economics**	**Semester**	**First Semester**
Course Title	**Economics of Banking and Financial Markets**		
Course Code:	**ECO-SBSC-1.6.2**	**No. of Credits**	**3**
Contact hours	**45 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. Provide a comprehensive understanding of the structure and functioning of banking and financial markets.
2. Familiarise students with debt, equity, money, capital, and foreign exchange markets, along with their instruments and participants.
3. Explain the concepts of asymmetric information, conflicts of interest, and the rationale behind financial market regulation.
4. Develop analytical insights into interest rate determination, speculation, hedging, and arbitrage strategies.
5. Examine the regulatory framework governing Indian and global financial markets.

Course Outcomes:

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

1. Explain the foundations of banking, debt, and equity markets and their interlinkages.
2. Analyse the impact of asymmetric information and conflicts of interest on financial markets.
3. Identify and evaluate the structure, functions, and instruments of money, capital, and foreign exchange markets.
4. Apply concepts of speculation, hedging, and arbitrage in financial decision-making.
5. Assess the role and effectiveness of regulatory institutions like SEBI, RBI, IRDAI, and FEMA in ensuring financial stability.
6. Critically evaluate contemporary challenges in financial market regulation and crisis management.

MODULES	**DESCRIPTION**	**45 Hours**
Module I	**Foundations of Banking and Financial Markets**	**15**
	Overview of the Banking and Financial System, Debt (Bond) Markets: Structure, Types, and Role in the Economy, Interest Rate Determination and Yield Curve, Equity Markets: Structure, Functioning, and Role in Capital Formation, Interlinkages between Banking, Debt, and Equity Markets	
Practicum	• Analyse the balance sheet of a commercial bank and identify the sources and uses of funds. • Compare the performance of debt and equity markets in India over the last 5 years using real data. • Track daily changes in interest rates (RBI repo, call money, bond yields) and prepare a short report on trends.	

Module II	Concept of Asymmetric Information and Regulation	15
	Concept of Asymmetric Information in Financial Markets, Adverse Selection, Moral Hazard, and Market Inefficiencies, Conflicts of Interest in Financial Institutions, Rationale for Regulation of Banking and Financial Markets, Role of Regulations in Preventing Financial Crises, Evolution of Regulatory Practices: Global and Indian Context	
Practicum	• Case study analysis: Identify examples of adverse selection and moral hazard in Indian banking (e.g., NPAs). • Debate exercise: "Do financial regulations reduce crises or create inefficiencies?" • Prepare a short note on a recent financial crisis (global or Indian), highlighting regulatory failures and lessons.	
Module III	**Structure and Functions of Financial Markets**	**15**
	Money Market: Structure, Functions, and Significance, Characteristics and Key Instruments (Treasury Bills, Commercial Papers, Certificates of Deposit, etc.) **Capital Market:** Structure and Functions, Primary vs. Secondary Markets, Characteristics, Instruments, and Major Participants, **Foreign Exchange Market:** Organisation, Structure, and Functions, Participants and Types of Transactions, Risks in Forex Markets: Exchange Rate Risk, Interest Rate Risk, and Settlement Risk, Derivatives in Forex: Forwards, Futures, Options, Swaps, Concepts of Speculation, Hedging, and Arbitrage **Regulatory Framework:** Role and Functions of SEBI, IRDAI, RBI, and FEMA, Regulatory Reforms in Indian Financial Markets, Contemporary Challenges in Regulation and Supervision	
Practicum	• Prepare a brief project on money market instruments (T-bills, CP, CD) with examples of recent issuances in India. • Track stock price movements of 3 listed companies for one month and analyse the role of capital market participants. • Simulate foreign exchange trading using hypothetical data to demonstrate speculation, hedging, and arbitrage	

References	
	Mishkin, F. S. (2010). The economics of money, banking and financial markets (9th ed.). Addison-Wesley. Baye, M. R., & Jansen, D. W. (1999). Money, banking & financial markets: An economics approach (Indian ed.). A.I.T.B.S. Publishers.

Froyen, R. T. (2009). Macroeconomics: Theory and policies. Pearson.

Khan, M. Y. (Latest ed.). *Indian financial system*. Tata McGraw-Hill.

Bhole, L. M., & Mahakud, J. (Latest ed.). *Financial institutions and markets: Structure, growth and innovations*. Tata McGraw-Hill.

Saunders, A., & Cornett, M. M. (Latest ed.). *Financial markets and institutions*. McGraw-Hill.

Reserve Bank of India. (n.d.). Reserve Bank of India. Retrieved September 20, 2025, from https://www.rbi.org

International Monetary Fund. (n.d.). IMF data. Retrieved September 20, 2025, from https://www.imf.org/en/Data

Federal Reserve Bank of St. Louis. (n.d.). FRED economic data. ttps://research.stlouisfed.org/fred2

Reserve Bank of India. (n.d.). Handbook of statistics on Indian economy. https://www.rbi.org.in

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MA–ECONOMICS
Ist SEMESTER

Program Name	**MA in Economics**	**Semester**	**First Semester**
Course Title	**Business Intelligence and Big Data**		
Course Code:	**ECO-SBSC-1.6.3**	**No. of Credits**	**3**
Contact hours	**45 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. Introduce the concepts of Business Intelligence (BI) and Big Data and their relevance to economics and decision-making.
2. Familiarise students with data warehousing, data mining, and the role of BI in organisational and policy contexts.
3. Equip students with knowledge of Big Data applications in economic research, banking, markets, and public relations.
4. Develop analytical skills to interpret data-driven insights for policy-making and business strategy.

Course Outcomes:

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

1. Explain the role of BI and Big Data in modern decision-making.
2. Differentiate between data, information, knowledge, and their role in the decision cycle.
3. Identify and assess the use of data warehouses, OLTP/OLAP, and ETL processes in BI.
4. Apply basic data mining concepts like association rules to economic and business data.
5. Evaluate the applications of Big Data in public relations, financial markets, and policy research.

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MODULES	DESCRIPTION	45 Hours
Module I	**Introduction to Business Intelligence and Big Data**	**15**
	Business Intelligence: Definition, Architecture, and Applications, Data–Information–Knowledge–Decision Cycle in Economics, Big Data: Characteristics, Importance, and Applications in Business & Economics, Benefits of Business Intelligence for Decision-Making	
Practicum	• Analyze a real-world case study of how Big Data transformed decision-making in banking or retail.	

	• Prepare a note on how BI can support government policy-making (e.g., poverty, inflation, employment). • Compare at least two industries using Big Data for competitive advantage (e.g., healthcare vs. e-commerce).	
Module II	Data Warehousing and Big Data in Public Relations	**15**
	Data Warehousing: Concept, Purpose, and Models (Enterprise Warehouse, Data Marts, Virtual Warehouse), Basics of OLTP vs. OLAP Systems, Extract, Transform, Load (ETL): Overview of Data Integration Applications of Big Data in Public Relations, Media, and Policy-Making	
Practicum	• Map the structure of a simple Data Warehouse (Enterprise vs. Data Marts) using an economic dataset. • Write a brief report on the role of Big Data in media/public relations during a recent economic event. • Compare OLTP and OLAP using practical examples (banking transactions vs. policy analysis).	
Module III	**Introduction to Data Mining**	**15**
	Concept and Process of Data Mining, Knowledge Discovery in Databases (KDD): Basic Idea and Steps, Association Analysis: Rules, Support, Confidence, and Lift, Introduction to Algorithms: Apriori and FP-Growth (conceptual overview only), Applications of Data Mining in Banking, Markets, and Policy Research	
Practicum	• Perform a simple association analysis using sample sales/transaction data (manual calculation of support & confidence). • Case study: Application of data mining in credit scoring or stock market prediction. • Group activity: Discuss risks and ethical issues of data mining in economics and business.	

References	
	Turban, E., Sharda, R., Delen, D., & King, D. (2013). Business intelligence (2nd ed.). Pearson. Scheps, S. (2008). Business intelligence for dummies. Wiley. Inmon, W. H. (1993). Building the data warehouse. Wiley.

Dunham, M. H. (2006). Data mining: Introductory and advanced topics. Prentice Hall.

Witten, I. H., & Frank, E. (2011). Data mining: Practical machine learning tools and techniques (2nd ed.). Morgan Kaufmann.

Moss, L. T., & Atre, S. (2003). Business intelligence roadmap: The complete project lifecycle for decision-support applications. Addison-Wesley.

Ballard, C., Herreman, D., Schau, D., Bell, R., Kim, E., & Valencic, A. (1998). Data modelling techniques for data warehousing. IBM International Technical Support Organisation. Retrieved from http://www.redbooks.ibm.com

Han, J., & Kamber, M. (2000). Data mining: Concepts and techniques. Morgan Kaufmann.

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Buyya, R., Calheiros, R. N., & Dastjerdi, A. V. (2016). Big data: Principles and paradigms. Elsevier.

MA–ECONOMICS
Ist SEMESTER

Program Name	**MA in Economics**	**Semester**	**First Semester**
Course Title	**Karnataka Economy**		
Course Code:	**ECO-SBSC-1.7.1**	**No. of Credits**	**3**
Contact hours	**45 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. Understand the historical and structural aspects of Karnataka's economy.
2. Analyse sectoral contributions: agriculture, industry, and services in Karnataka.
3. Examine the role of technology and innovation in Karnataka's economic growth.
4. Study key policies and government initiatives shaping Karnataka's development.
5. Explore regional disparities and challenges within Karnataka's economy.

Course Outcomes:

1. Describe the evolution and key features of Karnataka's economy.
2. Assess the performance of agriculture, industry, and service sectors in Karnataka.
3. Evaluate the impact of IT and innovation hubs on economic development.
4. Analyse the effectiveness of economic policies and schemes in Karnataka.
5. Identify regional inequalities and propose solutions for balanced growth.

MODULES	DESCRIPTION	45 Hours
Module I	**Karnataka Economy – An overview, Structure and Resources**	**15**
	Characteristics and Features of Karnataka's economy; Sectoral Composition: Trends in State Domestic Product (SDP) and Per Capita Income; Regional Imbalances: Causes, policy responses, Dr. Nanjundappa Committee Report, and Article 371J; Human Resource Development: Demographics, health indicators, Human Development Index (HDI), poverty and unemployment; Natural Resources: Importance, types, and the Karnataka Environmental Policy.	
Practicum	Visit a local reservoir and submit a report on its contribution to irrigation and agricultural GSDP in the district, comparing its output to state averages. Conduct a field visit to a mining area and prepare a note analysing the trade-off between its economic benefits and environmental costs.	

	Compare the economic and ecological significance of a protected forest area with an adjacent mining or agricultural zone through a field visit and submit a report.	
Module II	**Agriculture, Industry, and Rural Development**	**15**
	Agriculture: Land reforms, cropping patterns, irrigation (major projects and watershed development), farmer distress and solutions; Rural Development: Public Distribution System (PDS), rural development programs, and government schemes for rural women; Industrial Sector: Major industries, MSMEs, IT sector, industrial finance, Karnataka Industrial Policy**.**	
Practicum	Visit a local MSME or a large industrial unit and submit a report analyzing its supply chain, employment generation, and alignment with the Karnataka Industrial Policy. Conduct a field visit to a local agro-processing MSME and analyze its integration with regional farmers, evaluating the impact of Karnataka's industrial policy on rural income stability. Analyze district-level data to determine if the Nanjundappa Committee's recommendations reduced socio-economic disparities between Karnataka's backward and developed regions.	
Module III	**Infrastructure, Public Finance and Human Development in Karnataka**	**15**
	Economic Infrastructure: Road, rail, air, and inland water transport; ICT and digital connectivity; Social Infrastructure: Health, education, housing, drinking water, sanitation, and rural electrification; State Finance: Revenue sources (direct and indirect taxes), Impact of GST, state expenditure, role of the State Finance Commission, and overview of the latest Karnataka State Budget; Human Development Trends in Karnataka	
Practicum	Map the correlation between state budget allocations for infrastructure and the Gross District Domestic Product (GDDP) growth. Conduct a group discussion to analyze the current State Budget's prioritization of social infrastructure versus economic infrastructure and debate its implications for Karnataka's Human Development Index (HDI). Evaluate the impact of GST on Karnataka's own tax revenue by comparing pre-GST and post-GST trends in state revenue collections and preparing a brief on fiscal autonomy.	

References	
1	Adul Aziz, & Vasanti, K. G. (Eds.). (1998) *Karnataka economy*.

	Economic Survey of Karnataka [Various issues]. Planning Department, Government of Karnataka. *Karnataka at a glance* (Various Years). Government of Karnataka. [Annual publication]. Government of Karnataka. (Various Years). *District development reports*. Government of Karnataka. (Various Years). *Karnataka Human Development Reports*. Hanumantha Rao, C. H. (2001). *Regional disparities and development in Karnataka*. Publisher. Madaiah, M., & Ramapriya. (2000). *Karnataka economy: Growth, issues, and development*. Himalaya Publishing House. Nanjundappa, D. M. (2002). *Some aspects of Karnataka economy*. Publisher. Puttaswamiah, K. (1980). *Economic Development of Karnataka* (In Continuity and Change(Vols. I1–2).

MA–ECONOMICS
Ist SEMESTER

Program Name	**MA in Economics**		**Semester**	**First Semester**
Course Title	**Foundation to Data Visualisation using Excel**			
Course Code:	**ECO-SBSC-1.7.2**		**No. of Credits**	**3**
Contact hours	**45 Hours**		**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks		**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. Understand the basics of Excel interface and data organization for visualization.
2. Learn to create and customize various chart types to represent data effectively.
3. Develop skills to use Excel tools like Pivot Tables and Conditional Formatting for insights.
4. Explore techniques to design interactive dashboards in Excel.
5. Apply best practices in data visualization to communicate findings clearly.

Course Outcomes:

1. Navigate Excel's interface and organize data suitable for visualization.
2. Create and format charts such as bar, line, pie, and scatter plots.
3. Use Pivot Tables and Conditional Formatting to highlight key data trends.
4. Design interactive Excel dashboards combining multiple visualization elements.
5. Interpret and present data visually to support decision-making processes.

MODULES	**DESCRIPTION**	**45 Hours**
Module I	**Data Visualization using Excel**	**15**
	An overview of Microsoft Excel and its importance in data analysis and visualization; Understanding the Excel interface, navigating spreadsheets, and working with cells; Entering data, formatting cells, and applying styles for better visualization.	
Practicum	• Open and explore a dataset (e.g., sales data, student records, or small business inventory), • Navigate between sheets, use freeze panes, and name cell ranges, • Format cells for improved clarity: number formats, alignment, font, borders, • Create a visually organized table with styles and conditional formatting (e.g., highlight top 5 sales). • Submit an Excel workbook demonstrating clean and styled data tables.	
Module II	**Data Entry, Formatting, and Basic Calculations**	**15**

	Entering and editing different types of data (text, numbers, dates); Formatting cells for clarity and presentation (fonts, borders, number styles); Applying cell styles and themes; Using basic formulas and functions: `SUM`, `AVERAGE`, `MIN`, `MAX`, `COUNT`; Understanding relative and absolute references; Using AutoFill and formula shortcuts.	
Practicum	• Manually enter or import a dataset (e.g., expenses or student marks). Apply number formatting (currency, percentage, decimals) and date formats. • Use formulas: SUM (), AVERAGE (), MIN (), MAX (), COUNT (). Apply absolute and relative referencing in formulas, • Use AutoFill to calculate totals and summaries, and submit a spreadsheet with formatted data and calculated fields.	
Module III	**Visualising Data with Charts and Graphs**	**15**
	Creating charts: bar, column, line, pie; Choosing the right chart for the right data; Customizing charts with titles, labels, legends, and colors; Reading trends and drawing insights from visual data.	
Practicum	• Create at least four chart types (e.g., column, pie, line, and bar) from a dataset, Customize chart elements: chart title, axis labels, data labels, and colors, • Use Excel's "Recommended Charts" to compare visual effectiveness, create a combination chart to show dual data trends (e.g., revenue vs. profit). • Submit a dashboard sheet containing well-labeled and readable visualizations. **Group Discussion** • What Excel features did your group find most useful? • What challenges did you face when organizing your data? • How did collaboration help in building the Excel file? • How could this activity be applied in a real workplace setting?	

References	
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MA–ECONOMICS
Ist SEMESTER

Program Name	**MA in Economics**	**Semester**	**First Semester**
Course Title	**Game Theory and Information**		
Course Code:	**ECO-SBSC-1.7.3**	**No. of Credits**	**3**
Contact hours	**45 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. Understand fundamental concepts and classifications of games in game theory.
2. Analyze strategic interactions in static and dynamic games with complete and incomplete information.
3. Explore solution concepts, including Nash equilibrium, subgame perfect equilibrium, and Bayesian equilibrium.
4. Examine the role of information asymmetry in economic and social settings.
5. Apply game theory models to real-world problems in economics, business, and policy-making.

Course Outcomes:

1. Identify and classify different types of games and strategic interactions.
2. Compute Nash equilibria and other equilibrium concepts for various game structures.
3. Analyse dynamic games and derive subgame perfect equilibria.
4. Evaluate the impact of asymmetric information using signalling and screening models.
5. Apply game theory principles to design strategies in economic and informational environments.

MODULES	DESCRIPTION	45 Hours
Module I	**Strategic Interaction and Nash Equilibrium**	**15**
	Strategic-form games. (a) Dominance (b) Nash equilibrium (c) Existence: (i) convex strategy sets (ii) mixed extension; computation (d) Two-player zero-sum games (e) Correlated rationalizability and iterated elimination of dominated strategies (f) Correlated equilibrium; Nash Equilibrium and Existence Properties: Set-valued functions, continuity, Brouwer's and Kakutani's fixed point theorems. Games with player or strategy symmetries; Market Equilibrium and Pricing: Cournot and Bertrand Game.	
Practicum	• Use spreadsheets or software tools to simulate quantity (Cournot) and price (Bertrand) competition between two firms	

	• Analyse the impact of cost functions and market demand on equilibrium and present a Graphical presentation of outcomes and discussion. **Mini Case Study**: • *"Restaurant Location Game"*: Two vendors choosing where to set up on a beach. Represent the game, analyse strategies, and identify equilibrium and submit a report.	
Module II	**Dynamic Games, Imperfect Information and Sequential Equilibrium**	**15**
	Extensive Form Game with Perfect Information: Theory, Stackelberg Model of Duopoly, Buying Votes, Committee Decision-Making; Repeated games: The Prisoner's Dilemma & General Result; Imperfect and Incomplete Information: Bayesian games and Bayes-Nash Equilibrium, Cournot with incomplete information and Mixed vs. behavioural strategies, Kuhn's Theorem Sequential Equilibrium and Signaling: Perfect Bayesian Equilibrium, Sequential Equilibrium & Signaling games and applications.	
Practicum	• Construct game trees for scenarios such as voting, duopoly, and strategic negotiation using Manual drawing or software and submit a report **Group Discussion** • Discuss the strategic advantage of the leader. • Reflect on how perfect information influences outcomes.	
Module III	**Mechanism Design, Bargaining, and Applications**	**15**
	Mechanism Design Basics: Revelation principle, Moral hazard and incentive compatibility & Optimal mechanisms and revenue equivalence; Auction Theory: First-price, second-price, VCG auctions, Asymmetric and risk-averse bidders & Spectrum auctions, network resource allocation. Bargaining and Collective Decision-Making: Nash bargaining solution, Rubinstein alternating offers & Application to trade, voting, and wireless networks	
Practicum	• Students simulate alternating offer bargaining scenarios. • Evaluate the effect of discount factors on negotiated outcomes. And submit an Assignment Report **Class Discussion**: • Discuss how bargaining affects trade negotiations and network cooperation.	

References

1	**Text book** A Course in Game Theory by Martin J. Osborne and Ariel Rubinstein. Game Theory by Michael Maschler, Eilon Solan, and Shmuel Zamir. Game Theory for Applied Economists by Robert Gibbons. Osborne – Rubinstein: A Course in Game Theory (MIT Press 1994) Roger B. Myerson: Game Theory – Analysis of Conflict (Harvard University Press 1991) Efe A. Ok: Real Analysis with Economic Applications (Princeton University Press 2007)
2	**References** (IGT) Martin Osborne, An Introduction to Game Theory, Oxford University Press, 2003 AT) Vijay Krishna, Auction Theory, Academic Press. (SG) PrajitDutta, Strategies and Games, MIT Press (Website 1) http://www.ece.stevens-tech.edu/~ccomanic/ee800c.html (GTWE) Allan MacKenzie, Game Theory for Wireless Engineers, Synthesis lectures on Communications, 2006 (IITD Website) (HV) Hal Varian, Microeconomic Analysis, Norton 8. (Gandhi) Gandhi et.al.,Towards Real-Time Dynamic Spectrum Auctions by Gandhi

BANGALORE CITY UNIVERSITY, BENGALURU

MA

Economics

2nd Semester

Academic Year 2025-26 onwards

MA–ECONOMICS
IInd SEMESTER

Program Name	**MA in Economics**	**Semester**	**Second Semester**
Course Title	**Advanced Microeconomics II**		
Course Code:	**ECO-DSC-2.1**	**No. of Credits**	**4**
Contact hours	**60 Hours**	**Duration of SEA/Exam**	**3 Hrs.**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives

1. To understand the theoretical foundations of welfare economics and social choice.
2. To examine general equilibrium models and their role in efficient resource allocation.
3. To study consumer and investor behaviour under risk and uncertainty.
4. To explore the role of information and its asymmetries in market functioning.
5. To apply advanced microeconomic theories to real-world policy and market issues.

Course Outcomes

After completing the course, students will be able to:

1. Explain welfare economics concepts and evaluate efficiency–equity trade-offs.
2. Apply general equilibrium analysis to study prices and resource allocation.
3. Analyse decision-making under risk and uncertainty.
4. Assess the effects of asymmetric information, signalling, and moral hazard.
   Interpret auction models and their applications in practical markets

MODULES	**DESCRIPTION**	**60 Hours**
Module I	**General Equilibrium**	**15**
	Walrasian general equilibrium – Determination of relative prices and resource allocation - Walras' Law; Properties of equilibrium: Efficiency and stability conditions - Pareto optimality in a pure exchange economy; Edgeworth box analysis - Breakdown of efficiency allocation conditions: Externalities, public goods, and the theory of second best - Stability concepts: Walrasian, Marshallian, and Hicksian stability - Non-Walrasian general equilibrium: Role of rationing, disequilibrium dynamics, and Keynesian unemployment.	
Practicum	• Using an **Edgeworth Box** with two consumers and two goods, assign initial endowments and utility functions (e.g., Cobb-Douglas). • Derive the **contract curve** and identify Pareto efficient allocations.	

	• Show how Walras' Law holds by proving that if all but one market clears, the last market also clears. • Interpret the equilibrium allocation – who gains, who loses, compared to the initial endowment?	
Module II	**Welfare Economics**	**15**
	Nature and scope of welfare economics - Measurement of individual welfare: Consumer surplus, compensating and equivalent variation, Hicks-Kaldor criterion - Contingent valuation method for welfare measurement; applications in environmental and health economics - Measurement of social welfare: Concepts of Pareto optimality and equity trade-offs - Arrow's Impossibility Theorem and its critiques - Social welfare functions: Samuelson-Bergson, Utilitarian/Benthamite, Rawlsian, and Sen's capability approach - Functional forms and properties of social welfare functions; trade-offs between efficiency and equity.	
Practicum	• Given two investment options with different probability distributions of returns, compute expected return, variance, and standard deviation. • Compare which option is riskier and discuss how a risk-averse, risk-neutral, and risk-loving individual would choose between them. • Illustrate graphically how risk premium is determined for a risk-averse consumer. • Write a short reflection: In real life, do people always behave according to expected utility? How does Prospect Theory provide a better explanation?	
Module III	**Risk and Uncertainty**	**15**
	Concept and distinction between risk and uncertainty - Measurement of risk: Probability distributions, variance, and standard deviation - Consumer behaviour under uncertainty: Expected utility theory and alternative models (prospect theory, rank-dependent utility) - Risk behaviour of consumers: Risk aversion, risk premium, preference, and neutrality - Neumann- Morgenstern theory of expected utility maximization and its limitations - Investment behaviour under uncertainty: Expected net present value criterion, role of discount rate - Portfolio selection and diversification – Markowitz model (introductory treatment) - Insurance markets under risk and uncertainty.	
Practicum	• Measuring Risk: Calculate expected value, variance, and standard deviation of alternative investments; compare choices for risk-averse, risk-neutral, and risk-loving individuals. • Consumer & Investor Behaviour: Apply expected utility, certainty equivalent, and risk premium to lotteries; analyse investment projects using expected net present value under different discount rates. • Portfolio & Insurance Decisions: Use Markowitz model to show diversification benefits; evaluate insurance purchase decisions under risk and discuss issues of moral hazard and adverse selection.	

Module IV	Economics of Information	15
	Information structures: Perfect, imperfect, and asymmetric information in microeconomic models - Theory of asymmetric quality information and adverse selection: Akerlof's Market for Lemons - Role of signalling (Spence) and screening mechanisms in markets – Asymmetric information and moral hazard: Applications in insurance, labour, and credit markets - Principal-agent problem and incentive compatibility - Auction theory: Types of auctions (English, Dutch, sealed-bid, Vickrey) – revenue equivalence theorem and strategy-proof auctions - Applications of information economics in financial and labour markets.	
Practicum	• Asymmetric Information & Market Outcomes**:** Analyse Akerlof's *Market for Lemons* with a simple numerical example; demonstrate how adverse selection reduces market efficiency and explore how signalling (education) and screening (insurance deductibles) can improve outcomes. • Moral Hazard & Principal–Agent Problem**:** Model an insurance or labour contract under hidden action; show how incentive-compatible contracts can mitigate moral hazard and discuss trade-offs in risk-sharing. • Auction Theory & Market Design**:** Compare bidder strategies in English, Dutch, sealed-bid, and Vickrey auctions; verify the revenue equivalence theorem with a numerical illustration; evaluate applications in spectrum auctions or online advertising.	

Reading List	
1	❖ Boadway, Robin W. and Bruce, Neil. (1984). Welfare Economics. Basic Blackwell (London). ❖ Cornes, Richard., and Sandler, Todd. (1986). The Theory of Externalities, Public Goods, and Club Goods, Cambridge University Press (London). ❖ Deaton, Angus and John Muellbauer. (1980). Economics and Consumer Behaviour, Cambridge University Press (Cambridge). ❖ Henderson, J.M. and R. E. Quandt. (1980). Microeconomic Theory: A Mathematical Approach, McGraw-Hill (New York). ❖ Hicks, J.R. (1972). Value and Capital, Oxford University Press (Oxford). ❖ Kreps, David M. (1990). A Course in Microeconomic Theory, Princeton University Press (New Jersey). ❖ Kreps, David M. (2013). Microeconomic Foundations: Choice and Competitive Markets. Mukherjee, Anjan. (1990). Walrasian and Non-Walrasian Equilibria: An Perloff, Jeffrey M. (2001). Microeconomics. Pearson Education Asia (Delhi). Princeton University Press (New Jersey). ❖ Shone, Ronald. (1997). Economic Dynamics, Cambridge University Press (Cambridge). Starr, Ross M., (1997). ❖ General Equilibrium Theory: An Introduction, Cambridge University Press (Cambridge). ❖ Varian, Hal R. (1992). Microeconomic Analysis, 3rd edition, Norton & Company (London)

MA–ECONOMICS
IInd SEMESTER

Program Name	**MA in Economics**	**Semester**	**Second Semester**
Course Title	**Advanced Macroeconomics II**		
Course Code:	**ECO-DSC-2.2**	**No. of Credits**	**4**
Contact hours	**60 Hours**	**Duration of SEA/Exam**	**3 Hrs.**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. Develop a solid theoretical foundation in open economy macroeconomics, focusing on intertemporal trade, balance of payments, exchange rate regimes, and international capital flows.
2. Enable students to analyse the role of exchange rates, financial integration, and capital mobility in determining macroeconomic outcomes.
3. Familiarize students with key open economy models such as Mundell–Fleming, Dornbusch overshooting, and monetary/portfolio balance approaches.
4. Examine inflation, unemployment, and fiscal-monetary interactions in an open economy context.
5. Provide analytical tools to study exchange rate expectations, policy coordination, and international macroeconomic stability.
6. Apply theoretical frameworks to contemporary issues such as currency crises, optimum currency areas, and global financial shocks.

Course Outcomes

On successful completion, students will be able to:

1. Explain intertemporal budget constraints, international borrowing/lending, and the role of external wealth in open economies.
2. Analyse foreign exchange market operations, interest parity conditions, and arbitrage opportunities.
3. Apply macroeconomic models (Mundell–Fleming, Dornbusch, PPP, portfolio balance) to study open economy equilibrium.
4. Evaluate the effects of fiscal and monetary policies under different exchange rate and capital mobility regimes.
5. Examine the interaction of inflation, unemployment, and exchange rates in shaping open economy outcomes.
6. Assess causes and consequences of currency crises, the role of expectations, and international policy coordination.
7. Interpret empirical puzzles in international macro (Feldstein-Horioka, Harberger-Laursen-Metzler, Balassa–Samuelson).

8. Critically apply theoretical insights to real-world macroeconomic issues such as global crises, monetary unions, and exchange rate volatility.

MODULES	DESCRIPTION	60 Hours
Module I	**Introduction to Open Economy Macroeconomics**	**15**
	Intertemporal long run budget constraint, how much can a country borrow, external wealth, external assets and liabilities, net international investment position, financial flows and valuation effects, Feldstein Horioka Puzzle, Harberger-Laursen- Metzler effect, Foreign Exchange Market. An overview of the spot and forward markets, swaps, options and derivatives. Uncovered and Covered Interest Parity. Covered Interest Arbitrage	
Practicum	• Intertemporal Constraint & External Wealth: Compute a country's intertemporal budget constraint with given data on external assets and liabilities; evaluate the sustainability of borrowing. • Feldstein–Horioka Puzzle: Using hypothetical savings and investment data, test whether capital mobility is perfect or imperfect. • Interest Parity & Arbitrage: Calculate returns on domestic and foreign bonds under given exchange rate expectations; check conditions for covered and uncovered interest parity and identify arbitrage opportunities.	
Module II	**Models of Open Economy Macroeconomics**	**15**
	Mundell-Fleming model (with Flexible Prices). Dornbusch's exchange rate overshooting model with stability conditions. Monetary Approach to Balance of Payments. PPP and long run monetary approach, Balassa–Samuelson effect and non-tradables, Fisher effect. Portfolio and macroeconomic equilibrium in an open economy. 3 equation model for the open economy. Currency crises (first, second and third generation models). Optimum currency areas and monetary union.	I
Practicum	• **Mundell–Fleming Simulation:** Analyze the effect of monetary and fiscal policy shocks under fixed vs. flexible exchange rates with capital mobility. • **Dornbusch Overshooting Model:** Demonstrate numerically how sticky prices and rational expectations generate exchange rate overshooting. • **Currency Crises Models:** Compare first-, second-, and third-generation models of currency crises using case studies (e.g., Mexico 1994, Asian crisis 1997, Eurozone crisis).	
Module III	Stabilization, Inflation, and Unemployment in Open Economies	**15**
	Inflation and Unemployment in the open economy, Equilibrium Rates of Unemployment and Sustainable Unemployment, Fiscal Expansion, Exchange	

	Rate and inflation , Supply Side and Demand side in the Open Economy, Open Economy Equilibria	
Practicum	• Phillips Curve in Open Economy: Illustrate the trade-off between unemployment and inflation under fiscal expansion with different exchange rate regimes. • Sustainable Unemployment: Using a small open economy model, compute equilibrium unemployment consistent with macro balance. • Policy Experiment: Analyse how a supply shock vs. a demand shock affects inflation and unemployment under flexible exchange rates.	
Module IV	**Advanced Topics in Open Economy Macroeconomics**	**15**
	Floating Exchange Rates with Zero Capital Mobility, Floating Exchange Rates and Perfect Capital Mobility: Exchange Rate Expectations, Rational Exchange Rate Expectations; Dornbusch's Overshooting Model, Policy Interdependence and The World Equilibrium Rate of Unemployment	
Practicum	• Floating Exchange Rate Dynamics: Compare macroeconomic adjustment under zero capital mobility vs. perfect capital mobility with diagrams. • Dornbusch Overshooting Revisited: Build a simple numerical simulation showing rational expectations and overshooting when policy changes interest rates. • Policy Interdependence: Examine how fiscal expansion in one large economy (e.g., U.S.) affects world equilibrium unemployment and inflation through international spillovers	

Reading List

• Carlin, W., & Soskice, D. (2015). *Macroeconomics: Institutions, instability and the financial system.* Oxford University Press.

• Carlin, W., & Soskice, D. (1996). *Macroeconomics and the wage bargain.* Oxford University Press.

• Feenstra, R. C., & Taylor, A. M. (2014). *International economics.* Worth Publishers.

• Gandolfo, G. (2016). *International finance and open economy macroeconomics.* Springer.

• Krugman, P. R., Obstfeld, M., & Melitz, M. J. (2018). *International economics: Theory and policy* (11th ed.). Pearson Education.

• Mankiw, N. G. (2000). *Macroeconomics* (4th ed.). Macmillan/Worth.

- Obstfeld, M., & Rogoff, K. (1996). *Foundations of international macroeconomics.* MIT Press.

- Sorensen, P. B., & Whitta-Jacobsen, H. J. (2010). *Introducing advanced macroeconomics: Growth and business cycles.* McGraw-Hill Education.

- Turnovsky, S. J. (1997). *International macroeconomic dynamics.* MIT Press.

- Wickens, M. (2012). *Macroeconomic theory.* Princeton University Press.

MA–ECONOMICS
IInd SEMESTER

Program Name	**MA in Economics**	**Semester**	**Second Semester**
Course Title	**Statistical Methods for Economists**		
Course Code:	**ECO-DSC-1.4**	**No. of Credits**	**4**
Contact hours	**60 Hours**	**Duration of SEA/Exam**	**3 Hrs.**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. To introduce students to the fundamentals of statistical methods
2. To develop data collection and presentation skills
3. To equip students with tools for hypothesis testing and estimation
4. To enable students to analyze relationships between economic variables
5. To provide insights into time series analysis and index numbers
6. To develop critical thinking in statistical analysis

Course Outcomes

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

- **Understand Types of Data and Descriptive Statistics**:
  - Classify different types of data (nominal, ordinal, ratio-scale, etc.) and apply appropriate methods to analyze and present them.
  - Calculate and interpret measures of central tendency (mean, median, mode) and measures of dispersion (range, variance, standard deviation, coefficient of variation).
- **Apply Probability and Distribution Theory**:
  - Understand the concepts of probability and apply probability distribution functions (Normal, t, Chi-Square, and F-distributions) to real-world economic problems.
  - Estimate probabilities and apply these estimates in economic decision-making and forecasting.
- **Estimate Parameters and Conduct Hypothesis Testing**:
  - Understand the concept of an estimator and perform point and interval estimation.
  - Conduct hypothesis testing, formulate null and alternative hypotheses, calculate test statistics, and interpret p-values using various approaches (confidence interval, significance testing, etc.).
  - Understand and identify Type I and Type II errors, and use parametric and non-parametric tests effectively.
- **Analyze Relationships Using Correlation and Regression**:
  - Use correlation analysis (Pearson's and Spearman's) to measure the strength and direction of relationships between economic variables.

- ❖ Apply regression techniques (simple and multiple) to estimate relationships and predict future values based on historical data.
- ❖ Use the least squares method for fitting regression models and assess model goodness of fit.

- **Apply Time Series Analysis for Forecasting**:
  - ❖ Decompose time series data into trend, seasonal, and irregular components.
  - ❖ Use methods like moving averages, exponential smoothing, and least squares to estimate trends and make forecasts.
  - ❖ Assess forecast accuracy using error metrics such as Root Mean Square Error (RMSE).
- **Work with Index Numbers for Economic Analysis**:
  - ❖ Understand the purpose and construction of index numbers, including price and quantity indices.
  - ❖ Use different index number methods (Laspeyres, Paasche, Fisher) and perform tests like time reversal and factor reversal.
  - ❖ Apply index numbers in real-world scenarios such as inflation analysis, cost-of-living adjustments, and economic growth.

MODULES	DESCRIPTION	60 Hours
Module I	**Introduction to Statistics**	**15**
	Types of Data - Nominal, Ordinal & Ratio-Scale Data, Qualitative and Quantitative Data, Individual, Discrete and Continuous Data - Cross Section, Time Series and Pooled Data - Sources of Data - Population and Samples - Descriptive Statistics and Inferential Statistics. **Measures of Average and Dispersion** **Measurement of Average -** Arithmetic Mean, Weighted Arithmetic Mean, Geometric Mean, Harmonic Mean, Median, Quartile, Percentiles, and Mode **Measures of Variability** - Range, Inter-quartile Range, Quartile Deviation, Percentiles Deviation - Mean Deviation, Standard Deviation, and Coefficient Variation. **Probability and Distribution** **Probability Theory -** Concepts and Approaches to Estimate Probability - Probability Distribution Functions - Theoretical Distribution: Normal, t, Chi-Square & F Distribution.	
Practicum	• Calculate and interpret various measures of dispersion: standard deviation, coefficient of variation, interquartile range using example problems • Use SPSS software and simulate and visualize probability distributions: Normal, t, Chi-Square, and F distributions and submit a report • Group Discuss on which measures are best suited for different data types and distributions.	
Module II	**Theory of Estimation and Hypothesis Testing**	**15**
	Concept of Estimator - Sampling Distribution of Estimator - Point and Interval Estimation - Properties of Good Estimator for Small and Large Samples **Hypothesis Testing:** Approaches to Hypothesis Testing - Confidence Interval Approach -Test of Significance Approach and P-Value Approach- Formulation of Hypothesis - Null and Alternative - Level of Significance - One Sided and Two	

	Sided Hypothesis - Type-I and Type-II Error - Test Statistic- Critical Value - Parametric and Non-Parametric Tests.	
Practicum	• Estimate population parameters, such as the mean or proportion, from sample data by applying both point estimation and interval estimation methods using by any given dataset. • Construct confidence intervals for mean and proportion (small and large samples). • Formulate and test hypotheses (one-sided and two-sided) using t-tests, z-tests, and p-value approach. **Case Study Discussion** • Discuss when to choose parametric or non-parametric methods in real research.	
Module III	**Correlation and Regression**	**15**
	Correlation: Meaning and Types of Correlation - Measurement of Correlation - Scatter Diagram - Karl Pearson's Coefficient of Correlation - Spearman's Rank Correlation - Testing of Correlation Coefficients. **Regression**: Simple Regression Model - Estimation - Least Squares Method - Goodness of Fit - Introduction to Multiple Regression	
Practicum	• Calculate and interpret R^2 and goodness of fit statistics for exemplary problem given • Briefly explore multiple regression using a small dataset with 2-3 predictors for any macro-economic variables. **Correlation Calculation** • Compute Pearson's correlation coefficient for sample datasets.	
Module IV	**Time Series Analysis and Index Numbers**	**15**
	Time Series: Nature and Decomposition of Time Series - Analysis of Trend - Polynomial Trend - Moving Average Method, Exponential Smoothening, Least-Square Method, Seasonal Component - Forecasts and their Accuracy - Root Mean Square Error. **Index Numbers:** Nature and Purpose of Index Numbers - Types of Index Numbers: Price Index - Retail Price Index - Quantity Index, Link and Chain Index - Simple and Aggregate Index Numbers: Laspeyre's Index, Paasche's Index, Marshall and Edgeworth's Index - Fisher's Index - Time Reversal and Factor Reversal Tests - Deflation and Splicing of Index Numbers - Problems of Construction of Index Numbers - Limitation of Index Numbers.	
Practicum	• Decompose a time series (e.g., inflation, stock prices) into trend, seasonal, and irregular components. • Forecast future values using moving averages and exponential smoothing methods. • Calculate and evaluate forecast accuracy using RMSE. • Analyze practical issues and limitations in index number construction and submit a report	

Reading List	
1.	**References:** [Please refer to the Latest Editions] Anderson, Sweeney & Williams, (2015) *Statistics for Business & Economics,* Thomson South-Western, Bangalore. Gupta S P. (2012) *Statistical Methods,* S. Chand and Company, New Delhi. Veerachami R. (2002) *Quantitative Methods for Economists,* New Age International Publication, New Delhi. Yamane Toro, (1964) *Statistics - An Introductory Analysis,* Harper and Row Publishers, New York. Damodar N. Gujarati (2015). *Basic Econometrics*, McGraw-Hill Education. Wonnacott, T.H., & Wonnacott, R.J. (1990). *Introductory Statistics for Business and Economics*, Wiley. Narloch, S.H. (2009). *Elementary Statistics for Economics*, Oxford University Press.

MA–ECONOMICS
IInd SEMESTER

Program Name	**MA in Economics**	**Semester**	**Second Semester**
Course Title	**Research Methodology in Economics**		
Course Code:	**ECO-DSC -2.4**	**No. of Credits**	**4**
Contact hours	**60 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. Introduce fundamental concepts and approaches in economic research methodology.
2. Develop students' ability to formulate research problems and hypotheses.
3. Teach qualitative and quantitative research methods relevant to economics.
4. Train students in data collection, analysis, and interpretation techniques.
5. Guide students in preparing research proposals, reports, and academic papers.

Course Outcomes:

What students will be able to do after completing the course

1. Understand the philosophical and methodological foundations of economic research.
2. Identify and define research problems, objectives, and hypotheses.
3. Apply appropriate research methods (qualitative or quantitative) to economic issues.
4. Analyze and interpret data using statistical or econometric tools.
5. Design and present a structured research proposal or paper in economics.

MODULES	DESCRIPTION	60 Hours
Module I	**Foundations of Economic Research**	**15**
	Meaning, Nature and Scope of Economic Research; Types of Research: Descriptive vs Analytical, Applied vs Fundamental, Qualitative vs Quantitative, Conceptual vs Empirical Research Methods vs Methodology; Criteria of Good Research; Problems Faced by Researchers in India; Ethical Considerations and Scientific Integrity in Economic Research.	
Practicum	• Prepare a comparative chart of different research types with real-world economic examples. • Conduct a short survey/interview on an economic topic and reflect on ethical considerations encountered. **Group Discussion** • Discuss the relevance of different research types in current economic issues.	
Module II	**Research Problem, Design and Data Processing**	**15**

	Identifying and Formulating the Research Problem; Importance of Literature Review – Primary & Secondary Sources; Identifying Research Gap & Developing Hypothesis; Research Design: Features, Types (Descriptive, Diagnostic, Experimental, Exploratory); Sampling Techniques: Random, Stratified, Cluster Sampling – Sample Size Estimation; Methods of Data Collection – Primary (Observation, Interview, Questionnaire, Schedule) & Secondary; Data Processing: Cleaning, Coding, and Survey Errors.	
Practicum	• Formulate a research question based on a socio-economic issue. • Design a sample questionnaire using appropriate measurement scales. • Conduct a pilot survey (minimum 10 respondents) and report sampling strategy and issues faced.	
Module III	**Data Analysis, Interpretation and Report Writing**	**15**
	Descriptive Statistics: Mean, Median, Mode, SD, Variance, Skewness, Kurtosis; Correlation & Regression Analysis (Simple & Multiple); Hypothesis Testing – Concepts, Process and Application in Economics; Generalization and Interpretation of Results.	
Practicum	• Use a statistical software (Excel/SPSS/R) to analyze a small economic dataset (can be from pilot survey). • Write a short (4–6 pages) economic research report including interpretation, tables, and references.	
Module IV	**Reporting and Ethics in Economic Research**	**15**
	Structure of a research report: title, abstract, introduction, methodology, results, discussion, conclusion, references; Writing style, use of tables, charts, and illustrations; Referencing and citation (APA, MLA, Chicago styles); Ethics in research: plagiarism, data privacy, scientific integrity; Presentation and defense of research findings.	
Practicum	• Prepare a comprehensive research report analysing the collected data. • Apply proper referencing and citation techniques within the report. • Present and defend the research findings during a seminar or group discussion.	

References	
1	**References** Research Methodology: Methods and Techniques – C.R. Kothari & Gaurav Garg Basic Econometrics – D.N. Gujarati & Dawn C. Porter Business Research Methods – William G. Zikmund et al. Doing Economics: A Guide to Understanding and Carrying Out Economic Research – Steven A. Greenlaw Research Design: Qualitative, Quantitative, and Mixed Methods Approaches – John Creswell

MA–ECONOMICS
IInd SEMESTER

Program Name	**MA in Economics**	**Semester**	**Second Semester**
Course Title	**Indian Economy: Growth, Policy, and Contemporary Issues**		
Course Code:	**ECO-DSC-2.5**	**No. of Credits**	**4**
Contact hours	**60 Hours**	**Duration of SEA/Exam**	**3 Hrs.**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. To provide a comprehensive understanding of India's growth experience, structural transformation, and development challenges.
2. To analyse the evolution of economic reforms, fiscal and monetary policy, and the role of governance institutions in shaping outcomes.
3. To evaluate sectoral performance—agriculture, industry, and services—along with contemporary policy initiatives.
4. To critically assess India's financial sector, external trade, and global integration in the context of recent reforms and crises.
5. To equip students with applied skills in data analysis, policy evaluation, and problem-solving in the context of the Indian economy.

Course Outcome:

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

1. Explain the structural transformation of the Indian economy since independence.
2. Evaluate fiscal, monetary, and governance policies and their role in promoting sustainable development.
3. Analyse sectoral issues in agriculture, industry, and services and assess the impact of policy reforms like PLI, GST, NEP 2020, and Digital India.
4. Critically examine financial sector reforms, trade policies, and India's integration into the global economy.
5. Apply empirical tools and case studies to understand poverty, inequality, demographic shifts, and policy effectiveness.
6. Develop the ability to connect theoretical frameworks with current economic policy debates.

MODULES	**DESCRIPTION**	**60 Hours**
Module I	**Development, Structural Change, and Governance**	**15**

	Concepts of development: role of state, market, and institutions. Planned economic development and strategies since independence, post-reform growth and transformation. Structural change and sectoral transformation in the Indian economy. Poverty, inequality, and human development: measurement, trends, and policies. Sustainable Development Goals (SDGs) and India's progress. Governance and institutions: Panchayati Raj Institutions (PRIs), NGOs, civil society, and digital governance initiatives (e-Governance, Digital India, JAM trinity). Role of NITI Aayog in policy design and cooperative federalism.	
Practicum	**Data Analysis:** Using NSSO/PLFS data, prepare a trend report on poverty and inequality in India (post-reform period). **Case Study:** Examine India's progress on SDGs, focusing on SDG-1 (No Poverty) and SDG-8 (Decent Work and Growth). **Fieldwork/Report:** Evaluate the functioning of a Panchayati Raj Institution (PRI) or NGO in delivering development services. **Policy Review:** Prepare a brief on the role of **NITI Aayog** in shaping cooperative federalism and development strategies.	
Module II	**Fiscal Policy, Public Finance, and Demography**	**15**
	Indian public finance: revenue, expenditure, deficits, and debt trends, Fiscal reforms: Goods and Services Tax (GST) and GST Council functioning; FRBM Act and fiscal consolidation, Tax reforms, Direct Benefit Transfers (DBT), and subsidy rationalisation. Centre–state fiscal relations and issues in fiscal federalism. Demographic trends: population growth, migration, and demographic dividend. Social sector issues: health, education, nutrition, and social protection.	
Practicum	• Budget Analysis: Examine the latest Union Budget for revenue, expenditure, and fiscal deficit trends. • Policy Evaluation: Assess the impact of GST implementation on state finances (choose one state as a case study). • Demographic Study: Use Census/NFHS data to analyse demographic dividend opportunities and challenges in India. • Social Sector Evaluation: Prepare a policy note on Ayushman Bharat or NEP 2020, assessing effectiveness in meeting social sector goals.	
Module III	Agriculture, Industry, and Services	**15**

	Agriculture: land reforms, subsidies, agricultural finance, minimum support prices (MSP), food security, and WTO commitments. Recent developments: digital agriculture platforms, Agri-tech start-ups, e-NAM, PM-KISAN, and farmer welfare programmes. Industry: industrial growth and diversification since 1991; role of PSUs, privatisation and disinvestment. Industrial policy reforms: Make in India, Atmanirbhar Bharat, Production-Linked Incentive (PLI) schemes, and start-up ecosystems and their performance in employment and exports. Services sector: IT, digital economy, financial services, tourism, education, and healthcare. Infrastructure development:	
Practicum	• Agriculture Survey: Evaluate the performance of PM-KISAN or MSP policy in improving farm incomes. • Industry Case Study: Assess the role of PLI schemes in boosting India's manufacturing competitiveness. • Services Sector Report: Analyse the contribution of IT and digital services to India's GDP and employment in the past decade. • Infrastructure Project Review: Study the impact of the National Infrastructure Pipeline (NIP) or a major PPP project on regional development.	
Module IV	Finance, External Sector, and Global Integration	**15**
	Financial sector reforms: banking, NBFCs, capital markets, and role of fintech and digital financial inclusion (Jan Dhan–Aadhaar–Mobile, UPI, digital payments, CBDC). Monetary policy: inflation targeting framework, RBI autonomy, and monetary–fiscal coordination. Trade and investment: structure and direction of foreign trade, FDI and FPI trends, recent FDI policy changes. Exchange rate policy, balance of payments, and capital account convertibility. India's engagement with WTO negotiations, FTAs, and trade agreements. Global financial crises: 2008 and COVID-19 economic disruption; policy responses and recovery strategies.	
Practicum	• Financial Inclusion Study: Analyse the role of UPI, Jan Dhan–Aadhaar–Mobile (JAM), and CBDC in promoting digital finance. • Trade Policy Analysis: Evaluate the impact of India's FDI reforms on inflows in sectors like telecom, defence, or retail. • Global Crisis Case Study: Compare India's macroeconomic response to the 2008 Global Financial Crisis and the 2020 COVID-19 crisis. • Exchange Rate Analysis: Using RBI data, prepare a report on rupee volatility, foreign exchange reserves, and exchange rate management in the last 5 years.	

References Books	
	Agarwal, A. N. (2020). Indian economy: Problems of development and planning (22nd ed.). New Delhi: Wiley Eastern. Ahluwalia, I. J., & Little, I. M. D. (Eds.). (1999). *India's economic reforms and development: Essays in honour of Manmohan Singh*. New Delhi: Oxford University Press. Appu, P. S. (1996). *Land reforms in India*. New Delhi: Vikas Publishing. Bardhan, P. K. (1999). *The political economy of development in India* (9th ed.). New Delhi: Oxford University Press. Bhargava, P. K. (1991). *India's fiscal crisis*. New Delhi: Ashish Publishing House Brahmananda, P. R., & Panchmukhi, V. R. (Eds.). (2001). *Development experience in Indian economy: Interstate perspectives*. New Delhi: Bookwell. Byres, T. J. (Ed.). (1998). *The Indian economy: Major debates since independence*. New Delhi: Oxford University Press. Chelliah, R. J. (1996). *Towards sustainable growth: Essays in fiscal and financial sector reforms in India*. New Delhi: Oxford University Press. Dutt, R., & Sundaram, K. P. M. (2021). *Indian Economy* (75th Anniversary Edition). S. Chand & Company. Economic Survey. (latest issues). Government of India. Ministry of Finance. https://www.indiabudget.gov.in/economicsurvey Joshi, V., & Little, I. M. D. (1999). *India: Macroeconomics and political economy, 1964–1991*. New Delhi: Oxford University Press. Ministry of Agriculture & Farmers Welfare. (2024). Reports and publications. New Delhi: Government of India. Retrieved from https://agricoop.gov.in NITI Aayog. (2024). *India's development agenda and policy reports*. Government of India. Retrieved from https://niti.gov.in Reserve Bank of India (RBI). (2024). Database on Indian economy. Mumbai: RBI. Retrieved from https://www.rbi.org.in/Scripts/Statistics.aspx Reserve Bank of India (RBI). (2024). Database on Indian economy. Mumbai: RBI. Retrieved from https://www.rbi.org.in/Scripts/Statistics.aspx World Bank. (2024). World development indicators – India. Washington, DC: World Bank. Retrieved from https://databank.worldbank.org/source/world-development-indicators

MA–ECONOMICS
IInd SEMESTER

Program Name	**MA in Economics**	**Semester**	**Second Semester**
Course Title	**Economics and Stock Market Operations**		
Course Code:	**ECO-SBSC-2.6.1**	**No. of Credits**	**3**
Contact hours	**45 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives

- Understand the structure and operations of stock markets.
- Analyse instruments, valuation, and portfolio implications.
- Study trading systems, intermediaries, and settlement processes.
- Examine efficiency, regulation, and behavioural aspects.
- Equip students with practical exposure to market operations.

Course Outcomes

After completion of the course, students will be able to:

- Explain how stock markets function within economic systems.
- Analyse and value different market instruments.
- Apply trading and settlement mechanisms in practice.
- Evaluate market efficiency, regulation, and investor behaviour.
- Demonstrate applied skills in simulated market operations.

MODULES	DESCRIPTION	45 Hours
Module I	**Stock Markets and the Economic System**	**15**
	Structure, functions, and classification of capital markets - Role of stock markets in mobilizing savings and channeling investments - Primary vs. secondary markets: instruments, linkages, IPO process - Growth of FIIs and DIIs; evolution of Indian stock exchanges (BSE, NSE, MCX, OTC) - Technological transformation of stock trading and settlement - Economic significance of stock markets in development.	
Practicum	• **IPO Analysis** – Examine pricing, objectives, and post-listing performance. • **Equity Valuation** – Apply Gordon and DDM models using live market data and submit a report	
Module II	**Market Instruments, Valuation, and Trading**	**15**
	Equity shares: features, risks, and valuation models (Gordon, Walter, DDM) - Bonds and debentures: pricing, yield, duration, and convexity - Preference shares, hybrid instruments, and mutual funds/ETFs - Derivatives: forwards, futures, options, swaps, and applications -Risk-return trade-off and portfolio diversification - Trading mechanisms:	

	screen-based, electronic, algorithmic - Settlement systems: T+1, clearing houses, depositories (NSDL, CDSL) - Stock market indices: Sensex, Nifty, sectoral and global indices.	
Practicum	• **Bond Yield & Duration** – Calculate YTM and convexity for select bonds. • **Portfolio Diversification** – Construct and evaluate a risk-return profile. • **Index Tracking** – Compare movements of Sensex, Nifty, and global indices and submit a report	
Module III	**Market Regulation, Efficiency, and Behaviour**	**15**
	Regulatory framework of Indian markets; role of SEBI and RBI - Insider trading, market manipulation, and corporate governance - Investor protection, grievance redressal, and credit rating agencies - Market efficiency: forms of EMH and empirical tests - Behavioural finance: heuristics, biases, and investor psychology - Auction mechanisms and price discovery - Comparative global regulatory practices.	
Practicum	• **Trading Simulation** – Execute buy/sell orders on a virtual platform. • **Market Efficiency Test** – Apply random walk hypothesis with stock data. • **Behavioural Bias Survey** – Identify risk perceptions and heuristics among investors and submit a report	

Suggested Readings / References	
1	Bhole, L. M. & Mahakud, J. (2019). *Financial Institutions and Markets*. McGraw Hill Education. Fabozzi, F. J. (2021). *Bond Markets, Analysis, and Strategies*. Pearson Education. Gordon, J. & Natarajan, V. (2018). *Financial Markets and Services*. Himalaya Publishing House. Jones, C. P. (2017). *Investments: Analysis and Management*. Wiley India. Machiraju, H. R. (2020). *Indian Financial System*. Vikas Publishing House. Pandian, P. (2021). *Security Analysis and Portfolio Management*. PHI Learning. Varma, J. R. (2018). *Indian Financial Sector Reforms*. Tata McGraw Hill. Shleifer, A. (2000). *Inefficient Markets: An Introduction to Behavioral Finance*. Oxford University Press. Damodaran, A. (2012). *Investment Valuation*. John Wiley & Sons.

MA–ECONOMICS
IInd SEMESTER

Program Name	**MA in Economics**	**Semester**	**Second Semester**
Course Title	**Economics and Data Analytics**		
Course Code:	**ECO-SBSC-2.6.2**	**No. of Credits**	**3**
Contact hours	**45 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. Introduce foundational concepts of data analytics within an economic context.
2. Teach students to collect, clean, and analyze economic data using analytical tools.
3. Apply statistical and econometric techniques to investigate economic relationships.
4. Develop skills to visualize data and communicate economic insights effectively.
5. Enable students to conduct data-driven research on real-world economic issues.

Course Outcomes:

What students will be able to do upon course completion

1. Understand and explain the role of data analytics in modern economic analysis.
2. Collect, clean, and manage large economic datasets using software tools.
3. Apply regression analysis and hypothesis testing to economic data.
4. Visualise trends and patterns in economic indicators using charts and dashboards.
5. Conduct applied research projects to analyse and interpret economic phenomena.

MODULES	DESCRIPTION	45 Hours
Module I	**Foundations of Economics & Quantitative Tools**	**15**
	Basic economic theory: micro & macro foundations (consumer behaviour, markets, aggregate demand & supply); Mathematical & statistical tools: probability, distributions, hypothesis testing, linear regression basics, Intro to data structures, data types, data cleaning and visualisation; Programming basics for economics: R / Python fundamentals , Ethics, privacy, reproducibility in data analysis	
Practicum	• Data Cleaning & Visualisation Exercise: Students work with a raw dataset (e.g., Indian Household Survey / World Bank) to clean, summarise, and visualise • **key variables.**Hypothesis Testing & Regression Basics • Conduct simple t-tests and linear regressions on economic data (e.g., inflation and GDP growth).	
Module II	**Applied Econometrics & Machine Learning for Economics**	**15**
	Multiple regression, panel data, instrumental variables; Time series analysis: stationarity, ARIMA, forecasting; Introduction to causal	

	inference: treatment effects, difference-in-differences, regression discontinuity; Machine learning methods: supervised learning (regression, classification), unsupervised learning (clustering, dimensionality reduction); Model evaluation: overfitting, bias-variance trade-off, cross-validation; Big data considerations, feature applications	
Practicum	• **Machine Learning Case Study:** Apply a classification or clustering algorithm on economic or consumer data; interpret output in economic terms. • **Econometric Project:** Formulate a research question (e.g. effect of job training on wages), use a relevant econometric method (panel/treatment effects) and present findings.	
Module III	**Specialised Economic Analytics & Policy Applications**	**15**
	Policy evaluation: welfare, labour, health, education, using real datasets; Macroeconomic forecasting and nowcasting using high-frequency / nontraditional data; Behavioural economics, consumer analytics, digital economy metrics; Economics of platforms & network data: platform markets, externalities, digital taxation; Data visualisation dashboards, storytelling & communicating results to non-technical stakeholders; Emerging topics: climate economics, sustainability metrics, econometrics of climate data.	
Practicum	• **Forecasting Task:** Using time series data (e.g. inflation, GDP), build forecasting models and compare the performance of different methods. • **Policy Analytics Report:** Choose a recent policy (e.g., GST, subsidy reform, digital platform regulation), assemble data, analyse impact, and produce policy recommendations with visualisations.	

Suggested Readings / References	
Core Economics	Blanchard, O. (2021). *Macroeconomics* (8th ed.). Pearson. Case, K. E., Fair, R. C., & Oster, S. M. (2020). *Principles of macroeconomics* (13th ed.). Pearson. Mankiw, N. G. (2021). *Principles of economics* (9th ed.). Cengage Learning.
Econometrics & Data	Angrist, J. D., & Pischke, J.-S. (2014). *Mostly harmless econometrics: An empiricist's companion*. Princeton University Press. Gujarati, D. N., & Porter, D. C. (2021). *Basic econometrics* (6th ed.). McGraw-Hill Education. James, G., Witten, D., Hastie, T., & Tibshirani, R. (2021). *An introduction to statistical learning* (2nd ed.). Springer. https://www.statlearning.com

Tools & Programming	Stock, J. H., & Watson, M. W. (2020). *Introduction to econometrics* (4th ed.). Pearson. Varian, H. R. (2014). Big data: New tricks for econometrics. *Journal of Economic Perspectives, 28*(2), 3–28. https://doi.org/10.1257/jep.28.2.3 Wooldridge, J. M. (2021). *Introductory econometrics: A modern approach* (7th ed.). Cengage Learning. Grus, J. (2019). *Data science from scratch: First principles with Python* (2nd ed.). O'Reilly Media. Hastie, T., Tibshirani, R., & Friedman, J. (2009). *The elements of statistical learning: Data mining, inference, and prediction* (2nd ed.). Springer. Wickham, H., & Grolemund, G. (2017). *R for data science: Import, tidy, transform, visualize, and model data*. O'Reilly Media. https://r4ds.had.co.nz **Supplementary Reports / Data Sources** CMIE India. (2024). *India data and analytics*. Retrieved from https://www.cmie.com Kaggle. (2024). *Datasets*. Retrieved from https://www.kaggle.com/datasets OECD. (2024). *OECD statistics*. Retrieved from https://stats.oecd.org Reserve Bank of India. (2024). *Database on Indian economy (DBIE)*. Retrieved from https://dbie.rbi.org.in World Bank. (2024). *World development indicators – India*. Retrieved from https://data.worldbank.org
Tools & Platforms Required	Software: **R, RStudio / Python (Anaconda), Jupyter, Excel, Tableau / Power BI** Libraries

MA–ECONOMICS
IInd SEMESTER

Program Name	**MA in Economics**	**Semester**	**Second Semester**
Course Title	**Empirical Methods in Finance**		
Course Code:	**ECO-SBSC-2.6.3**	**No. of Credits**	**3**
Contact hours	**45 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. Introduce key empirical techniques used in financial data analysis and model testing.
2. Teach students to apply statistical and econometric tools to financial market data.
3. Provide hands-on experience in evaluating financial theories through real data.
4. Enable students to test asset pricing models, return predictability, and volatility behavior.
5. Develop independent research skills using financial datasets and statistical software.

Course Outcomes:

What students will be able to do after completing the course

1. Understand and explain core empirical methods used in financial research.
2. Apply regression, time-series analysis, and hypothesis testing to financial datasets.
3. Test financial models such as CAPM, APT, and GARCH using real-world data.
4. Analyze return patterns, anomalies, and volatility using statistical software.
5. Conduct original empirical research and interpret results for investment or policy insights.

MODULES	DESCRIPTION	45 Hours
Module I	**Foundations of Financial Market Behaviour**	**15**
	Overview of financial markets and empirical finance; Efficient Market Hypothesis (EMH): Weak, semi-strong, strong forms; Random Walk Hypothesis: Theoretical background and empirical tests; Market Microstructure and its implications for return dynamics; Time-series predictability of stock returns: Short-term vs long-term; Tools: Unit root tests, autocorrelation, variance ratio tests, predictive regressions.	
Practicum	• Analyze stock market efficiency using historical return data. • Perform unit root, autocorrelation, and variance ratio tests. • Run predictive regressions to test return predictability. Use Excel, R, or Python for data handling and analysis and Submit a report.	
Module II	**Empirical Asset Pricing Models**	**15**

	Capital Asset Pricing Model (CAPM): Empirical implementation and testing; Fama-MacBeth regressions; Arbitrage Pricing Theory (APT); Conditional CAPM and Intertemporal CAPM (ICAPM); Consumption-based Asset Pricing Models (CCAPM); Time-varying expected returns and conditioning information.	
Practicum	• Evaluate empirical models like CAPM, APT, and CCAPM using cross-sectional and time-series data and submit estimation results, diagnostic tests, and interpret empirical findings with theoretical context. **Group Presentation** • Present comparative findings between unconditional and conditional CAPM.	
Module III	**Risk, Volatility, and Cross-Sectional Return Predictability**	**15**
	Modelling conditional volatility (ARCH/GARCH models); Volatility timing and dynamic risk-return relation; Testing the risk-return tradeoff over time; Cross-sectional anomalies and return predictors (size, value, momentum, profitability, investment); Factor models: Fama-French 3, 5, and 6-factor models; Liquidity and idiosyncratic risk in the cross-section	
Practicum	• Empirical report with portfolio analysis, model estimates, and critical discussion of results. • Group discussion on implications for risk management and portfolio optimisation.	

References	
1	Fama, E. F**.** (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance*, **25**(2), 383–417. https://doi.org/10.2307/2325486 Campbell, J. Y., & Shiller, R. J. (1988). The dividend-price ratio and expectations of future dividends and discount factors. *Review of Financial Studies*, **1**(3), 195–227. https://doi.org/10.1093/rfs/1.3.195 Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. *Journal of Finance*, **47**(2), 427–465. https://doi.org/10.1111/j.1540-6261.1992.tb04398.x Mehra, R., & Prescott, E. C. (1985). The equity premium: A puzzle. *Journal of Monetary Economics*, **15**(2), 145–161. https://doi.org/10.1016/0304-3932(85)90061-3

	Jegadeesh, N., & Titman, S. (1993). Returns to buying winners and selling losers: Implications for stock market efficiency. *Journal of Finance*, **48**(1), 65–91. https://doi.org/10.1111/j.1540-6261.1993.tb04702.x

MA–ECONOMICS
IInd SEMESTER

Program Name	**MA in Economics**	**Semester**	**Second Semester**
Course Title	**Programming with R for Economists**		
Course Code:	**ECO-SBSC-2.7.1**	**No. of Credits**	**3**
Contact hours	**45 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. Introduce students to the fundamentals of R programming and its relevance to economics.
2. Teach the use of R data structures and control flows for scripting and analysis.
3. Enable effective data cleaning, transformation, and visualisation using R.
4. Develop competency in statistical modelling and hypothesis testing with R.
5. Prepare students to apply R in economic research and real-world data analysis.

Course Outcomes:

1. Demonstrate understanding of R syntax, operations, and data structures.
2. Apply R functions and control structures to manipulate and analyse data.
3. Clean and transform economic datasets using R packages.
4. Create meaningful visualisations to interpret economic data.
5. Build and interpret regression models and diagnostics using R.

MODULES	DESCRIPTION	45 Hours
Module I	**Fundamentals of R Programming and Data Structures**	**15**
	Overview of R programming language - Need and applications - Significance in Economics; Operation in R: Arithmetic operation, relational operation, logical operation, Variable assignment: Numeric, Character, Logical; Data structures: Vector, Matrix, Factor, Data frame, List; Data Input and Output: Reading from CSV, TXT, and Excel, Writing tables and exporting results and Exploring R built-in datasets; Flow Control and Functions: Conditional statements: if, else if, else, switch, Loops: for, while, repeat; usage in bootstrap simulations and Writing and using functions.	
Practicum	• Write basic R scripts using variables of different types (numeric, character, logical). **Exploratory Data Summary** • Generate summary statistics and structure reports for imported datasets.	
Module II	**Data Manipulation and Visualization**	**15**

	Working with Data: Importing and managing large datasets: Data cleaning: handling missing values: Subsetting, filtering, and summarizing: Aggregation using; Data manipulation using: Pipe operator; Dates and Time in R: Handling date data: Converting between formats: Performing operations with date objects; Visualization and Exploratory Data Analysis: Basic plots: pie, bar, histogram, boxplot, line, scatter, Customizing plots, Advanced graphics with, correlation matrix visualization, Data transformation and reshaping.	
Practicum	• Import World Bank or IMF datasets (CSV or Excel) into R, • Handle missing values (e.g., inflation data, GDP per capita) using filtering and imputation • Create summary statistics by region or income level using group_by() and summarise()Use lubridate to manipulate time-series data. • Submit cleaned dataset with accompanying R script	
Module III	**Statistical Modeling and Applications**	**15**
	Descriptive and Inferential statistics: mean, variance, and skewness, along with confidence intervals and basic hypothesis testing; Linear regression: simple and multiple models; tests for normality, multicollinearity (VIF), autocorrelation (ACF, Durbin-Watson), and heteroscedasticity; Principal Component Analysis (PCA); basic matrix operations for optimization problems in economic contexts.	
Practicum	• Perform simple and multiple linear regressions (e.g., GDP ~ investment + labor force). • Present a case study with model outputs, diagnostics, and conclusions.	

References	
1	Gardener, M. (2018), Beginning R: The Statistical Programming Language, Wiley & Sons. Sekhar, S.R.M., et al. (2017), Programming with R, Cengage Learning India. Wickham, H., et al. (2017), R for Data Science: Import, Tidy, Transform, Visualize, and Model Data, O'Reilly'. Field, A., Miles, J and Field (2012), Z. Discovering Statistics using R (Indian Reprint 2022), SAGE SimpleR - Using R for Introductory Statistics: John Verzani. The R Guide. Analysis of Epidemiological Data Using R and Epicalc: Virasakdi Chongsuvivatwong. Statistics Using R with Biological Examples: Kim Seefeld and Ernst Linder.

	An Introduction to R: Software for Statistical Modeling & Computing: Petra Kuhnert and Bill Venables. Gujarati, D.N. et al (2018), Basic Econometrics, McGraw Hill India, 5th Ed. CRAN website: https://cran.r-project.org/ https://prowessiq.cmie.com, https://data.worldbank.org/indicator, https://rstudio.com/products/rstudio/download/(Rstudio) http://r-statistics.co
2	**References** *Wickham, Hadley, and Grolemund, Garrett.* R for Data Science: Import, Tidy, Transform, Visualize, and Model Data*. Stati Uniti, O'Reilly Media, 2016. https://r4ds.had.co.nz* *Måns Thulin,* Modern statistics with R, 2021. *http://modernstatisticswithr.com/* R Programming Fundamentals by Kaelen Medeiros, September 2018, Packt Publishing - https://www.oreilly.com/library/view/r-programming-fundamentals/9781789612998/?_gl=1*q 5a4o0*_ga*MTU4OTIyNDk4Ny4xNzA3NTcxODYz*_ga_092EL089CH*MTcwNzYyNjA1 My4yLjEuMTcwNzYyNjA3OS4zNC4wLjA R Cookbook, James J.D Long and Paul Teetor, 2nd Edition, O'Reilly, 2019, https://rc2e.com/ Learning R Programming by Kun Ren, October 2016, Packt Publishing, https://www.oreilly.com/library/view/learning-r-programming/9781785889776/ Hands On Programming with R, Garett Gloremund, OReilly, 2014, https://www.google.co.in/books/edition/Hands_On_Programming_with_R/uk4BBAAAQBAJ ?hl=en&gbpv=0

MA–ECONOMICS
IInd SEMESTER

Program Name	**MA in Economics**	**Semester**	**Second Semester**
Course Title	**Advanced Data Visualisation using Excel**		
Course Code:	**ECO-SBSC-2.7.2**	**No. of Credits**	**3**
Contact hours	**45 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives

1. To introduce students to the foundational and advanced features of Microsoft Excel, including data sorting, filtering, conditional formatting, and pivot tables.
2. To develop the ability to use Excel for solving real-world data problems through structured analysis and reporting tools.
3. To equip students with knowledge and skills to automate tasks using Excel Macros and VBA programming.
4. To enable students to perform advanced data analysis and optimization through tools like Excel Solver, Goal Seek, and scenario planning.
5. To provide practical experience in creating dashboards and visualizations, facilitating data-driven decision-making.

Course Outcomes

- Demonstrate the logic and use of various Excel features**,**
- Analyze raw datasets to clean, structure, and extract
- Design and automate repetitive tasks in Excel using Macros and VBA
- Implement data modeling and problem-solving techniques using Excel tools
- Create interactive dashboards and data visualizations

MODULES	DESCRIPTION	45 Hours
Module I	**Introduction to Advanced Excel & Data Management Analysis**	**15**
	Overview of Excel interface and basic functionality- Understanding workbooks and worksheets; Data Management Analysis: Sorting, filtering and conditional Formatting-Advanced formula and functions-pivot Tables and Pivot Charts- Data validation and protection-Importing and Exporting data.	
Practicum	• Import a raw dataset (e.g., sales, student scores, customer database). Perform data cleaning. • remove duplicates, handle blanks, apply proper formatting, Use Sorting and Filtering to organize and extract relevant data, • Apply Conditional Formatting to highlight key insights (e.g., values above average).	

	• Create and manipulate Pivot Tables and Pivot Charts for summary reports, Use Data Validation to create dropdown lists and enforce input rules. • Submit a cleaned and formatted workbook with pivot tables and conditional formatting rules applied.	
Module II	**Macros and Automation**	**15**
	Introduction to VBA (Visual Basic for Applications) -Recording and running Macros-Creating custom; Functions and Procedures-Debugging and error; Handling-Automating repetitive tasks with VBA	
Practicum	• Record a simple Macro to automate formatting or calculation tasks, Use VBA editor to write basic custom functions and procedures (e.g., calculating bonuses, generating IDs). • Practice Debugging and Error Handling in a VBA script, automate a process such as importing data, applying formulas, and saving a report and • Submit an Excel file with at least two working Macros and a simple custom VBA function.	
Module III	**Advanced Data Visualization & Data Modeling**	**15**
	Creating Charts and Graphs; Formatting charts and Graphs; Customizing charts and Graphs; Combining charts and Graphs-Creating dashboards and reports; Modeling with Excel Solver-Optimization techniques Scenario analysis and goal seeking-Data tables and Simulation-Sensitivity analysis-Excel and data analysis.	
Practicum	• Create Charts and Graphs (bar, pie, combo, scatter) with proper formatting. Design a Dashboard combining multiple visuals (charts, slicers, KPI indicators), Use Excel Solver to solve an optimization problem (e.g., cost minimization, resource allocation), Perform Goal Seek to find required input values, Create Data Tables and Scenario Manager for what-if analysis. • Conduct a Sensitivity Analysis with variable changes and Submit an Excel-based dashboard and optimization workbook showing use of Solver, Goal Seek, and scenarios.	

References	
1	Alexander R, Kuselika R and Walkenbach J, Microsoft Excel 2019 Bible, Wiley India Pvt Ltd,New Delhi, 2018. Microsoft Excel 2019 Data Analysis and Business Modeling (6th Edition): Paul M, Microsoft Excel 2019 formulas and functions, Pearson Eduction, 2019

MA–ECONOMICS
IInd SEMESTER

Program Name	**MA in Economics**	**Semester**	**Second Semester**
Course Title	**Cooperative Economics**		
Course Code	**ECO-SBSC-2.7.3**	**No. of Credits**	**3**
Contact hours	**45 Hours**	**Duration of SEA/Exam**	**3 Hrs**
Formative Assessment Marks	**20**	**Summative Assessment Marks**	**80**

Course Objectives:

1. To provide a foundational understanding of cooperative principles and their historical evolution from early cooperative movements to modern models worldwide.
2. To critically examine internal governance and management practices within cooperatives, including democratic decision-making and productivity dynamics.
3. To analyze the comparative advantages and challenges of cooperative enterprises versus capitalist firms and state-owned enterprises.
4. To explore contemporary cooperative development strategies, including financing mechanisms, legal frameworks, and policy environments.
5. To equip students with practical skills for cooperative planning, including the ability to simulate decision-making processes and design cooperative proposals tailored to real-world contexts.

Course Outcomes

1. Understand and articulate the principles and historical context of cooperative economics.
2. Evaluate the internal dynamics, challenges, and comparative performance of cooperatives.
3. Apply cooperative models to contemporary economic and social development issues.
4. Critically analyze and compare cooperative enterprises with capitalist firms and state enterprises.
5. Design a context-specific cooperative development proposal

MODULES	DESCRIPTION	45 Hours
Module I	**Foundations and History of Cooperative Economics**	**15**
	Definition, types, and principles of cooperatives (ICA Principles); Historical evolution: Rochdale, Mondragon, Evergreen, and African-American cooperative traditions; Philosophical foundations: Mutualism, solidarity economy, and post-capitalist economics; Comparison with capitalist firms and state enterprises.	

Practicum	• Create a timeline of major cooperative movements and analyze one model in depth. • Debate: "Are cooperatives more sustainable than capitalist firms?" (students argue both sides using principles and case studies). • Role-play a panel where students represent different economic ideologies (capitalism, socialism, cooperative economics), discussing the future of work and ownership.	
Module II	**Governance, Management, and Economic Performance**	**15**
	Internal governance: Democratic management, decision-making models, labour contracts; Behavioural economics in cooperatives: Motivation, incentives, and collective action; Productivity, efficiency, and theory of the firm; Case studies: Mondragon, Cheeseboard Collective, Worker-Owner cooperatives in the U.S.; Challenges: Governance costs, scaling, and sustaining participation	
Practicum	• Simulation of a cooperative decision-making process or democratic budgeting exercise. • In groups, create an incentive system for a worker cooperative that promotes participation and accountability without undermining equality. **Case Study Analysis Presentations** • Assign groups to analyse one case (e.g., Mondragon, Cheeseboard, U.S. worker cooperatives). • Evaluate governance model, labor relations, performance indicators, and scalability.	
Module III	**Cooperative Development, Finance & Future Pathways**	**15**
	Cooperative finance: Capitalization, legal frameworks, taxation, ESOPs, and shared capitalism; Measuring success: Social impact, worker well-being, and community value; Cooperative development models: Emilia Romagna, Quebec, U.S. Steelworkers-Mondragon alliance; Policy and enabling environments; The future of cooperatives in a post-capitalist world.	
Practicum	• Draft a cooperative development proposal for your local area (including legal, financial, and governance components). • Roundtable Discussion "What does a cooperative-centered post-capitalist economy look like?" • Students propose future models for housing, labor, health, or tech cooperatives.	

References	
	Blasi, J. R., Freeman, R. B., & Kruse, D. L. (2014). The citizens' share: Reducing inequality in the 21st century. Yale University Press. Curl, J. (2012). For all the people: Uncovering the hidden history of cooperation, cooperative movements, and communalism in America. PM Press. Gibson-Graham, J. K. (2006). A postcapitalist politics. University of Minnesota Press. Nembhard, J. G. (2014). Collective courage: A history of African American cooperative economic thought and practice. University of Pennsylvania Press. Restakis, J. (2010). Humanising the economy: Co-operatives in the age of capital. New Society Publishers. Battilani, P., & Schröter, H. G. (Eds.). (2012). The cooperative business movement, 1950 to the present. Cambridge University Press. Kawano, E., Masterson, T., & Teller-Elsberg, J. (Eds.). (2013). Solidarity economy I: Building alternatives for people and planet. MIT Press. USDA Rural Business-Cooperative Service. (2012). Understanding cooperatives. U.S. Department of Agriculture. Retrieved from https://www.rd.usda.gov/files/Coop_UnderstandingCooperatives.pdf