Course Matrix for B.Sc. Economics Programme (NEP Batch)

Semester VII

(Batch 2025-2026)

SL. No.	Course Code	Title of the Course	Category of Course	Teaching Hour per Week (L+T+P)	ESE	CIA	Total Marks	Credits
1.	SH 22 DC 701	Public Economics	DSC-1	4+0+0	60	40	100	4
2.	SH 22 DC 702	Regional Economics and Sustainable Planning	DSC-2	4+0+0	60	40	100	4
3.	SH 22 DC 703	Financial Economics	DCS-3	4+0+0	60	40	100	4
4.	SH 22 DE 701	Game Theory	DSE-1	3+0+0	60	40	100	3
6.	SH 22 SE 701	Data Visualisation using POWER BI	SEC-SB	3+ 0+ 0	60	40	100	3
7	SH 22 RM 701	Advanced Research Methodology	RM	4 +0 +0	60	40	100	4
TOTAL								22

Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per Week	Credits
VII	SH 22 DC 701	Public Economics	60	DSC	4	4

Course Objectives	This course aims to provide a comprehensive understanding of public economics, including its nature, scope, and significance in economic governance. Students will explore various aspects of public finance, including taxation, expenditure, debt, and budgeting, to analyze government fiscal policies. The course will also examine theoretical frameworks and empirical evidence related to public goods, revenue, and economic stability. By the end of the course, students will be equipped with the skills to assess government policies and their impact on economic growth and social welfare.		
Course Outcomes	**Description**	**T level**	**K Level**
CO1	Understand the foundational concepts of public economics and analyse the role of the government in different economic systems.	T2	K1
CO2	Evaluate the characteristics of public goods and assess different theoretical models for their provision and financing.	T6	K2
CO3	Analyse the trends and impact of public expenditure on economic factors such as production, employment, and income distribution.	T4	K1
CO4	Understand the principles of taxation and assess the effectiveness of the Indian tax system.	T2	K2
CO5	Examine the sources, effects, and management strategies of public debt in different economic contexts.	T4	K2
CO6	Develop an understanding of fiscal policy and budgeting processes, and evaluate their significance in economic planning and development.	T6	K2

Module 1	**Introduction to Public Economics**	**10 Hours**
Meaning, Nature and Scope of Public Economics, Objectives, Importance of Public Economics; Fiscal functions of the State; Role of Government in different forms of the economic system—Capitalist, Socialist and Mixed Economy; Role of Public Sector, Private and Public Finance, Public goods v/s private goods		
Module 2	**Public Goods**	**10 Hours**
Public Goods and its provisions-problems and emerging issues in financing the public Goods- Allocation of resources-Externalities and public goods-Theory of second best-Arrow's Impossibility theorem -Rent seeking and directly unproductive profit seeking (DUP) activities. Political equilibrium-Voluntary exchange models; contributions of Samuelson, Clarks, Groves and Ledyard, classical theory of club goods- Tiebout model.		
Module 3	**Public Expenditure**	**8 Hours**
Meaning, Scope of Public Expenditure, causes and effects of Public expenditure on production, employment and distribution, causes of Increase in Public expenditure—Wagner's hypothesis, Peacock–Wiseman hypothesis.		
Module 4	**Public Revenue**	**14 Hours**
Taxation—meaning, canons and classification of taxes, The benefit and ability approaches, characteristics of a good tax system. Tax incidence-economic and statutory tax incidences-		

rules for tax incidences; Allocative and equity aspects of individual taxes; Benefit and ability to pay approaches; Theory of optimal taxation; Ramsey Rule on Commodity Taxation-Benefits and tax savings Trade-off between tax equity and efficiency; Theory of measurement of dead weight losses. Indian tax system- Major taxes in India-GST in India-Non-tax revenue of Centre, State and local bodies; problem of tax autonomy and decentralization

Module 5	**Public Debt**	**10 Hours**

Meaning of public debt, Sources of public borrowing—classification of public debt, economic effects of public debt, the burden of public debt—internal and external burden of public debt, redemption of public debt—various ways, Advantages of debt redemption; Public debt Theories (Classical and Modern); Debt burden and future generation-Recardo-Pigou thesis, Buchanan thesis, Musgrave thesis

Module 6	**Public Budgeting**	**8 Hours**

Concept of budget, characteristics of the budget, purposes of the budget, canons of public budgeting, significance of public budgeting, types of budgets—executive and legislative multiple and unified budgets, federal, state and local budgets, revenue and capital budget, performance budgeting, Zero-based budgeting—advantages and limitations.

Skill Development:

(These activities are only indicative, the Faculty members can innovate)

1	Analyze a case study on public goods provision and its challenges in a real-world scenario.
2	Conduct a simple analysis of the Wagner Hypothesis using data on Government of India's Public Expenditure.
3	List out the different criteria adopted by various finance commissions in the devolution of resources between Centre and State.
4	Plot the diagram taking the data of Government of India's internal and external debt over the years.
5	Plot the Revenue and Capital expenditure as a percentage of spending of the latest central and state budget in a graph and observe the trend.

Books for Reference:

1. Piketty, T. (2024). *Nature, Culture, and Inequality*. Harvard University Press.
2. Farra, F., & Pissarides, C. (2023). *Quantum Governance: Rewiring the Foundation of Public Policy*. Emerald Publishing Limited.
3. Coyle, D. (2020). *Markets, State, and People: Economics for Public Policy*. Princeton University Press.
4. Christophers, B. (2020). *Rentier Capitalism: Who Owns the Economy, and Who Pays for It?* Verso Books.
5. Sury, M. M. (2020). *Public Economics*. New Century Publications.
6. Farhi, E., & Werning, I. (2020). *Public Economics in an Age of Inequality*. MIT Press.
7. Kaushik Basu and A. Maertens (ed.) (2013), *The New Oxford Companion to Economics in India*, Oxford University Press, Oxford.
8. Rosen H, Gayer T. (2009), *Public Finance*, 9th ed., McGraw-Hill/Irwin, New York.
9. Hindriks J., G. Myles (2006), *Intermediate Public Economics*, MIT Press, Massachusetts.
10. Bird, Graham (2004), *International Finance and the Developing Economies*, Palgrave Macmillan, London.
11. Joseph E. Stiglitz (2000), *Economics of the Public Sector*, W.W. Norton & Company, 3rd edition, New York.
12. John Cullis and Philip Jones (1998), *Public Finance and Public Choice*, Oxford University Press, 1st edition, Oxford.
13. Musgrave R.A. and P.B. Musgrave (1989), *Public Finance in Theory & Practice*, McGraw Hill Publications, 5th edition, New York.

Mapping of CO and PO

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12

CO1	L	L	L	M	M	H					H	
CO2	L	L	L	H	M	H						M
CO3	L	L	L	M	M	H						H
CO4	L	L	M	L	H	M						H
CO5	L	L	M	M	H	H						L
CO6	L	M	L	L	H	H						M

Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per Week	Credits
VII	**SH 22 DC 702**	**Regional Economics and Sustainable Planning**	**60**	**DSC**	**4**	**4**

Course Objectives	The ***'Regional Economics and Sustainable Planning"*** course is designed help students have a comprehensive understanding of the concepts and theories behind Regional Planning and Sustainable Growth. It will help students analyse urban and rural planning perspectives, regional flows, and sustainable development strategies. The course emphasizes practical applications through models, case studies, and planning tools to bridge the gap between theory and real-world challenges.		
Course Outcomes	**Description**	**T Levels**	**K Levels**
CO1	Explain the concept of regional planning with respect to contemporary challenges	T 4	K3
CO2	Analyse the theories related to size, space and location	T6	K3
CO3	Analyze inter-regional flows of commodities, services, and capital.	T6	K2
CO4	Evaluate urban structural patterns and their implications on growth and sustainability.	T5	K3
CO5	Design sustainable rural development models addressing ecological and social concerns.	T6	K3

Module 1	**Introduction to Regional Planning**	**10 Hours**
Definition and scope of Regional Planning- Region-nature and scope-definition and types of Regions- Role of Regional Planning in addressing contemporary challenges-Tools and techniques of regional planning		
Module 2	**Theoretical Frameworks in Planning**	**12 Hours**
Economic behaviour related to space (size, composition, structure)- Agglomeration economics- Thunen's Theory of Agricultural Location-Weber's Theory of Industrial Location-Christaller's Central Place Theory of Hierarchy of Settlements- Sargent Florence's theory of Location- Location Quotient		
Module 3	**Regional Flow**	**8 Hours**
Commodity and service flows- Monetary and Capital Flows-Linkages- Mobility of Capital- Markov's Chain Model of Inter-regional Savings and Capital Growth- migration flows- models of migration		
Module 4	**Urban Planning**	**10 Hours**
Evaluation of urban structure-techniques for urban structural analysis- Growth of cities-system, scale and complexity-regional linkages- fringe and periphery—physical and		

functional characteristics, problems, concepts and concerns on urban sustainability- issues related to unintended growth-inclusive urban planning-definition and components		
Module 5	**Rural Planning**	**10 Hours**
Mutual dependence between urban and rural areas- concept of planning for rural settlements- regional development and urban-rural partnerships-related inputs and infrastructure development - rural settlements- typology, structure and spatial significance- rural reconstruction- basic needs – water supply, hygiene and sanitation- rural energy- ecological and environmental concerns in rural development and village planning		
Module 6	**Sustainable Planning**	**10 Hours**
Define Sustainability in planning context- environment planning and resource management- compact cities, mixed-use planning- green infrastructure- sustainable transport – circular economy and net-zero cities- environment planning- aims, objectives and application- environment planning theories- and their applications		

Skill Development:
(These activities are only indicative, the Faculty members can innovate)

1	Review and analyze successful regional planning models from different countries.
2	Conduct urban and rural settlement surveys to assess infrastructure, economic activities, and planning needs.
3	Implement theoretical models (e.g., Thunen's, Weber's) in real-world scenarios using software tools.
4	Develop a regional sustainability plan, integrating environmental and economic considerations.
5	Develop a plan for a smart city

Books for Reference:

1. Adams, T. (Year). *Rural planning and development*.
2. Birch, E., & Glasson, J. (Year). *Urban and regional planning*. Routledge.
3. Mishra, R. P. (Year). *Micro-level rural planning: Principles, methods, and case study*. [Publisher].
4. Richardson, H. W. (1978). *Regional and urban economics*. Routledge.
5. Walk, A. D. (Year). *Regional planning for urban spaces*.

Mapping of CO and PO

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	L	H	M	L	M						L
CO2	H	M	L	L	H					H	
CO3	H	M	L		H					L	L
CO4	M	L		L	H					M	H
CO5	H	L	L	M	H					L	H
CO6	L		L	M	L				H		H

Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per Week	Credits
VII	SH 22 DC 703	Financial Economics	60	DSC	4	4

Course Objectives	The objective of this course is to provide students with a foundational understanding of financial economics, focusing on the principles of financial decision-making, risk and return, asset valuation, and market efficiency. The course explores key financial instruments, the time value of money, interest rate determination, and portfolio management, equipping students with essential analytical tools for evaluating investment decisions. By covering fundamental asset pricing models, financial risk management, and an introduction to derivatives, the course aims to develop critical thinking and practical skills applicable in financial markets and corporate finance.

Course Outcome	Description	T Levels	K Levels
CO1	Understand Core Concepts of Financial Economics: Demonstrate a thorough understanding of the fundamental principles, history, and scope of financial economics, including the characteristics of financial instruments and markets.	T 4	K2
CO2	Apply Time Value of Money Principles: Solve complex problems involving present value, future value, annuities, and perpetuities, and apply these concepts in financial decision-making.	T 6	K3
CO3	Analyze Interest Rates and Valuations: Explain the theories of interest rate determination, evaluate term structures and yield curves, and apply principles of market valuation to financial assets.	T 6	K3
CO4	Evaluate Risk and Portfolio Management Strategies: Analyze risk-return trade-offs, measure portfolio performance, and construct optimal portfolios using mean-variance analysis and diversification principles.	T 5	K4
CO5	Examine Asset Pricing Models and Market Efficiency: Apply models like CAPM and Arbitrage Pricing Theory to assess asset pricing and interpret market efficiency across its various forms.	T 6	K4
CO6	Apply Derivative Pricing and Fixed Income Concepts: Evaluate the pricing of derivatives using models such as the Binomial and Black-Scholes, and analyze fixed-income securities' pricing, hedging, and sensitivities.	T4	K5

Module 1	Introduction to Financial Economics	6 Hours

Finance and financial economics. Characteristics of financial transactions: relevance of time, space, risk, and reward relationships. Characteristics of financial instruments: main types and definitional overview. Composition and characteristics of financial markets.

Module 2	Basic of Financial Calculations and Time Value of Money	12 Hours

Concept of time value of money: Present and future values. Compounding and discounting techniques. Basics of annuities and perpetuities. Valuation of fixed-income securities: Bonds and yield curves.

Module 3	Interest Rates	10 Hours
Meaning and types of interest rates. Keynesian and monetarist theories of interest rate determination. Term structure of interest rates and risk-free rates. Principles of financial asset valuation: Arbitrage and law of one price. Role of information in valuation: Efficient Market Hypothesis (EMH).		
Module 4	**Risk, Return, and Portfolio Management**	**12 Hours**
Risk and return trade-off in financial markets. Types of financial risk: Market risk, credit risk, and liquidity risk. Basics of diversification: Mean-variance analysis. Introduction to portfolio theory: Markowitz model and optimal portfolio choice.		
Module 5	**Asset Pricing Models**	**12 Hours**
Introduction to asset pricing: Systematic vs. specific risk. Capital Asset Pricing Model (CAPM): Concept and applications. Arbitrage Pricing Theory (APT): Basic framework. Market efficiency: Weak, semi-strong, and strong forms of EMH.		
Module 6	**Derivatives and Fixed Income Securities**	**8 Hours**
Overview of derivatives: Futures, options, and swaps. Basics of derivatives pricing: Binomial method and Black-Scholes model (conceptual overview only). Hedging and risk management using derivatives. Introduction to bond pricing and yield-to-maturity.		

Skill Development:

(These activities are only indicative, the Faculty members can innovate)

1	Ability to apply concepts like time value of money, interest rates, and financial calculations to make informed financial decisions.
2	Developing skills in assessing risk-return trade-offs, constructing optimal portfolios, and applying diversification strategies using models like Markowitz and CAPM.
3	Mastering valuation techniques for financial assets, including bonds, stocks, derivatives, and understanding pricing models like the Black-Scholes and Arbitrage Pricing Theory (APT).
4	Enhancing the ability to interpret financial data, analyze market trends, compute returns, measure volatility, and apply financial models using statistical and mathematical tools.
5	Gaining in-depth knowledge of financial markets, instruments, and their functioning, including derivatives, fixed-income securities, and the role of market efficiency in investment strategies.

Books for Reference:

1.	Avadhani, V. A. (2017). *Financial economics: Theory and practice*. Himalaya Publications.
2.	Bodie, Z., Merton, R. C., & Cleeton, D. C. (2009). *Financial economics*. Pearson Education.
3.	Bhole, L. M. *Financial institutions and markets*. Tata McGraw Hill.
4.	Shukla, N. K. *Financial economics: Text & cases*. Cyber Tech.
5.	Strong, R. A. *Derivatives*. Thomson Press.

Mapping of CO and PO

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H	L		M							L	M
CO2	H	L		M							L	M
CO3	H	H	L		M						M	H
CO4	H		M	H	L						L	

CO5	H		M	H	L						L	
CO6	H		M	H	L						M	

Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per Week	Credits
VII	SH 22 DE 701	Game Theory	60	DSE	3	3

Course Objectives	This course aims to provide a comprehensive understanding of Game Theory, its foundational concepts, and its applications in economics and strategic decision-making. Students will learn about the history and development of Game Theory, essential concepts such as agents, payoffs, strategies, and different types of games. The course will explore key equilibrium concepts, including Nash Equilibrium, Dominant Strategy Equilibrium, and Mixed Strategy Equilibrium, with applications in oligopoly models. In addition to this, the course covers extensive games with perfect information and coalitional games, developing an understanding of subgame perfect equilibria and core solutions in cooperative settings. Through theoretical exploration and practical examples, students will enhance their analytical skills, strategic thinking, and decision-making abilities in competitive and cooperative environments.

Course Outcome	Description	T Levels	K Levels
CO1	Understand the fundamental concepts of Game Theory.	T 2	K2
CO2	Analyse strategic interactions using key equilibrium concepts such as Nash Equilibrium and Dominant Strategy Equilibrium	T 4	K3
CO3	Evaluate the mixed strategy equilibria in real-world scenarios	T5	K4
CO4	Construct extensive-form games for strategic decision-making.	T5	K4
CO5	Examine the principles of coalitional games.	T 4	K3

Module 1	Introduction to Game Theory	8 Hours
Meaning and Definition of the Game Theory, History of Game Theory, Basic Concepts (Agents, Payoffs and Strategy, Payoff Matrix), The Theory of Rational Choice Cooperative and Non-Cooperative Games, Simultaneous and Sequential Move Games, Games of Complete and Incomplete Information		
Module 2	**Game Theory and Equilibria – I**	**8 Hours**
Strategic games, Examples- Prisoner's Dilemma, Bach of Stravinsky, Matching Pennies, the Stag Hunt, Dominant Strategy Equilibrium, Nash Equilibrium examples. , Cournot's model of oligopoly, Bertrand's model of oligopoly		
Module 3	**Game Theory and Equilibria – II**	**10 Hours**
Mixed Strategy Nash Equilibrium -examples, Equilibrium in a single population (Illustration on reporting a crime) Best response functions, Dominated actions, Symmetric games and symmetric equilibria		
Module 4	**Extensive Games with Perfect Information**	**10 Hours**
Theory of Extensive games with perfect information, Nash equilibrium, Subgame, perfect equilibrium		
Module 5	**Coalitional Games and the Core**	**9 Hours**

Coalitional games- meaning and definition The Core- Meaning and Definition Illustrations on ownership and the distribution of wealth; exchanging homogeneous horses; exchanging heterogeneous houses; voting and matching.

Skill Development:

(These activities are only indicative, the Faculty members can innovate)

1	Group Negotiation
2	Case Study

Books for Reference:

1.	Dixit, A. K., & Skeath, S. (2015). Games of Strategy (4th ed.). W. W. Norton & Company.
2.	Tadelis, S. (2013). Game Theory: An Introduction. Princeton University Press.
3.	Rasmusen, E. (2007). Games and Information: An Introduction to Game Theory (4th ed.). Wiley-Blackwell.
4.	Osborne, M. J. (2004). An Introduction to Game Theory. Oxford University Press.
5.	Fudenberg, D., & Tirole, J. (1991). Game Theory. MIT Press.
6.	Gibbons, R. (1992). A Primer in Game Theory. Pearson Education.
7.	Myerson, R. B. (1991). Game Theory: Analysis of Conflict. Harvard University Press.
8.	Mas-Colell, A., Whinston, M. D., & Green, J. R. (1995). Microeconomic Theory. Oxford University Press.
9.	Osborne, M. J., & Rubinstein, A. (1994). A Course in Game Theory. MIT Press.
10.	Von Neumann, J., & Morgenstern, O. (1944). Theory of Games and Economic Behavior. Princeton University Press.
11.	Alexander, M., & Walkenbach, J. (2016). Excel dashboards and reports (2nd ed.). Wiley.
12.	Hubbard, R. G., & O'Brien, A. P. (2012). Macroeconomics (4th ed.). Pearson

Mapping of CO and PO

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	H	M	H	L	M						
CO2	M	L	H		H	L					M
CO3	H	M	M			H					L
CO4	L	H	H	M		L					M
CO5	H	M	H	L	L						L

Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per Week	Credits
VII	SH 22 SE 701	Data Visualisation using Power BI	60	SEC – SB	3	3

Course Objectives	To equip learners with the skills to create and manage interactive visualizations, apply advanced DAX expressions, and develop calculated measures for insightful data analysis. By the end of the course, participants will be proficient in building dynamic dashboards and effectively communicating data-driven insights.		
Course Outcome	**Description**	**T Levels**	**K Levels**
CO1	Construct and organize interactive visualizations, apply drill-through techniques, and integrate custom report themes, bookmarks, and buttons to enhance user experience.	**T4**	**K3**
CO2	Analyse and implement DAX functions to create calculated columns and measures, differentiate their applications, and design date dimensions using calendar functions for effective data modelling.	**T3**	**K3**
CO3	Demonstrate the ability to publish, secure, and manage Power BI reports using workspaces, row-level security, data refresh techniques, and gateway configurations for seamless data sharing	**T3**	**K3**

Module 1	**Power BI Desktop Visualizations**	**15 Hours**

- Creating visuals
- Managing and Arranging
- Drill Through
- Custom Report themes
- Grouping and binning
- Bookmark and buttons

Module 2	**DAX Expressions**	**15 Hours**

- Introduction to Dax
- Important Dax used in Power BI along with its applications.
- How to create calculated columns and measures in Power BI and difference in its application
- Scenarios with Questions on DAX & explanation.
- Creating date dimension in Power BI using calendar functions and its importance.

Module 3	**Publishing and Sharing**	**15 Hours**

- Sharing options
- Publish from Power BI Desktop
- Publish reports to Web

- Sharing reports and Dashboards
- Workspaces
- Apps
- Printing, PDF's and exports
- Row level Security
- Exporting data from Visualizations Refreshing Datasets
- Understanding data refresh
- Gateways

Module 4	**Extensive Games with Perfect Information**	**10 Hours**

Theory of Extensive games with perfect information, Nash equilibrium, Subgame, perfect equilibrium

Module 5	**Coalitional Games and the Core**	**9 Hours**

Coalitional games- meaning and definition The Core- Meaning and Definition Illustrations on ownership and the distribution of wealth; exchanging homogeneous horses; exchanging heterogeneous houses; voting and matching.

Skill Development:

(These activities are only indicative, the Faculty members can innovate)

1	Create an interactive Power BI report with multiple visualizations, applying drill-through, custom report themes, grouping, and bookmarks to enhance user
2	Solve real-world business problems using DAX expressions by creating calculated columns, measures, and date dimensions to analyse and interpret data effectively.
3	Publish a Power BI report to the web, apply row-level security, and demonstrate various sharing options, including workspaces and apps, to manage access and collaboration.

Books for Reference:

1.	Knight, D., Knight, B., Pearson, M., & Quintana, M. (2018). *Microsoft Power BI quick start guide: Build dashboards and visualizations to make your data come to life*. Packt Publishing.
2.	Ferrari, A., & Russo, M. (2017). *Analyzing data with Power BI and Power Pivot for Excel*. Microsoft Press.
3.	Powell, B. (2018). *Mastering Microsoft Power BI: Expert techniques for effective data analytics and business intelligence*. Packt Publishing

Mapping of CO and PO

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1	**L**	**L**	**H**		**M**				**H**	**M**	
CO2	**L**	**L**	**H**		**M**				**H**	**M**	
CO3	**L**	**L**	**H**		**M**				**H**	**M**	

Semester	Course Code	Course Title	Course Duration	Course Type	Teaching Hours Per Week	Credits
VII	**SH 22 RM 701**	**Advanced Research Methodology**	**60**	**RM**	**4**	**4**

Course Objectives	The course ***'Advanced Research Methodology'*** aims to equip students with advanced research skills, focusing on both qualitative and quantitative methodologies. Students will develop a strong understanding of different research paradigms, enabling them to frame well-defined research problems and objectives. The course will provide in-depth training in hypothesis development and testing, covering both parametric and non-parametric techniques, along with econometric methods for time series analysis. The students will learn how to conduct systematic literature reviews using bibliometric tools such as VOSviewer and R-Bibliometrix to identify research gaps. The course will also emphasise effective academic writing, research reporting, and ethical considerations in research, preparing students for high-quality thesis writing and scholarly publications.

Course Outcome	Description	T Levels	K Levels
CO1	Analyse different research paradigms	T 4	K3
CO2	Formulate well-defined research problems, objectives, and questions while evaluating appropriate research methodologies	T 6	K4
CO3	Apply hypothesis testing techniques using and non-parametric methods, and interpret econometric models.	T 3	K4
CO4	Evaluate systematic literature review techniques and bibliometric tools for citation and network analysis.	T 5	K4
CO5	Develop structured research reports.	T 6	K3

Module 1	**Research Framework**	**5 Hrs**
Research Paradigms: Positivism, Interpretivism, and Pragmatism, Importance of Theoretical and Conceptual Frameworks, Developing a Research Plan and Identifying Research Gaps		
Module 2	**Setting Research Problems, Objectives, and Methodology**	**15 Hrs**
Characteristics of a Well-Defined Research Problem, Framing Research Objectives and Research Questions, Selecting Research Methodology- Quantitative Approaches, Qualitative Approaches, Mixed-Methods Research- Addressing Feasibility, Scope, and Limitations of Research		
Module 3	**Hypothesis Testing and Conceptual Framework**	**10 Hrs**
Developing Hypotheses: Characteristics, Testability, Specificity, and Relevance, Role of Theories in Hypothesis Formulation, Ethical Considerations in Research and Hypothesis Testing, Parametric Parametric Tests: T-Test, Z-Test, F-Test, ANOVA, MANOVA- Non-Parametric Tests: Chi-Square Test, Kruskal-Wallis Test Econometric Methods: AR, ARMA, ARIMA Models for Time Series Analysis Interpreting Results and Drawing Meaningful Conclusions		
Module 4	**Process of Research and Literature Review**	**15 Hrs**

Importance of Literature Review in Economic Research, Techniques for Conducting Systematic Literature Reviews, Tools for Bibliometric Analysis: VOSviewer for Citation and Co-Occurrence Analysis, R-Bibliometrix for Network and Trend Analysis, Identifying and Framing Research Gaps, Writing a Critical and Synthesized Literature Review		
Module 5	**Research Reporting**	**15 Hrs**
Structure of Research Reports, Theses, and Dissertations, Writing Abstracts, Introductions, Literature Reviews, and Conclusions Effectively, Formatting and Citation Styles: APA, MLA, Chicago, and Harvard, Ethical Considerations in Research Reporting (Plagiarism, Data Integrity, and Academic Honesty) Preparing for Research Publications and Conferences		
Skill Development: *(These activities are only indicative, the Faculty members can innovate)*		
1	Ability to frame well-defined research problems, set precise objectives, and formulate research questions.	
2	Hands-on training in applying statistical and econometric techniques such as T-Test, ANOVA, Chi-Square, and ARIMA models.	
3	Training in conducting systematic literature reviews using VOSviewer and R-Bibliometrix to analyse citations and co-occurrence networks.	
4	Development of structured research papers, theses, and dissertations, with a focus on writing abstracts, literature reviews, and conclusions effectively.	
5	Ability to frame well-defined research problems, set precise objectives, and formulate research questions.	
6	Workshops on plagiarism detection, ethical research practices, and publishing in indexed journals.	
Books for Reference:		
1.	Fausto Pedro García Márquez, Akhtar Jamil, Alaa Ali Hameed, Isaac Segovia Ramírez (2025); Emerging Trends and Applications in Artificial Intelligence, Springer Cham; https://doi.org/10.1007/978-3-031-56728-5	
2.	Kothari C.R. and Gaurav Garg,(2017), Research Methodology Methods and Techniques, New Age International Publishers, New Delhi.	
3.	Kothari C.R.,(2017), Research Methodology, S.Chand, New Delhi.	
4.	Gerald Guthrie(2012),Basic Research Methods, Sage, New Delhi.	
5.	Gupta S.P.(2012), Statistical Methods, Sultan Chand and sons, New Delhi.	
6.	Sharma J.K., (2011), Quantitative Techniques for Management, Macmillan, New Delhi.	
7.	Majumdar P.K. (2011), Research Methods in Social Sciences, Viva Books, New Delhi.	
8.	Rowena Murray(2010), How to Write a Thesis, Tata McGraw Hill, New Delhi.	
9.	Hooda (1994), Statistics for Business and Economics, Macmillan, New Delhi.	
10.	Nagar, A.L. and R.K. Das (1993), Basic Statistics, Oxford University Press, New Delhi.	
11.	Brown J.A. (1984), Lognormal Distribution: uses in Economics, CUP, London	
12.	Bowers (1982),Statistics for Economists, Macmillan, London	
13.	Seymour and Schiller (1976), Probability and Statistics, Schaum's Series Spiegel,	
14.	Frank(1971), Sampling Methods for Census and Surveys, Charles, Griffin Co.,	
15.	Croxton, Crowden and Klein (1971), Applied General Statistics, Prentice Hall of India, New Delhi.	

Mapping of CO and PO

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11

CO1	H	H	M	L	M						L
CO2	H	M	L	L	H					L	
CO3	H	M	L		H					L	L
CO4	M	L		H	H					M	L
CO5	H	L	M	M	H					L	L