

# **M.A., ECONOMETRICS**

## **MODEL SYLLABUS**

**AUGUST- 2022**

**TAMILNADU STATE COUNCIL FOR HIGHER EDUCATION,  
CHENNAI – 600 005**

<h1>M.A. Econometrics</h1>	
<b>Programme Code:</b>	ECO
<b>Duration:</b>	2 years
<b>Programme Outcomes:</b>	<ul style="list-style-type: none"> <li>• Students to understand the economic and financial theory and social issues from the quantitative perspective.</li> <li>• Students are trained with fundamental computing skills such as mathematics, statistics and computer.</li> <li>• Students are equipped with analytical/empirical skills with various econometric/statistical software.</li> <li>• Students are aware with identification of various data sources for quantitative analysis.</li> <li>• Students understand the econometric theory and applications.</li> <li>• Students learn computerization, cleaning and preparation of database for data analysis.</li> <li>• Students are expected to learn the application of advanced econometric models and methods.</li> <li>• Students are trained to apply and estimate econometric models for their own project and internship works individually.</li> <li>• Students are prepared to teach econometric theory and applications in the academic institutions such as colleges, universities and research institutions.</li> <li>• Students gain proficiency to pursue research programmes and projects in the various institutions across the countries in the world.</li> </ul>
<b>Programme Specific Outcomes:</b>	<ul style="list-style-type: none"> <li>• Basic theoretical concepts, terminology, instruments, frameworks etc., in economics and social are understood.</li> <li>• Theoretical and empirical models (econometric) in economics, social are identified, reviewed, demonstrated and displayed.</li> <li>• Knowledge and training data for economic and social variables are gained and preparation of database are dedicated.</li> <li>• Theoretical knowledge and hands-on training to use econometric/statistical software to estimate the economic and social issues.</li> <li>• Interpretation of output and research report writing skills are developed and displayed through presentation and defense on the report.</li> </ul>

**List of Courses:**

<b>Semester</b>	<b>Course Code</b>	<b>Title of the Course</b>	<b>Core/Elective/ Soft Skill</b>	<b>Credits</b>
<b>I</b>	Eco C 101	Mathematical Methods	C	4
	Eco C 102	Statistical Methods	C	4
	Eco C 103	Data Analysis using Computers	C	4
	Eco C 104	Micro Economics – I	C	4
		Elective - I	E	3
		Elective - II	E	3
	UOM S***	Soft Skill*	S	2
<b>II</b>	Eco C 105	Mathematical Economics	C	4
	Eco C 106	Micro Economics – II	C	4
	Eco C 107	Macro Economics	C	4
	Eco C 108	Econometric Theory – I	C	4
		Elective - III	E	3
		Elective - IV	E	3
	UOM S***	Soft Skill	S	2
	UOM ****	Internship	S	2
<b>III</b>	Eco C 109	Econometric Theory – II	C	4
	Eco C 110	Time Series Econometrics	C	4
	Eco C 111	Applied Econometric Methods	C	4
	Eco C 112	Public Finance	C	4
		Elective - V	E	3
		Elective - VI	E	3
	UOM S***	Soft Skill	S	2
	Eco C 113	Econometric Applications	C	4

IV	Eco C 114	Panel Data and Non-parametric Econometrics	C	4
	Eco C 115	Project	C	4
		Elective - VII	E	3
	UOM S***	Soft Skill	S	2
			Total	91 credits

### Elective Papers

Semester	Course Code	Title of the Course	Core/Elective/ Soft Skill	Credits
I	Eco E 101	Indian Financial System	E	3
	Eco E 102	Indian Economic Development	E	3
	Eco E 103	Monetary Economics	E	3
II	Eco E 104	International Economics	E	3
	Eco E 105	Development and Planning	E	3
	Eco E 106	Data Base for Econometric Analysis	E	3
III	Eco E 107	Financial Economics	E	3
	Eco E 108	Industrial Economics	E	3
	Eco E 109	Advances in Economic Theory	E	3
IV	Eco E 110	Agricultural Economics	E	3
	Eco E 111	Indian Economic Issues	E	3
	Eco E 112	Industrial Organisation	E	3

<b>Course</b>	Core
<b>Title of the Course:</b>	<b>Mathematical Methods</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ol style="list-style-type: none"> <li>1. To develop students critical thinking and problem solving skills</li> <li>2. Introduce students to familiarize with calculus and matrix algebra</li> <li>3. To make students to understand the quantitative skills in economics and finance</li> <li>4. Preparing students to understand the conceptual and modeling framework of various economic, social and financial issues.</li> <li>5. Preparing students to learn the quantitative skills to understand and learn econometric / statistical software.</li> </ol>

<b>Units</b>	
<b>I</b>	Basics – exponents, polynomials, functions, limits, continuity, and derivatives– rules – partial derivatives – differential and total differential – integration – rules –economic applications.
<b>II</b>	Set theory – convex and concave sets and functions – local and global maximum and minimum.
<b>III</b>	Optimisation – maxima and minima – constrained – Lagrangian multiplier method – first and second order conditions – solving numerical problems.
<b>IV</b>	Linear algebra – vectors – matrix – definition – types – relations and operations – trace, partitioned matrices – determinants – rank – properties – inverse – properties of inverse – solution to a system of linear equations – existence of uniqueness of solution – Cramer’s rule – inversion method.
<b>V</b>	Characteristic roots and vectors – properties – quadratic forms – definiteness – distribution of quadratic function.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. At the end of the course students will be able to employ critical thinking and gaining the problem solving skills.</li> <li>2. Concepts and skills in calculus and matrix algebra will be demonstrated.</li> <li>3. Quantitative skills in economics and finance will be obtained and displayed.</li> <li>4. Modeling framework in economics, social and financial issues will be understood.</li> <li>5. Quantitative and logical skills required to understand the econometric and statistical software will be recognized by the students.</li> </ol>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• Edward T. Dowling: Introduction to Mathematical Economics, Tata McGraw Hill.</li> <li>• G.Hadley: Linear Algebra, Narosa Publishing House.</li> <li>• A.C.Chiang: Fundamental Methods of Mathematical Economics, McGraw-Hill.</li> <li>• M.D.Intriligator: Mathematical Optimization and Economic Theory, Prentice Hall Inc. Chapters 5, 7 and 8 and Appendices A and B.</li> </ul>

**Method of Evaluation:**

<b>Internal</b>	<b>External</b>	<b>Total</b>
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas.

**Evaluate (K5)** - Longer essay/ Evaluation essay, Critique or justify with pros and cons

**Create (K6)** - Check knowledge in specific or offbeat situations, Discussion, Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	M	S	S	M	M	L	M	S	S	M
<b>CO 2</b>	M	S	S	M	M	M	M	M	M	M
<b>CO 3</b>	S	S	S	M	S	M	M	M	M	M
<b>CO 4</b>	M	M	S	M	S	M	S	S	S	M
<b>CO 5</b>	M	M	S	L	S	M	S	S	S	M

**S-Strong    M-Medium    L-Low**

<b>Course</b>	Core
<b>Title of the Course:</b>	<b>Statistical Methods</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ol style="list-style-type: none"> <li>1. To provide basic knowledge of data frequency distribution and data representation.</li> <li>2. To apply different concepts relating to Measures of Central Tendencies, Measures of Dispersion, skewness and kurtosis.</li> <li>3. To learn basic concepts of probability and theoretical distributions, discrete &amp; continuous random variables, probability distribution functions and basic mathematical expectations.</li> <li>4. To acquaint students with special probability distributions such as Binomial, Poisson, Normal, Chi-square, Student's t and F distributions.</li> <li>5. To apply statistical testing of hypothesis in decision-making.</li> </ol>
<b>Units</b>	
<b>I</b>	Basics – frequency distribution – graphs and histograms – measures of central tendency – mean, median, mode, geometric mean, harmonic mean – merits and demerits – measures of dispersion – range, mean deviation, semi-interquartile range and variance – moments, skewness and kurtosis – grouped and ungrouped data – numerical problems.
<b>II</b>	Probability – concept of probability – discrete and continuous random variables – probability and cumulative distribution functions – joint probability and cumulative distribution functions – mathematical expectations and variance – concepts and theorems – moment generating and characteristic



	functions – problems.
<b>III</b>	Special probability distributions – binomial, poisson, exponential, normal, chi square, t and F distributions – probability and distribution functions – properties – relations among binomial, poisson and normal distributions – central limit theorem.
<b>IV</b>	Sampling theory – definitions of sampling with and without replacement – type-I and Type-II errors – level of significance – rules of hypotheses testing – one-tailed and two - tailed test – sampling distributions of means and variances theorems – sampling distribution of proportions – sampling distributions of sums – numerical problems.
<b>V</b>	Estimation theory and testing of hypothesis – properties of estimates – confidence interval for population parameters and sample statistics – confidence interval for variances – maximum likelihood estimates – special tests of significance for large and small samples – numerical problems.
<b>Course Outcomes</b>	<p>1. Students would learn the common statistical techniques in the course and understand the concept of a frequency distribution for sample data and able to summarise the distribution by diagrams and graphs.</p> <p>2. Students will be able to communicate the measurement of central Tendencies &amp; Measures of Dispersion, key statistical concepts to non-statisticians and applied principles of statistics needed to enter the job force.</p> <p>3. Students would understand the basic concepts of probability, sampling distribution of the statistic, random variable, discrete random variable and its probability distribution including expectation and moment.</p> <p>4. Students will be able to apply main distributions of Binomial and Poisson and Normal to different situations which are highly useful in real life uncertain issues.</p> <p>5. Acquire knowledge of testing of hypothesis procedure to find the validity and estimate forecast the values from given population.</p>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• Alexander M. Mood, Franklin A. Graybill and Duane C. Boes: Introduction to the Theory of Statistics. Third Edition, McGraw-Hill.</li> <li>• Murray R. Spiegel: Theory and Problems of Probability and Statistics. McGraw-Hill Schaum's Outline Series.</li> <li>• Seymour Lipschutz and John Schiller: Introduction to Probability and Statistics, Schaum's Outlines, McGraw Hill.</li> <li>• P.K.Viswanathan: Business Statistics: An Applied Orientation, Pearson.</li> <li>• Damodar Gujarati: Essentials of Econometrics, McGraw Hill.</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas.

**Evaluate (K5)** - Longer essay, Critique or justify with pros and cons

**Create (K6)** - Check knowledge in specific or offbeat situations, Discussion, Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
<b>CO 1</b>	M	S	M	S	S	S	M	S	S	S
<b>CO 2</b>	S	S	S	S	M	S	M	S	S	S
<b>CO 3</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 4</b>	S	S	S	S	S	M	S	S	S	S
<b>CO 5</b>	S	S	S	S	S	S	S	S	S	M

**S-Strong    M-Medium    L-Low**

<b>Course</b>	Core
<b>Title of the Course:</b>	<b>Data Analysis using Computers</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	<b>Basic Computer knowledge and basics in statistical concepts</b>
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theories, Conceptualise etc</p>	<p><b>The main objectives of the course are to:</b></p> <ul style="list-style-type: none"> <li>• Enumerate the statistical concepts used in data analysis</li> <li>• Get introduced to data analysis tools and techniques that are useful in helping learn Econometrics</li> <li>• Explain the importance of statistical concepts in interpretation of the output generated by the software</li> <li>• Select appropriate statistical/econometric tool or technique under different circumstances (objective, data type availability etc.)</li> <li>• Hands-on exercises using available data sets &amp; practical sessions</li> <li>• Incorporate the lessons learnt in analyzing / solving real word problem using real world data</li> </ul>
<b>Units</b>	
<b>I</b>	Overview of data characteristics – key terms and definitions – population – sample – variable – parameter – statistic – types of Data – metric – non-metric - nominal – ordinal – interval and ratio – sources of data – step by step approach to statistical investigation – methods of data analysis – descriptive method – inferential method – data-base availability.
<b>II</b>	Data processing using Microsoft Excel – fundamentals of spreadsheets – fill handles – absolute positioning – cell operations – data sorting and filter – specific functions – frequencies – charts and chart Options – mathematical Ffnctions – transformations – matrices – solving linear equations using spreadsheet – linear programming using Excel solver – statistical functions – measures of central tendencies and dispersions – data analysis –regression – forecasting – chi-square test.

<b>III</b>	Introduction to Stata – Stata Description – Stata Windows – creating new data set – importing ASCII data – creating log, cmdlog and do files – generating and replacing variables – summary statistics and exploratory data analysis – frequency tables and two-way cross tabulations – regression – dummy variables and interaction effects.
<b>IV</b>	Multivariate data analysis using SPSS – basics data management – importing data – recoding variables – creating new variables using compute command – selecting and weighting cases – univariate analysis – cross tabulations – multiple regression analysis – LSDV regression and interaction effects.
<b>V</b>	Working with E-views – creating work file and importing data – creating new series – running simple statistical and econometric tools using E-views.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Learn to use analytical tools/statistical packages such as Microsoft Excel, SPSS, STATA, E-Views and so on. Describes an alternative approach to teaching content by using computer applications that emphasize the empirical testing or applications of the theory</li> <li>2. Gain an in-depth understanding of data structures to explore and visualize data for meaningful insights</li> <li>3. Understand and learn the applications of descriptive and inferential statistics to real world data</li> <li>4. Evaluate the relationship between variables for further prediction/forecasting</li> <li>5. Prepare students for employment in data analysis related jobs</li> </ol>
<b>Reading List (Print and Online)</b>	<ol style="list-style-type: none"> <li>1. David P. Doane and Lori E. Seward: Applied Statistics in Business and Economics, Tata McGraw Hill.</li> <li>2. Kultar Singh: Quantitative Social Research Methods, Sage.</li> <li>3. STATA Version 8.0; Base Reference Manuals, Volume 1-4.</li> <li>4. P.K.Viswanathan: Business Statistics: An Applied Orientation, Pearson.</li> <li>5. WebResources: <a href="http://www.sabine.k12.la.us/class/excel_resources.htm">http://www.sabine.k12.la.us/class/excel_resources.htm</a>.</li> </ol>

**Method of Evaluation:**

<b>Internal</b>	<b>External</b>	<b>Total</b>
25	75	100

**Methods of assessment:****Recall (K1)** - Recall steps, Concept definitions**Understand/ Comprehend (K2)** - Concept explanations.**Application (K3)** - Suggest idea/concept with examples, Solve problems, Observe, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps.

**Evaluate (K5)** -Critique or justify with pros and cons.

**Create (K6)** – Discussion.

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
<b>CO 1</b>	M	S	S	S	M	S	M	S	M	S
<b>CO 2</b>	M	S	S	S	S	S	L	M	L	S
<b>CO 3</b>	L	S	S	M	M	S	S	M	L	S
<b>CO 4</b>	M	M	M	S	M	S	S	S	M	S
<b>CO 5</b>	M	S	S	S	S	S	S	S	S	S

**S-Strong      M-Medium      L-Low**

<b>Course</b>	Core
<b>Title of the Course:</b>	Micro Economics – I
<b>Credits:</b>	4
<b>Pre-requisites, if any:</b>	
<b>Course Objectives</b> <b>Recall (K1)</b> - List, Identify, Enumerate, Define <b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise <b>Apply Knowledge (K3)</b> - Interpret,	1. Understanding of fundamental conceptual issues in consumption and production theory. 2. Learn to differentiate microeconomics between theoretical and empirical approaches in microeconomics. 3. Demonstration of the transformation of microeconomic theory into econometric frame works. 4. Students to realize the application of mathematics in the microeconomics.

<p>Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<p>5. Students will understand the demand and production functions, corresponding models, properties, applications etc.</p>
<b>Units</b>	
<b>I</b>	<p>Resource allocation – economic laws – market and market mechanism – demand and supply – market equilibrium – existence, uniqueness and stability of equilibrium – changes, shifts and dynamic adjustments – constrained optimisation.</p>
<b>II</b>	<p>: Relationship between marginal, average and total quantities – short run and long run cost curves – optimum output – classification of goods – demand functions – restrictions and properties – compensated and uncompensated demand curves – elasticity – Engel curve.</p>
<b>III</b>	<p>Theory of individual decision making – preference and choice – consumer equilibrium – Slutsky equation – derivation of demand curves – utility functions – direct, indirect, additive, separable, homogenous and homothetic functions – duality – applications of indifference curve analysis – consumer surplus, taxes, subsidy, labour supply, welfare.</p>
<b>IV</b>	<p>Revealed preference theory – intertemporal choice – choice under uncertainty – expected utility analysis – mean-variance approach – characteristic approach – quality choice – asymmetric information and decision making – random utility – prospect theory.</p>
<b>V</b>	<p>Theory of firm – theory of production and production functions – returns to scale – technology and technical change – optimization – duality – alternative objectives of firm – Cobb-Douglas and CES production functions – properties of production functions – multiple inputs and outputs.</p>
<b>Course Outcomes</b>	<p>1. Fundamental concepts in consumption and production theory are understood and compared.</p> <p>2. Generalization of empirical framework or a theoretical framework in micro economic issues will be explained.</p> <p>3. Transformation of microeconomic theoretical framework into</p>

	<p>empirical framework will be understood, summarized and illustrated</p> <p>4. Application of mathematics such as calculus and matrix algebra will be understood and recognized.</p> <p>5. Transformation of demand and production function into econometric models and properties of demand and production functions will be displayed by the students.</p>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• J.M.Henderson and R.E.Quandt: Micro Economic Theory, Tata McGraw Hill.</li> <li>• Hal R.Varian: Intermediate Micro Economics, East West Press.</li> <li>• A. Koutsoyiannis: Modern Microeconomics, Macmillan.</li> </ul>

**Method of Evaluation:**

<b>Internal</b>	<b>External</b>	<b>Total</b>
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Solve problems, Observe, Explain

**Analyse (K4)** -Finish a procedure in many steps, Differentiate between various ideas, Map knowledge

**Evaluate (K5)** - Longer essay/ Evaluation essay, Critique or justify with pros and cons

**Create (K6)** - Check knowledge in specific or offbeat situations, Discussion, Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
<b>CO 1</b>	S	S	S	M	S	S	S	S	S	M
<b>CO 2</b>	S	L	M	L	S	M	S	M	M	M
<b>CO 3</b>	M	M	S	L	S	M	S	S	S	M
<b>CO 4</b>	S	M	M	L	S	M	S	S	S	M
<b>CO 5</b>	S	S	S	M	S	M	S	M	M	M

**S-Strong M-Medium L-Low**

<b>Course</b>	Elective
<b>Title of the Course:</b>	<b>Indian Financial System</b>
<b>Credits:</b>	<b>3</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p>	<ol style="list-style-type: none"> <li>1. To enumerate the components and structure of the Indian financial system</li> <li>2. To outline the Functions of the Financial System, Financial Assets, Intermediaries, and Financial Markets.</li> <li>3. To critically assess and employ the functioning of the primary and secondary market in the development of the Indian financial system</li> <li>4. Evaluate the functioning of different financial institutions.</li> <li>5. To recognize and review the importance of the money market, foreign exchange market, derivative market, capital market, and commodity market.</li> <li>6. To conceptualize the system of financial instruments and their working in the financial system.</li> </ol>



<b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc	
<b>Units</b>	
<b>I</b>	Components of financial system – functions – design and structure – financial system and macro-economy – national income accounts – flow of funds accounts – financial system and economic growth.
<b>II</b>	Indian financial system – pre and post reform developments – money market – institutions – instruments – capital market – instruments – shares – debts – derivatives – primary market – IPO – process – institutional mechanism – secondary market - listing - trading – index – stock exchange – depositors – demat account.
<b>III</b>	Debt market – corporate bonds – government securities – primary dealers – disinvestment of PSUs – PSU bonds.
<b>IV</b>	Derivatives – commodities types – financial types – commodity exchanges.
<b>V</b>	Mutual funds – types – risk – NAV – SEBI guidelines – UTI – insurance – IRDA – health – life – other insurance products – credit rating and agencies.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Critically assess and be aware of the structure and components of the Indian Financial System.</li> <li>2. Demonstrate the knowledge and skills necessary to become employable in the financial service industry.</li> <li>3. To evaluate student’s understanding of the fundamental concepts and working of financial service institutions.</li> <li>4. To recognize the current structure and regulation of the Indian financial services sector.</li> <li>5. Understand the functioning of Commercial Banks and RBI in the Financial system.</li> </ol>
<b>Reading List (Print and Online)</b>	<ol style="list-style-type: none"> <li>1. Bharati V. Pathak: The Indian Financial System, Pearson Education Ltd.</li> <li>2. M.Y.Khan: Indian Financial System, Tata McGraw Hill.</li> <li>3. L.M.Bhole: Financial Institutions and Markets, Tata McGraw Hill.</li> </ol>
<b>Recommended Texts</b>	<a href="http://www.igntu.ac.in/eContent/IGNTU-eContent-457919741593-B.Com-6-Prof.ShailendraSinghBhadouriaDean&amp;-FINANCIALSERVICES-All.pdf">http://www.igntu.ac.in/eContent/IGNTU-eContent-457919741593-B.Com-6-Prof.ShailendraSinghBhadouriaDean&amp;-FINANCIALSERVICES-All.pdf</a>

**Method of Evaluation:**

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**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1	M	S	L	S	S	M	S	M	L	M
CO 2	S	S	L	M	M	L	S	M	M	S
CO 3	S	M	M	S	M	M	S	S	L	S
CO 4	S	S	L	S	M	M	M	S	L	M
CO 5	S	M	S	S	S	S	S	M	M	S

**S-Strong M-Medium L-Low**

<b>Course</b>	Elective
<b>Title of the Course:</b>	<b>Indian Economic Development</b>
<b>Credits:</b>	<b>3</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ol style="list-style-type: none"> <li>1. To make awareness among the students about various economic issues, Obstacles to economic development, occupational pattern, etc.</li> <li>2. To understand the causes of economic and non-economic factors and obstacle in economic development.</li> <li>3. To provide a strong knowledge of various economic planning and policies based on India's economy.</li> <li>4. To enrich the knowledge of students related to trends and growth of different sectors, export and import, capital formation, infrastructure in the Indian economy.</li> <li>5. To give the awareness about the various globalisation issues of trade, climate, etc.</li> </ol>

<b>Units</b>	
<b>I</b>	Concepts of economic growth and development – major features of the Indian economy – economic and non-economic factors in economic development – obstacles to economic growth and development measures of development – GDP – Percapita income – human development index.
<b>II</b>	Trends and growth in GDP – agriculture, industry and service sectors – production, exports and imports – capital formation – capital-output ratio – productivity – heavy industries – small scale industries – ICT and Indian economic development – employment – infrastructure
<b>III</b>	Indian economic planning – plan models – five year plans – monetary and fiscal policies – public debt and deficit financing – trade and investment policies – industrial and labour regulations.
<b>IV</b>	Foreign trade – importance, composition, foreign trade policy, direction, balance of payments and economic reforms – trade, export and import policies – trends in imports and exports – prices and money supply – causes and policies.
<b>V</b>	India and international relations – WTO, bilateral relations, environment and climate change issues, trade issues – globalisation issues and global standards.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Students would become familiar with factors affecting economic growth and development, measurement of GDP PCI, HDI, etc</li> <li>2. Students will be aware of the causes of various obstacles factors to an economic development and how different factors have affected this process.</li> <li>3. Students will be able to understand how planning and infrastructure support can develop an economy.</li> <li>4. Student will get knowledge about the economic five year planning, relationship between monetary policy, fiscal policy and economic development. Help the students in understanding the performance of the different sectors of the Indian Economy</li> <li>5. Students will get to know about various economic issues at national and global levels.</li> </ol>

<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• R.Dutt and K.P.M.Sundaram: Indian Economy, S. Chand &amp; Company.</li> <li>• S.K.Misra and V.K.Puri: Economics of Development and Planning, Himalaya.</li> <li>• Government of India, Economic Surveys.</li> <li>• Reserve Bank of India Annual Reports.</li> </ul>
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**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Observe, Explain

**Analyse (K4)** - Differentiate between various ideas.

**Evaluate (K5)** - Longer essay.

**Create (K6)** - Check knowledge in specific, Discussion,Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
<b>CO 1</b>	S	S	S	S	S	S	M	S	M	S
<b>CO 2</b>	M	M	M	M	M	M	M	M	M	M
<b>CO 3</b>	S	M	S	M	M	M	M	M	M	M
<b>CO 4</b>	S	S	M	S	M	M	S	M	M	M
<b>CO 5</b>	S	S	M	M	M	M	M	M	M	M

**S-Strong      M-Medium      L-Low**

<b>Course</b>	Elective
<b>Title of the Course:</b>	<b>Monetary Economics</b>
<b>Credits:</b>	<b>3</b>
<b>Pre-requisites, if any:</b>	Basic knowledge in Macroeconomics
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<p><b>The main objectives of the course are to:</b></p> <ol style="list-style-type: none"> <li>1. develop understanding of the theories that relate to the existence of money, explaining why it is demanded by individuals</li> <li>2. Understand various measures of money , credit creation by commercial banks and Money multiplier</li> <li>3. Gain an in-depth understanding of interest rate, exchange rate and other channels of monetary transmission mechanism</li> <li>4. Impart knowledge in effectiveness monetary policy under different exchange rate regime</li> <li>5. develop macroeconomic models through which monetary policy can be evaluated</li> <li>6. Understanding use of monetary theories in analyzing / solving real word problem using actual data</li> </ol>

<b>Units</b>	
<b>I</b>	Money - definition – measures – central bank balance sheet – flow of funds approach – money multiplier – central bank and commercial bank – coordination – combined balance sheet.
<b>II</b>	Demand for money – quantity theories – general theory – Tobin’s portfolio model – monetarism – microeconomic transactions approach.
<b>III</b>	Transmission of monetary policy – channels – interest rate – expected inflation – exchange rate – asset prices – Philips cure – money supply, aggregate demand – independence of central bank.
<b>IV</b>	Theory of monetary policy – goals – instruments – rules and discretion – choice of instruments – targets and indicators – policy rules.
<b>V</b>	Monetary policy with fixed exchange rate – floating exchange rate – policy coordination – capital mobility and Tobin tax.
<b>Course Outcomes</b>	<ul style="list-style-type: none"> <li>• Explain and discuss why people hold money and why it is used in the trading process</li> <li>• Describe and explain the main channels of the monetary transmission mechanism, through which monetary policy can have real effects on the economy</li> <li>• Discuss the merits and disadvantages of different monetary policies used by Central Banks</li> <li>• Incorporate monetary theories learnt in analyzing / solving real word problem and assess the role and efficacy of monetary policy</li> <li>• Prepare students for using RBI’s monetary, banking and other financial data in analyzing monetary policies and extend solutions to macroeconomic problems</li> </ul>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• Keith Bain and Peter Howells: Monetary Economics, London: Palgrave.</li> <li>• Jagadish Handa: Monetary Economics, London: Routledge.</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations.

**Application (K3)** - Suggest idea/concept with examples, Solve problems, Observe, Explain

**Analyse (K4)** - Differentiate between various ideas, Map knowledge

**Evaluate (K5)** - Critique or justify with pros and cons.

**Create (K6)** - Debating or Presentations.

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
<b>CO 1</b>	S	L	M	M	S	M	M	S	S	S
<b>CO 2</b>	S	M	M	S	S	M	M	S	S	S
<b>CO 3</b>	S	M	M	S	S	S	M	M	S	S
<b>CO 4</b>	S	M	S	S	S	S	S	S	S	S
<b>CO 5</b>	S	S	S	S	S	S	S	S	S	S

**S-Strong    M-Medium    L-Low**



<b>Course</b>	<b>Core</b>
<b>Title of the Course:</b>	<b>Mathematical Economics</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	Knowledge about the basic mathematics skill
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<p>1. This course provides a comprehensive introduction to basic mathematical economics concepts, tools and applications.</p> <p>2. The objective of this course is to help students acquire the mathematical skills used in economic analysis.</p> <p>3. To equip students with relevant skills and competencies to analyse production technologies and producer behaviour with appropriate applied methods/tools</p> <p>4. The main goal of this course is to introduce the basic concepts of Game theory and to illustrate its importance in explaining various kinds of economic and social phenomena</p>
<b>Units</b>	
<b>I</b>	Optimisation methods and economic analysis – application of constrained and unconstrained optimization methods to consumer and producer behaviour – production function – Cobb-Dougllass production function-properties.
<b>II</b>	Linear programming – primal – dual – graphic method – simplex method – application to production and diet problems – Non-linear programming – Hawkin-Simon conditions – method and applications.
<b>III</b>	Input – output analysis – structure of an economy – assumptions – technical co-efficient – outputs and price determination – static and dynamic input- output analysis.
<b>IV</b>	Game theory – basic concepts – two person zero sum game – saddle point – examples of co-operative and non-co-operative games – Prisoner’s dilemma.

<b>V</b>	Difference and differential equations – first and second order linear differential and difference equations – application to growth and trade cycle models – Cobbweb model – Domar model.
<b>Course Outcomes</b>	<ul style="list-style-type: none"> <li>• Gives a clear understanding of the consumer and producer equilibrium analysis. It will impart knowledge about the use of lagrange multiplier methods in various economic problems of maximization and minimization</li> <li>• The student will understand about production theories and estimation techniques for efficiency and productivity measurement.</li> <li>• Provides knowledge of the Linear Programming and Input-Output models for obtaining an optimum solution under complex economic situations.</li> <li>• Game theory provides knowledge to apply equilibrium concepts of cooperative and non-cooperative game, as well as learn procedures of iterated dominance.</li> <li>• Provides a clear idea of different types of market and equilibrium in the respective market mathematically.</li> </ul>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• A.C. Chiang: Fundamental Methods of Mathematical Economics, McGraw Hill.</li> <li>• J. Henderson and R.E. Quandt: Micro Economic Theory, Tata McGraw Hill.</li> <li>• M.D. Intrilligator: Mathematical Optimization and Economic Theory, Prentice Hall.</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, MCQ, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** - MCQ, True/False, Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge

**Evaluate (K5)** - Longer essay/ Evaluation essay, Critique or justify with pros and cons

**Create (K6)** - Check knowledge in specific or offbeat situations, Discussion, Debating or Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	M	S	S	S	S	S	M	S	S	S
<b>CO 2</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 3</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 4</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 5</b>	M	M	M	M	M	M	M	M	M	M

**S-Strong    M-Medium    L-Low**

<b>Course</b>	<b>Core</b>
<b>Title of the Course:</b>	<b>Micro Economics – II</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ol style="list-style-type: none"> <li>1. To make students aware of approaches objectives and rules on firm, markets and pricing.</li> <li>2. Students will understand the characteristics of competitive markets and equilibrium &amp; types of markets.</li> <li>3. To learn the behavior of players in the market.</li> <li>4. To review the characteristics of input markets.</li> <li>5. To explain the concepts of equilibrium and its types.</li> </ol>
<b>Units</b>	
<b>I</b>	Marginalist approach – critique of neo-classical theory of firm – marginalist controversy – modern markets – alternative objectives of firm – market structure – classification of markets – pricing rules – equilibrium and disequilibrium analysis.
<b>II</b>	Competitive market – equilibrium of a firm – short and long run analysis – monopoly – price discrimination – inefficiency and regulation of monopoly – monopolistic competition – product differentiation.
<b>III</b>	opoly – rivalry and strategic behaviour – reaction functions – Cournot and Stackleberg equilibrium – kinky demand curve – cartels, mergers and takeovers – cooperative and non-cooperative behaviour – bargaining – game theoretic solutions.

<b>IV</b>	Input markets – marginal productivity theory and distribution of income – competitive markets – factor market imperfections – monopoly – monopsony – exploitation – bilateral monopoly – Euler’s theorem – Clark-Wicksteed theorem
<b>V</b>	Theory of general equilibrium – pure exchange economy – Pareto optimality – Walrasian equilibrium – welfare analysis.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Basic concepts in firms, markets and pricing critically understood.</li> <li>2. Students could identify and understand the characteristics, equilibrium and types of markets.</li> <li>3. Behaviours of players in the market are identified, compared and contrasted by the students at the end of the course.</li> <li>4. Students could outline and summarize the characteristics of input markets.</li> <li>5. Concepts of equilibrium and its types are understood and described by the students.</li> </ol>
<b>Reading List (Print and Online)</b>	<ol style="list-style-type: none"> <li>1. J.M. Henderson and R.E. Quandt: Micro Economic Theory, Tata McGraw-Hill.</li> <li>2. Hal R. Varian: Intermediate Micro Economics, East West Press.</li> <li>3. Koutsoyiannis: Modern Microeconomics, Macmillan.</li> </ol>

**Method of Evaluation:**

<b>Internal</b>	<b>External</b>	<b>Total</b>
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** - Short essays, Concept explanations, Short summary.

**Application (K3)** - Suggest idea/concept with examples, Solve problems, Explain

**Analyse (K4)** - Problem-solving questions, Differentiate between various ideas, Map knowledge

**Evaluate (K5)** - Critique or justify with pros and cons

**Create (K6)** - Check knowledge in specific or offbeat situations, Discussion, Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	S	S	S	M	S	S	S	S	S	M
<b>CO 2</b>	S	L	L	L	S	M	M	M	M	M
<b>CO 3</b>	M	M	S	S	L	M	M	S	S	L
<b>CO 4</b>	M	M	M	L	M	M	M	S	S	M
<b>CO 5</b>	S	S	L	M	L	S	S	M	M	L

**S-Strong      M-Medium      L-Low**

<b>Course</b>	<b>Core</b>
<b>Title of the Course:</b>	<b>Macro Economics</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	Basic readings in economics
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<p><b>The main objectives of the course are to:</b></p> <ol style="list-style-type: none"> <li>1. Become familiar with measures of economic performance</li> <li>2. Learn to use these indicators to evaluate current economic conditions</li> <li>3. Understand how markets function in a capitalistic society</li> <li>4. Understand the major perspectives on what determines performance of the overall economy</li> <li>5. Learn analyze impacts on the economy</li> <li>6. Learn key approaches to macroeconomic policy</li> <li>7. Develop skills to analyze impacts of policy actions and to evaluate the advantages and disadvantages of different policies</li> </ol>
<b>Units</b>	
<b>I</b>	Basic concepts in macroeconomics – stocks and flows – static and dynamic equilibrium – national income concepts – circular flow of income – different forms of national income accounting.
<b>II</b>	Product market – classical theory of output and employment – Keynesian theory of income determination – aggregate demand and aggregate supply – closed economy model – open economy model – role of multipliers – static vs dynamic multipliers – consumption and investment functions – income consumption relationship – marginal efficiency of capital and investment.
<b>III</b>	Money market – demand for money – classical approach to demand for money – quantity theory approach – Cambridge quantity theory – Keynes

	liquidity preference approach – aggregate demand for money – derivation of LM curve – theory of money supply – high powered money and money multiplier.
<b>IV</b>	Integration of product and money markets – interdependence of product and money market – derivation of IS and LM curves – IS-LM model in closed economy – IS-LM model in open economy – multiplier and relationship with IS- LM model – effectiveness of fiscal and monetary policies on general equilibrium.
<b>V</b>	Foreign exchange and balance of payment –foreign exchange – exchange rate determination – floating exchange market – fixed exchange rate – controversies of free and fixed exchange rate markets - balance of payments – disequilibrium in balance of payments – causes and kinds – automatic adjustment in BOP – adjustments by policy measures – expenditure changing and expenditure switching policies – monetary approach to BOP adjustment.
<b>Course Outcomes</b>	<ul style="list-style-type: none"> <li>• Use supply and demand to explain various economic phenomena and principles.</li> <li>• Explain the measurement and importance of GDP, inflation, unemployment, money, and trade</li> <li>• Be able to describe the cause and effect of changes in all macro variables. Associate the current economic phenomenon with existing theory and put their views on contemporary economic issues.</li> <li>• Locate and use information related to macroeconomics</li> <li>• Relate economic concepts to the real world events and critically evaluate the impact of macroeconomic policies on the Economy</li> </ul>
<b>Reading List (Print and Online)</b>	<ol style="list-style-type: none"> <li>1. R.Dornbusch, S.Fischer.and R.Startz: Macroeconomics, Tata McGraw Hill.</li> <li>2. E.Shapiro: Macroeconomic Analysis, Galgotia Publications.</li> <li>3. Gregory N.Mankiw: Macroeconomics, Macmillan.</li> <li>4. D.N.Dwivedi: Macroeconomics – Theory and Policy, McGraw Hill.</li> <li>5. G.Ackley: Macroeconomics – Theory and Policy, Collier Macmillan.</li> </ol>

**Method of Evaluation:**

<b>Internal</b>	<b>External</b>	<b>Total</b>
25	75	100



**Methods of assessment:**

**Recall (K1)** - Concept definitions

**Understand/ Comprehend (K2)** - Concept explanations.

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain

**Analyse (K4)** - Problem-solving questions.

**Evaluate (K5)** - Longer essay/ Evaluation essay, Critique or justify with pros and cons

**Create (K6)** – Discussion.

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
<b>CO 1</b>	S	M	S	M	S	M	M	S	S	S
<b>CO 2</b>	S	S	M	S	M	S	M	S	S	S
<b>CO 3</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 4</b>	L	S	S	S	S	S	S	S	S	S
<b>CO 5</b>	M	M	S	S	M	S	S	S	S	S

**S-Strong    M-Medium    L-Low**

Course	Core
<b>Title of the Course:</b>	<b>Econometric Theory – I</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate,</p> <p>Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ol style="list-style-type: none"> <li>1. Introduce the discipline of econometrics to the students who have studied various disciplines at UG level.</li> <li>2. To make learn the econometric methodology step by step.</li> <li>3. Students will learn econometric theory proficiently</li> <li>4. Learn various econometric models and methods of estimation</li> <li>5. Students will understand basics of econometrics to deal with economic and social issues.</li> </ol>
<b>Units</b>	
<b>I</b>	Econometrics – definitions – scope – methodology – types.
<b>II</b>	Two variable regression model – assumptions – method of least squares – properties – BLUE – R-square – maximum likelihood method – testing of hypotheses using point and interval estimates – forecasting – solving problems using SPSS and STATA.
<b>III</b>	Nonlinear relationships – transformation of variables – functional forms – three variable regression model – applications using SPSS and STATA.
<b>IV</b>	General linear model (matrix approach) – specification – OLS estimators – testing significance of individual and overall regression coefficients – restricted least squares – structural

	regression models – dummy variables – problems and application using STATA.
<b>V</b>	Violation of classical assumptions – multicollinearity – autocorrelation – heteroscedasticity – problems – causes – consequences – remedial measures – model specification and diagnostic testing.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. The uniqueness of the discipline of econometrics will be differentiated and understood.</li> <li>2. Econometric methodology will be able to outline and explain step by step.</li> <li>3. Students will be gaining explaining knowledge in econometric theory.</li> <li>4. Various econometric models and methods of estimation will be identification, understood and employed.</li> <li>5. Students can draft, revise and employ the econometric model for economic and social issues independently.</li> </ol>
<b>Reading List (Print and Online)</b>	<ol style="list-style-type: none"> <li>1. Damodar N. Gujarathi: Basic Econometrics, New Delhi: Tata McGraw Hill.</li> <li>2. J. Johnston: Econometric Methods, McGraw Hill.</li> <li>3. STATA Version 8.0: User's Guide, Texas: Stata Press.</li> </ol>

**Method of Evaluation:**

<b>Internal</b>	<b>External</b>	<b>Total</b>
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge

**Evaluate (K5)** - Longer essay/ Evaluation essay, Critique or justify with pros and cons

**Create (K6)** - Check knowledge in specific or offbeat situations, Discussion, Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	S	S	M	L	M	M	S	S	S	M
<b>CO 2</b>	M	M	M	M	S	S	S	S	S	M
<b>CO 3</b>	S	M	M	M	S	S	S	S	S	M
<b>CO 4</b>	S	M	M	L	S	S	S	S	M	M
<b>CO 5</b>	S	M	M	M	S	M	S	S	S	M

**S-Strong      M-Medium      L-Low**

<b>Course</b>	<b>Elective</b>
<b>Title of the Course:</b>	<b>International Economics</b>
<b>Credits:</b>	<b>3</b>
<b>Pre-requisites, if any:</b>	Basic knowledge in Economic concepts
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<p><b>The main objectives of the course are to:</b></p> <ul style="list-style-type: none"> <li>• Explain Theory of International Trade with Theory of Absolute and Comparative Advantages</li> <li>• Explain liberalization of international trade, Evaluate globalization and developments in international trade</li> <li>• Explain exchange markets, and exchange rate systems</li> <li>• Understanding Balance of Payments and learn mechanisms in adjusting BoP disequilibrium</li> <li>• Explain international monetary systems, gold standard, and Bretton- Woods Systems, role of IMF, and World Bank</li> <li>• Relate relationship between Theory of Foreign Trade and Economic Development</li> </ul>
<b>Units</b>	
<b>I</b>	Theories of international trade – Adam Smith – David Ricardo – Heckscher Ohlin – factor accumulation – Rybczynski theorem – technical progress and international trade.
<b>II</b>	International trade policy – partial equilibrium analysis – general equilibrium analysis – distortions in domestic markets – imperfect competition.
<b>III</b>	Protection – types – agreements – theory of customs – import substitutions vs export promotion.
<b>IV</b>	BOP – market for foreign exchange – foreign trade and national income – capital movement.
<b>V</b>	Exchange rate – determination of floating exchange rate – macro economics policy and exchange rate – exchange rate and policy coordination.

<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Understand the theories and models of Supply and Demand within the context of International Trade.</li> <li>2. Establishes the relationship between foreign trade theory and economic development</li> <li>3. Explain liberalization of world trade, and international trade through agreements such as GATT, TRIPS, etc.</li> <li>4. Impart knowledge in exchange markets, and analyze exchange rate systems</li> <li>5. Analyze international monetary systems and its importance, Evaluate role of IMF, and World Bank in international monetary systems</li> <li>6. Gain in-depth knowledge on Foreign Payments Balance-influences, causes and importance of disequilibrium in the balance of payments and adjustment mechanism</li> </ol>
<b>Reading List (Print and Online)</b>	<ol style="list-style-type: none"> <li>1. Carbaugh: International Economics, Thompson South – Western, New Delhi.</li> <li>2. Paul Krugman and Maurice Obstfeld: International Economics: Theory and Policy, Pearson-Addison Wesley.</li> <li>3. Bo Sodersten and Reed Geoffrey: International Economics, Macmillan Press Ltd.</li> </ol>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Concept definitions

**Understand/ Comprehend (K2)** -Concept explanations.

**Application (K3)** - Suggest idea/concept with examples,

**Analyse (K4)** - Problem-solving questions,

**Evaluate (K5)** - Critique or justify with pros and cons

**Create (K6)** – Discussion.

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	S	M	M	S	S	S	M	M	M	S
<b>CO 2</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 3</b>	S	M	M	S	S	S	S	M	S	S
<b>CO 4</b>	S	M	M	S	S	S	S	M	S	S
<b>CO 5</b>	S	S	S	S	S	S	S	S	S	S

**S-Strong      M-Medium      L-Low**

<b>Course</b>	<b>Elective</b>
<b>Title of the Course:</b>	<b>Development and Planning</b>
<b>Credits:</b>	<b>3</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ul style="list-style-type: none"> <li>• To understand the causes of economic, non-economic and obstacle factors in economic development.</li> <li>• To provide knowledge for understanding the various theoretical and endo</li> <li>• To provide knowledge about the development theories for economic Solow, endogenous growth, Rostow's stages of growth, balanced and unlimited labour supply, etc.</li> <li>• To understand the innovation and knowledge spillovers for development of the nations.</li> <li>• To make awareness among the students about various modern development and social issues in an economic development.</li> </ul>
<b>Units</b>	
<b>I</b>	Economic growth and development – problem of development – causes of underdevelopment – measures of growth and development – development issues – development strategies – examples.
<b>II</b>	Early growth models – Harrod-Domar model – Neoclassical Solow model – technological change – exogenous growth – convergence – golden rule – growth accounting approach – residual approach – total factor productivity – augmented Solow model.
<b>III</b>	Unlimited growth – increasing returns – endogenous growth – innovations – learning by doing – positive spillovers – modern concept of capital – factor mobility and growth – governments and markets – public-private partnership – social issues – health and education in development.
<b>IV</b>	Endogenous growth models – growth engines – knowledge capital – human capital – public utilities and infrastructure – R&D – trade – social capital –



	formal and informal institutions.
<b>V</b>	Modern development issues – cost-benefit analysis – planning and development – Indian plan models.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. After successful completion of this course, the students are expected to:</li> <li>2. Students will get benefit of conceptual approach of growth models which are the nation.</li> <li>3. Students can understand about good infrastructure, R&amp; D and public facilities will always induce the economic development.</li> <li>4. Students can be aware of the implementation of Indian 5 year plan models which induce the Indian economy.</li> </ol>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• Robert J. Barro and Xavier Sala-i-Martin: Economic Growth.</li> <li>• P. Aghion and S. Durlauf: Handbook of Economic Growth.</li> <li>• Kaushik Basu: The Less Developed Economy.</li> <li>• Debraj Ray: Development Economics.</li> </ul>

**Method of Evaluation:**

<b>Internal</b>	<b>External</b>	<b>Total</b>
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Concept definitions

**Understand/ Comprehend (K2)** - Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Observe, Explain

**Analyse (K4)** - Differentiate between various ideas.

**Evaluate (K5)** - Longer essay

**Create (K6)** - Discussion, Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	S	M	M	M	S	M	M	M	M	M
<b>CO 2</b>	M	M	M	M	M	M	M	M	M	M
<b>CO 3</b>	M	M	M	M	M	M	M	M	M	M
<b>CO 4</b>	M	M	M	M	M	M	M	M	M	M
<b>CO 5</b>	M	M	M	M	M	M	M	M	S	S

**S-Strong    M-Medium    L-Low**

<b>Course</b>	<b>Elective</b>
<b>Title of the Course:</b>	<b>Database for Econometric Analysis</b>
<b>Credits:</b>	<b>3</b>
<b>Pre-requisites, if any:</b>	Basic Readings in Economics
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<p><b>The main objectives of the course are to:</b></p> <ol style="list-style-type: none"> <li>1. Expose the economic and social data sources to the students for analyzing and understanding the economic problems and finding out solutions</li> <li>2. Understanding demographic structure of the country and world</li> <li>3. Describe the components of National Income and their contribution to the economic growth</li> <li>4. Explore the social and international economic database available worldwide such as IMF, World Bank, WHO, WTO, UNCTAD etc.</li> <li>5. Understand the indices of economic development</li> <li>6. Comprehend the basic characteristics of economic development and economic growth</li> </ol>
<b>Units</b>	
<b>I</b>	Census – history of population census – demographic indicators – definitions – schedules – dissemination – database – types – other data sets from census – sample registration system - economic census – education census – agricultural census.
<b>II</b>	National income accounting – base year – methods of estimation – types of reporting – BoP and NI – SDP – district income.
<b>III</b>	NSSO – sample – large and small samples – rounds – reports – ASI – coverage – definition of terms – reports – price and wage statistics – socioeconomic statistics – NFHS – district handbooks.
<b>IV</b>	RBI – balance sheet approach – banking statistics – money supply – foreign exchange reserve – exchange rate – stock market statistics

<b>V</b>	International data – World bank, IMF, ILO, WTO, UNCTAD, UN and other international agency data – World Value Surveys – Gallop Poll.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Understand National Income database for macroeconomic analysis</li> <li>2. Gain an in-depth understanding of population census and use of population census for demographic analysis</li> <li>3. Throw light on available sample survey data such as NSSO for using in economic analysis and use RBI dataset for Macroeconomic analysis and financial markets</li> <li>4. Learn to use international datasets for international comparison of economic and social development</li> <li>5. Prepare students for employment in development research related jobs</li> </ol>
<b>Reading List (Print and Online)</b>	<p>Websites and reports of respective ministries and organizations, like</p> <ul style="list-style-type: none"> <li>• Directorate of Census Operations, CSO, NSSO of GOI, SEBI, RBI.</li> <li>• Reports of Statistics Departments in State Governments.</li> <li>• World organisations.</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Concept definitions

**Understand/ Comprehend (K2)** - Concept explanations

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain

**Analyse (K4)** - Differentiate between various ideas,

**Evaluate (K5)** - Critique or justify with pros and cons

**Create (K6)** – Discussion.

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	L	M	S	S	M	S	L	L	M	S
<b>CO 2</b>	M	M	S	S	M	S	L	L	M	S
<b>CO 3</b>	M	L	S	S	M	S	M	M	M	S
<b>CO 4</b>	M	M	S	S	M	S	M	M	S	S
<b>CO 5</b>	M	S	S	S	S	S	S	S	S	S

**S-Strong      M-Medium      L-Low**

<b>Course</b>	<b>Core</b>
<b>Title of the Course:</b>	<b>Econometric Theory – II</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	Econometric Theory - I
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<p>1. Students to learn basics in advanced econometric theory.</p> <p>2. To learn on application of advanced econometric models to economic and social issues with illustration.</p> <p>3. Students are exposed to variety of advanced econometric models</p> <p>4. Will learn advanced econometric models in the dynamic situation of economic and social issues.</p> <p>5. Students are to train the estimation of advanced econometric models using econometric and statistical software and the empirical output.</p>
<b>Units</b>	
<b>I</b>	Dynamic econometrics – autoregressive and distributed lag models – estimation methods – lagged variables – problem and applications using STATA.
<b>II</b>	Simultaneous equation model – specification – identification – rank and order conditions – problems.
<b>III</b>	Estimation methods – single equation and systems estimation methods – numerical problems – applications using STATA.
<b>IV</b>	Qualitative and limited dependant variable models – linear probability, logit, probit and tobit models – specification – estimation methods – applications.
<b>V</b>	Censored regression models – multinomial logit – hazard model – estimation - applications.

<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Students can compare the basics required for advanced econometric models will basic models.</li> <li>2. Econometric theory inbuilt in the advanced econometric models will be understood and demonstrated to students.</li> <li>3. Different types of econometric models will be learned, understood and reviewed by the students.</li> <li>4. Econometrics models employed in dynamic circumstances could be compared and contrasted with static circumstances and empirical output will be interpreted by the students.</li> <li>5. Students will be trained to estimate the advanced econometric models using different software and the empirical output and interpretation.</li> </ol>
<b>Reading List (Print and Online)</b>	<p>Gujarathi, D.N.: Basic Econometrics, New Delhi: Tata McGraw Hill.</p> <p>Johnston, J.: Econometric Methods, McGraw Hill.</p> <p>Greene, W.: Econometric Analysis, Pearson Education.</p> <p>STATA Version 8.0: User's Guide, Texas: Stata Press.</p>

**Method of Evaluation:**

<b>Internal</b>	<b>External</b>	<b>Total</b>
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas.

**Evaluate (K5)** - Longer essay/ Evaluation essay, Critique or justify with pros and cons

**Create (K6)** - Check knowledge in specific situations, Discussion, Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	M	M	M	M	M	M	S	S	S	M
<b>CO 2</b>	S	M	M	L	M	S	S	S	S	M
<b>CO 3</b>	S	M	M	M	M	S	S	S	S	M
<b>CO 4</b>	M	M	M	M	M	S	S	S	S	M
<b>CO 5</b>	M	S	S	L	M	L	S	S	M	M

**S-Strong      M-Medium      L-Low**



Course	Core
<b>Title of the Course:</b>	<b>Time Series Econometrics</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	Basic Econometrics & Computer applications
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<p><b>The main objectives of the course are to:</b></p> <ol style="list-style-type: none"> <li>1. Equip students with various forecasting techniques and knowledge. Develops clear understanding of different forecasting models</li> <li>2. Understand difference between cross section and time series data</li> <li>3. Decomposing various components of time series analysis</li> <li>4. Understating the data generating process</li> <li>5. Predict / forecast the future values of the time series using advanced models</li> <li>6. Compare various time series models and choosing appropriate model for forecasting series with different data structures</li> </ol>
<b>Units</b>	
<b>I</b>	Classical time series analysis – utility of time series analysis – components of time series data – measurement of trend, seasonality and cycles – moving averages and smoothing techniques to time series analysis - classical time Series decomposition models – additive and multiplicative models – forecasting using smoothing techniques and time series decomposition methods – applications in finance .
<b>II</b>	Tools of modern time series analysis – stochastic and stationary process – tests of stationary – trend vs difference stationery process – Dickey-Fuller and augmented Dickey-Fuller tests – spurious regression and co-integration of time series – Engle-Granger test – CRDW test – error correction mechanism.

<b>III</b>	Univariate time series analysis and forecasting – linear time series analysis – autocorrelation function and partial auto-correlation function – auto-regressive (AR) models, moving average (MA) models, Box-Jenkins (BJ) ARMA and ARIMA models – identification – estimation and forecasting with ARIMA models – economic applications.
<b>IV</b>	Multivariate time series analysis and forecasting – vector autoregressive (VAR) models – advantages and problems – estimation and forecasting with VAR – impulse response function – Johansen Co-integration test on VAR – Granger causality test – applications in finance.
<b>V</b>	Modeling volatility and auto-correlation in time series – motivation and test for non-linearity – historical and implied volatility – auto-regressive conditional heteroscedasticity (ARCH) model – generalised ARCH model – applications in finance.
<b>Course Outcomes</b>	<ul style="list-style-type: none"> <li>• Understand the advantage and necessity of forecasting in various situations</li> <li>• Define and decompose time series components, Explain trend, seasonality, cyclicity and irregularity</li> <li>• Use a range of time series models to produce forecasts and Know how to choose an appropriate forecasting method in a particular environment.</li> <li>• Improve forecast with better statistical models (ARIMA, VAR, ARCH, GARCH, etc.)</li> <li>• Develop fundamental research skills (such as data collection, data processing, and model estimation and interpretation) in applied time series analysis. Apply ideas to real world time series data and interpret outcomes of analyses</li> </ul>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• D.N.Gujarati and Sangeetha: Basic Econometrics, Tata McGraw-Hill.</li> <li>• Chris Brooks: Introductory Econometrics for Finance, Cambridge University Press.</li> <li>• T.M.J.A. Cooray: Applied Time Series – Analysis and Forecasting, Narosa Publications.</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Concept definitions

**Understand/ Comprehend (K2)** - Concept explanations.

**Application (K3)** - Solve problems, Observe, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps,

**Evaluate (K5)** - Critique or justify with pros and cons

**Create (K6)** -Debating or Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
<b>CO 1</b>	M	S	M	S	S	M	S	S	S	S
<b>CO 2</b>	S	M	S	S	M	S	M	L	M	S
<b>CO 3</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 4</b>	S	M	M	S	S	S	S	S	S	S
<b>CO 5</b>	S	S	S	S	M	S	S	S	M	S

**S-Strong    M-Medium    L-Low**

Course	Core
<b>Title of the Course:</b>	<b>Applied Econometric Methods</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ul style="list-style-type: none"> <li>• To help students understand the general theoretical principles of econometrics and its applications in different field of study areas.</li> <li>• To provide knowledge about consumer behaviour pattern, firms' profit optimizing</li> <li>• Behaviour and theories of pricing.</li> <li>• To understand the functional relationship between factors of inputs of production and output, and research issues by applying application of major production functions.</li> <li>• To understand the <b>influences of human capital variables and other factors on labour supply and Gender based wage differentials in the private and public sectors Labour Markets.</b></li> <li>• To help research students understand specific econometric concepts, techniques and problems in the readings of other course work and their</li> <li>• sound econometric inferences in their own research</li> </ul>
<b>Units</b>	
<b>I</b>	Demand analysis – demand functions – theory, specification and estimation – duality theory – linear expenditure system – Empirical studies.
<b>II</b>	Production functions – Cobb- Douglas, CES, Translog functions – specifications and estimation issues – applications with farm and firm level data – modelling of farm household behaviour – specification and estimation problems- Empirical studies.
<b>III</b>	Labour supply – simple model –extensions – Migration- Job search methods and Remittance behaviour of the workers- Empirical studies.
<b>IV</b>	Wage Analysis- Types of Wage differentials- Specification and Estimation of Earning functions- Wage Determination-Discrimination and Decomposition of wage differentials- Empirical studies

<b>V</b>	Health and education – conceptual and measurement issues – simple econometric model – Empirical studies.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Students can understand the econometric concepts, techniques and applications used in the course work involved in empirical research.</li> <li>2. Students will understand the scope of demand analysis, cost of production and its relationship to business operations and quantitative measurement of the relationship among the input and output variables.</li> <li>3. Students can understand the labour market behaviour of the workers, aware of the gender, caste and racial based wage differentials and wage discrimination in different labour Markets.</li> <li>4. Students will understand and estimate the relationships involving qualitative and quantitative variables in a particular given relationship (health and education).</li> </ol>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• ICSSR: Survey of Economics–Vol.7: Econometrics, Allied Publishers.</li> <li>• A.Deaton and John Muellbauer; Economics and Consumer Behaviour, CUP.</li> <li>• Julia Hebden: Applications of Econometrics, Heritage Publishers.</li> <li>• Mark Killingsworth: Labour Supply, Cambridge University Press.</li> <li>• M.Desai: Macroeconomic Models for India: A Survey – Sankhya, Series - B 85.</li> <li>• K.L.Krishna: Econometric Applications in India, Oxford University Press.</li> <li>• Hollis Chenery and T.N.Srinivasan: Handbook of Development Economics.</li> <li>• Narendra Jadav: Monetary Modelling of the Indian Economy: A Survey, Reserve Bank of India Occasional Papers.</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Concept definitions

**Understand/ Comprehend (K2)** - Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge

**Evaluate (K5)** - Longer essay/ Evaluation essay, Critique

**Create (K6)** - Check knowledge in specific or offbeat situations, Discussion, Debating or Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
<b>CO 1</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 2</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 3</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 4</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 5</b>	S	S	S	S	S	S	S	S	S	S

**S-Strong    M-Medium    L-Low**

<b>Course</b>	<b>Core</b>
<b>Title of the Course:</b>	<b>Public Finance</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ol style="list-style-type: none"> <li>1. To enumerate the economics of public expenditure and taxation.</li> <li>2. To explain the implications of policy for efficiency and equity.</li> <li>3. To brief the economic system and verify the effects of government intervention on the behavior of individuals, households, and firms.</li> <li>4. Critically assess the principles of functioning of the budgetary system and methodological tools of public finance management.</li> <li>5. To analyze policy applications including the role of government, tax policies such as income taxes and consumption taxes, and theory of public expenditure</li> <li>6. Develop conceptual apparatus of public finances and introduce the basic techniques of increasing budgetary resource management of the state.</li> </ol>
<b>Units</b>	
<b>I</b>	Role of government – public goods and externalities – private property and law – imperfect market and regulation – welfare state and redistribution – role of state in economic growth – public finance and public sector economics.
<b>II</b>	Principles of taxation – tax incidence – taxation and efficiency – optimal taxation – taxation of income and wealth – taxation of consumption and trade – taxation and environment – tax incentives, compliance and enforcement – Trends in Indian tax revenue.
<b>III</b>	Theories of public expenditure – measuring size of public sector – public expenditure and economic growth and development – composition of public expenditure and welfare state – public expenditure in India – trends and composition – pattern of financing deficit – FRBM – FRL – issues in union financial transfers.

<b>IV</b>	Fiscal policy – process of budgeting in India –classification of budgets trends – evaluation systems – types of deficits – fiscal policy – indicators — taxation – centre, state and local – public debt and management.
<b>V</b>	Fiscal federalism in India – theories of fiscal federalism – vertical and horizontal fiscal imbalances in India – Inter-governmental financial transfers in India – political economy of Indian fiscal federalism.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. To enumerate the components and structure of the Indian financial system</li> <li>2. To outline the Functions of the Financial System, Financial Assets, Intermediaries, and Financial Markets.</li> <li>3. To critically assess and employ the functioning of the primary and secondary market in the development of the Indian financial system</li> <li>4. Evaluate the functioning of different financial institutions.</li> <li>5. To recognize and review the importance of the money market, foreign exchange market, derivative market, capital market, and commodity market.</li> <li>6. To conceptualize the system of financial instruments and their working in the financial system.</li> </ol>
<b>Reading List (Print and Online)</b>	<ol style="list-style-type: none"> <li>1. R.A.Musgrave and P.Musgrave: Theory of Public Finance.</li> <li>2. Joseph E Stiglitz: Economics of the Public Sector.</li> <li>3. Sudipto Mundle: Public Finance: Policy Issues for India, OUP.</li> <li>4. C.Rangrajan and D.K.Srivastava: Federalism and Fiscal Transfers in India, OUP.</li> <li>5. EPW and Journal articles</li> </ol>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** - Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas.

**Evaluate (K5)** - Longer essay/ Evaluation essay.

**Create (K6)** - Check knowledge in specific or offbeat situations, Discussion, Presentations



**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	S	M	M	L	L	M	M	M	S	S
<b>CO 2</b>	S	M	L	M	M	M	L	S	S	S
<b>CO 3</b>	S	L	M	M	M	M	M	L	M	S
<b>CO 4</b>	S	S	M	S	S	M	M	S	S	S
<b>CO 5</b>	S	S	M	M	L	M	L	S	S	S

**S-Strong      M-Medium      L-Low**

<b>Course</b>	<b>Elective</b>
<b>Title of the Course:</b>	<b>Financial Economics</b>
<b>Credits:</b>	<b>3</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ol style="list-style-type: none"> <li>1. List the role of finance in the economy using basic economic principles, and leading to introductory graduate analysis</li> <li>2. Explain and study the functions of the capital asset pricing model (CAPM) when there is risk, inflation, taxes, and asymmetric information</li> <li>3. Interpret the conditions under which application of mean-variance portfolio theory leads to the selection of optimal portfolios</li> <li>4. Review an idea on the expected return and risk of a portfolio of risky assets, given the expected return, variance, and covariance of returns of the individual assets, using the mean-variance portfolio theory (MPT)</li> <li>5. Critically assess the assumptions, principal results, and limitations of the Arbitrage Pricing Theory model (APT)</li> <li>6. Conceptualize that anomalies appear beyond the reach of classical rational decision theory/efficient markets theory.</li> </ol>
<b>Units</b>	
<b>I</b>	Basics of financial markets and financial environment – major players in financial markets – instruments of financial markets – financial intermediation – investment banking and brokerage services – securities – types of securities – market for securities – how and where traded – initial public offering (IPO) – secondary markets – trading on exchanges and trading with margins.
<b>II</b>	Theories of investment – time value of money – net present value – future value – interest rates – internal rate of return.
<b>III</b>	Portfolio theory and portfolio selection – risk and risk aversion – risk, speculation and gambling – trade-off between risk and return – capital allocation between risky and risk-free portfolios – risk tolerance and asset allocation – diversification of portfolio risk.
<b>IV</b>	Capital asset pricing model – demand for and equilibrium prices – equilibrium price and capital asset pricing model – why do all

	investors hold market portfolio – risk premium and market portfolio – security market line.
V	Financial market equilibrium – random walk and efficient market hypothesis – competition as a source of efficiency – implication of EMH for investment policies – technical analysis and fundamental analysis.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Calculate how security prices are determined in the Capital Asset Pricing Model, and the role played by the assumptions in the model</li> <li>2. Outline utility theory to describe and analyze investment decisions under risk aversion.</li> <li>3. Report and describe the risks of managing portfolios of securities</li> <li>4. Contrast, apply, compare and criticize the efficient markets hypothesis and behavioral finance theory.</li> <li>5. Demonstrate familiarity with qualitative and quantitative analysis in explaining the economic theories that underlie social and economic problems.</li> </ol>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• S.A.Ross, R.W.Westerfield, J.Jaffe and Roberts: Corporate Finance, McGraw-Hill.</li> <li>• Zvi Boodie, Alex Kane and Alan J.Marcus: Investments, McGraw-Hill.</li> <li>• John Hull: Futures, Options and Other Derivatives, Prentice Hall.</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps.

**Evaluate (K5)** - Longer essay/ Evaluation essay.

**Create (K6)** - Check knowledge in specific, Discussion.

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>	<b>M</b>	<b>S</b>	<b>M</b>	<b>M</b>	<b>S</b>	<b>M</b>
<b>CO 2</b>	<b>S</b>	<b>M</b>	<b>M</b>	<b>M</b>	<b>M</b>	<b>M</b>	<b>M</b>	<b>M</b>	<b>S</b>	<b>S</b>
<b>CO 3</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>	<b>M</b>	<b>M</b>	<b>M</b>	<b>S</b>	<b>S</b>
<b>CO 4</b>	<b>S</b>	<b>S</b>	<b>S</b>	<b>M</b>	<b>M</b>	<b>M</b>	<b>M</b>	<b>M</b>	<b>S</b>	<b>S</b>
<b>CO 5</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>	<b>M</b>	<b>M</b>	<b>S</b>	<b>M</b>	<b>S</b>	<b>S</b>

**S-Strong      M-Medium      L-Low**

<b>Course</b>	<b>Elective</b>
<b>Title of the Course:</b>	<b>Industrial Economics</b>
<b>Credits:</b>	<b>3</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ul style="list-style-type: none"> <li>• This course aims at providing an in-depth knowledge in theories of product pricing, public utilities and market structure.</li> <li>• The objective of the course is to provide knowledge of the industrialisation in India.</li> <li>• To provide knowledge about the measurement of productivity numerically by using the mathematical techniques.</li> <li>• To introduce to the students, the functions and role of the various domestic as well as international financial institutions for industrial development.</li> <li>• To provide knowledge about the role of the ILO and WTO, impact of ICT on industrialisation and impact LPG on MNCs .</li> </ul>
<b>Units</b>	
<b>I</b>	Firm and organisation – Hoffman’s hypothesis of market economies – Simon Kuznet’s concept of secular changes in industrial development – Chenery’s patterns of industrial change – theories of industrial location – Weber and Sargent Florence – product differentiation – market concentration – economies of scale – market structure – diversification of the firm, size and growth, profitability, productivity, efficiency and capacity utilisation of firm – theories of product pricing – pricing of public utilities.
<b>II</b>	Industrialisation in India – trends and pattern – public and private sectors – industrial growth in India – large, medium and small scale industries – capital and consumer goods industries – industrial policy – public-private partnership – exports and imports – issues in industry – productivity – concentration, employment

	and labour – social security – technology – industrial relations – exit policy – industrial finance – sickness – trade unions – disputes – regulation – manufacturing policies.
<b>III</b>	Institutional finance – ICICI, EXIM Bank, NHB, IDBI, IFCI, IIBI , SFCs, NIDC, SIDBI, SIDCS, UTI, LIC, General Insurance Corporations, commercial banks – international finance – FDI – joint ventures – domestic market resources.
<b>IV</b>	Service sector in India – growth – pattern – share in employment, trade, exports – impact of ICT on industrialisation.
<b>V</b>	International organisations and industry – ILO – WTO – bilateral and multilateral trade agreements – MNCs – impact of globalisation, privatisation and liberalisation.
<b>Course Outcomes</b>	<ul style="list-style-type: none"> <li>• The students will be able to learn the determinants of the size and structure of firms' market.</li> <li>• This outcome equips the students to understand the the pricing behaviour by firms with market power, product differentiation and price discrimination.</li> <li>• The students will be able to understand the basic principles of public-private partnership, industrial relations and policies.</li> <li>• The students learn the functions and role of the various financial institutions for industrial development.</li> <li>• Student can understand the effect of ICT on industrialisation and impact of LPG on MNCs.</li> </ul>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• R.R.Barthwal: Industrial Economics, Wiley Eastern Ltd.</li> <li>• F.Churunilam: Industrial Economics: Indian Perspective, Himalaya.</li> <li>• S.C.Kuchhal: Industrial Economy of India, Chaitanya Publishing House.</li> <li>• Reserve Bank of India: Report on Currency and Finance.</li> </ul>

**Method of Evaluation:**

<b>Sessional I</b>	<b>Sessional II</b>	<b>End Semester Examination</b>	<b>Total</b>	<b>Grade</b>
20	20	60	100	

**Methods of assessment:****Recall (K1)** - Simple definitions, Concept definitions**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview**Application (K3)** - Observe, Explain**Analyse (K4)** - Differentiate between various ideas.**Evaluate (K5)** - Longer essay.**Create (K6)** - Discussion, Presentations**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
<b>CO 1</b>	S	L	L	M	M	M	S	L	M	S
<b>CO 2</b>	L	M	L	M	S	M	S	M	M	M
<b>CO 3</b>	M	M	M	M	S	M	M	M	M	M
<b>CO 4</b>	M	M	L	M	S	M	M	M	M	M
<b>CO 5</b>	M	M	L	M	S	M	M	M	M	M

**S-Strong    M-Medium    L-Low**

<b>Course</b>	<b>Core</b>
<b>Title of the Course:</b>	<b>Econometric Applications</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ul style="list-style-type: none"> <li>• The objective of the course is to provide knowledge on Econometric tools and their applications on Economic theory and practice</li> <li>• To introduce the different functional forms analysis to students so that they are able to understand its applications in different fields in demand &amp; consumption functions, and Engle functions.</li> <li>• To provide knowledge on quantitative response models.</li> <li>• To develop an advanced knowledge and understanding of econometric applications of dynamic econometric models and simultaneous regression models, in particular in micro econometrics, financial econometrics, time series modelling and forecasting.</li> </ul>
<b>Units</b>	
<b>I</b>	Consumption functions – estimation of demand functions – Engel functions – functional forms viz. linear, double-log, semi-log, quadratic, log-inverse functions – computation of price and income elasticities.
<b>II</b>	Production function – estimation of production functions viz. Cob-Douglas, CES, Translog, frontier functions – estimation of cost, profit and supply response functions.
<b>III</b>	Dynamic econometric models – Kyock, adaptive expectation and partial adjustment, Almon distributed lag models – panel models.
<b>IV</b>	Qualitative response models – estimation of LPM, probit, logit and tobit models.
<b>V</b>	Simultaneous regression models – indirect least squares, two-stage least Squares – instrumental variable methods.
<b>Course Outcomes</b>	<ul style="list-style-type: none"> <li>• The students will be able to learn the application of demand, consumption and Engel analysis, production function estimation.</li> </ul>



	<ul style="list-style-type: none"> <li>• The students will be able to learn the application of production, cost and supply response functions.</li> <li>• This outcome equips the students on the use of dynamic econometric models to understand the impact of time issues and Knowledge about Panel data.</li> <li>• The students are trained to apply basic econometric techniques like the LPM, Logit, Probit and Tobit models to empirical settings.</li> <li>• Students learn the use of simultaneous regression models, presence of problems that are prevalent in most econometric model settings, ability to conduct the empirical studies and to interpret its results.</li> </ul>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• D.N. Gujarathi: Basic Econometrics, Tata – McGraw Hill.</li> <li>• A.Deaton and John Muellbauer: Economics and Consumer Behaviour, Cambridge University Press,</li> <li>• Julia Hebden: Applications of Econometrics, Heritage Publishers.</li> <li>• R.F.Wynn and K. Holden: An Introduction to Applied Analysis, Macmillan Press.</li> <li>• M.Upender: Applied Econometrics, Vrinda Publications.</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain

**Analyse (K4)** - Problem-solving questions, Differentiate between various ideas, Map knowledge

**Evaluate (K5)** - Longer essay/ Evaluation essay.

**Create (K6)** - Check knowledge in specific, Discussion, Debating or Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 2</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 3</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 4</b>	S	S	S	S	S	S	S	S	S	S
<b>CO 5</b>	S	S	S	S	S	S	S	S	S	S

**S-Strong    M-Medium    L-Low**

<b>Course</b>	<b>Core</b>
<b>Title of the Course:</b>	<b>Panel Data and Non-Parametric Econometrics</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	Econometric theory I & II
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ol style="list-style-type: none"> <li>1. Students will be exposed to different types of data especially panel data along with advantages.</li> <li>2. Students to gain the theoretical issues in dealing with panel data in the context of empirical estimation.</li> <li>3. Students understand the estimation issues related to the estimation of panel data models.</li> <li>4. Gain knowledge on the non-parametric models in the empirical analysis.</li> <li>5. Will learn the different approach in the non-parametric approach.</li> </ol>
<b>Units</b>	
<b>I</b>	Data structure – cross-section, time-series, pooled and panel data – unobserved heterogeneity – endogeneity – balanced and unbalance panels – covariance structure – one and two way error components.
<b>II</b>	Panel estimation – fixed effects model – LSDV estimation – random effects model – Hausman specification test – hypothesis testing – dynamic panel models – GMM estimation – panel discrete choice model – panel limited dependent variable models.
<b>III</b>	Non-parametric approach – data generation mechanism – empirical distribution – kernel estimation – bandwidth selection – estimation – non- parametric regression – Nadaraya-Watson method – inference.
<b>IV</b>	Semi-parametric method – assumptions – moments estimation – least absolute deviation method – partially linear regression – kernel

	density method – discrete choice models – maximum scores estimation – bootstrapping.
V	contemporary econometrics – Bayesian methods – Bayesian model averaging – MCMC simulation – quantile regression – SURE model – frontier methods – treatment effects – counterfactual – regression discontinuity design – DID estimation – propensity to score method – matching methods.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Students will be able to differentiate different types of data by measurement and nature and advantages.</li> <li>2. Different models and method of estimation based on panel data will be received and assessed by the students.</li> <li>3. The estimation issues lying with panel data should be reviewed, recalled, and compared with different methods of estimation.</li> <li>4. Basics in non parametric models in the context of empirics will be outlined, describe and compared with parametric models by the students.</li> <li>5. Variety approaches in dealing with non parametric models will be identified, described and demonstrated.</li> </ol>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• William Greene: Econometric Analysis, Pearson education.</li> <li>• Woolridge: Introduction to Econometrics.</li> <li>• Racine and Li: Non-Parametric Econometrics – A Premier.</li> <li>• A.C.Cameron and P.K.Trivedi: Microeconometrics: Methods and Application, Cambridge University Press</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Explain

**Analyse (K4)** -Finish a procedure in many steps, Differentiate between various ideas.

**Evaluate (K5)** - Longer essay/ Evaluation essay, Critique or justify with pros and cons

**Create (K6)** - Check knowledge in specific or offbeat situations, Discussion, Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	M	M	M	S	M	M	S	S	S	M
<b>CO 2</b>	S	M	M	M	M	S	S	S	S	M
<b>CO 3</b>	M	M	M	L	L	S	S	S	S	M
<b>CO 4</b>	M	M	M	M	L	S	M	S	S	M
<b>CO 5</b>	M	M	M	L	L	M	M	S	S	M

**S-Strong      M-Medium      L-Low**

<b>Course</b>	<b>Project</b>
<b>Title of the Course:</b>	<b>Project</b>
<b>Credits:</b>	<b>4</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ol style="list-style-type: none"> <li>1. Students will able to identify a research issue for project work.</li> <li>2. Students are writing review of literature in an organized manner.</li> <li>3. Skill of working with software for empirical analysis is gained.</li> <li>4. Students are able to prepare a project report in a precise form.</li> <li>5. Students gained confidence of defending his/her presentation of project report.</li> </ol>
<b>Units</b>	
<b>I</b>	
<b>II</b>	
<b>III</b>	
<b>IV</b>	
<b>V</b>	
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Students to identify a research issue for empirical analysis.</li> <li>2. To train the students to collect and review the relevant research related literature.</li> <li>3. To work with software for empirical analysis and interpretation of output.</li> </ol>

	<p>4. Students to gain writing skill of project report of research issue.</p> <p>5. Students to train the preparation of power point and defending the presentation of research project report.</p>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• 1</li> <li>• 2</li> <li>• 3 etc</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, MCQ, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** - MCQ, True/False, Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge

**Evaluate (K5)** - Longer essay/ Evaluation essay, Critique or justify with pros and cons

**Create (K6)** - Check knowledge in specific or offbeat situations, Discussion, Debating or Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
CO 1										
CO 2										
CO 3										
CO 4										
CO 5										

**S-Strong      M-Medium      L-Low**

<b>Course</b>	Elective
<b>Title of the Course:</b>	<b>Agricultural Economics</b>
<b>Credits:</b>	<b>3</b>
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ol style="list-style-type: none"> <li>1. To make students families the exists activities in the agricultural sector.</li> <li>2. To teach modernization of agricultural activities in modes era.</li> <li>3. Students have to aware the agricultural related activities, polices, programmes etc.</li> <li>4. Students will understand the linkage of agricultural sector with other sector.</li> <li>5. Students will understand the performance of agricultural and other allied activities.</li> </ol>
<b>Units</b>	
<b>I</b>	Nature agricultural and rural economics – traditional and modernization – agriculture in economic development – cropping pattern, food supply and food security – agricultural policies – supply and pricing of inputs – subsidies.
<b>II</b>	production pattern – productivity – regional variations – resource use efficiency – small and marginal holdings – land reforms – institutional structure and reforms.
<b>III</b>	Green revolution – HYVs – irrigation – fertiliser – mechanisation – pesticide – pricing – marketing – storage – modernisation - technical change – agro industries..



<b>IV</b>	Agriculture-industry linkage – terms of trade – agricultural finance – minimum support prices – commercial farming – futures markets.
<b>V</b>	Agriculture and external sector – trade in agricultural goods – WTO and trade blocks – MNCs – globalisation and agriculture.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Students understand, recognize and review the agricultural activities.</li> <li>2. At the end of the course, differentiation between traditional and modernized agriculture has been understood.</li> <li>3. Students award the policies and programmes of agricultural sector</li> <li>4. Linkaged agricultural sector with other sectors is recognized, displayed and demonstrated.</li> <li>5. Performance of agriculture and other related activities are evaluated, explained, reviewed and critically settled.</li> </ol>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• Ashok Rudra: Indian Agriculture, Asia Publishing House.</li> <li>• R. Datt and K.P.M. Sundharm: Indian Economy, S. Chand &amp; Co</li> <li>• S.K.Misra and V.K.Puri: Indian Economy, Himalaya Publication House.</li> <li>• Government of India: Economic Surveys.</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, MCQ, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** - MCQ, True/False, Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain

**Analyse (K4)** - Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge

**Evaluate (K5)** - Longer essay/ Evaluation essay, Critique or justify with pros and cons

**Create (K6)** - Check knowledge in specific or offbeat situations, Discussion, Debating or Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	M	M	M	S	M	M	S	S	M	M
<b>CO 2</b>	M	S	M	M	M	S	L	M	S	S
<b>CO 3</b>	S	M	L	L	L	S	M	L	M	M
<b>CO 4</b>	M	L	S	L	M	M	L	M	S	M
<b>CO 5</b>	L	S	S	L	M	M	L	M	S	M

**S-Strong      M-Medium      L-Low**

<b>Course</b>	Elective
<b>Title of the Course:</b>	<b>Indian Economic Issue</b>
<b>Credits:</b>	3
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<p>1. To make awareness among the students about various economic issues, Obstacles to economic development, occupational pattern, etc.</p> <p>2. To understand the causes of economic and non-economic factors and obstacle in economic development.</p> <p>3. To provide a strong knowledge of various economic planning and policies based on India's economy.</p> <p>4. To enrich the knowledge of students related to trends and growth of different sectors, export and import, capital formation, infrastructure in the Indian economy.</p> <p>5. To give the awareness about the various globalisation issues of trade, climate, etc.</p>
<b>Units</b>	
<b>I</b>	Economic and human development issues – non-economic factors in economic development – natural resource allocation issues – human and gender empowerment issues – education and health issues – environment and climate change issues – setting standards.
<b>II</b>	Basic issues in agriculture sector – agricultural costs and pricing – land holding and productivity issues – irrigation, fertilizer, price, power subsidy issues – WTO and Indian agriculture – agricultural growth concerns – conditions and problems of agricultural laborers – measures for improvement.
<b>III</b>	Issues in industrial sector – industrial production and productivity issues – problems of industrial development – performance issues –

	sick industries – industrial policies – industrial finance – MNCs and FDI issues – global standards and impacts – subsidies and taxation issues.
<b>IV</b>	Issues in service sector – growth and contribution of service sector in India – service sector employment growth – ICT development in India – IT and ITES industry – sustainability of service led growth in India.
<b>V</b>	Poverty and income distribution in India – concept of poverty line – incidence of poverty and multi-dimensional poverty – poverty alleviation programmes and strategies adopted in India – patterns of income distribution in India – causes of income inequalities – government policy measures to bridge gap – issues in employment programmes.
<b>Course Outcomes</b>	<ol style="list-style-type: none"> <li>1. Students would become familiar with factors affecting economic growth and development, measurement of GDP PCI, HDI, etc</li> <li>2. Students will be aware of the causes of various obstacles factors to an economic development and how different factors have affected this process.</li> <li>3. Students will be able to understand how planning and infrastructure support can develop an economy.</li> <li>4. Student will get knowledge about the economic five year planning, relationship between monetary policy, fiscal policy and economic development. Help the students in understanding the performance of the different sectors of the Indian Economy</li> <li>5. Students will get to know about various economic issues at national and global levels.</li> </ol>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• R. Dutt and K.P.M. Sundharm: Indian Economy, S. Chand &amp; Co.</li> <li>• S.K.Misra and V.K.Puri: Indian Economy, Himalaya Publication House.</li> <li>• S.K.Misra and V.K.Puri: Economics of Development and Planning, Himalaya.</li> <li>• Debraj Ray: Development Economics.</li> <li>• Government of India: Economic Surveys.</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions, Recall steps, Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept with examples, Observe, Explain

**Analyse (K4)** - Differentiate between various ideas.

**Evaluate (K5)** - Longer essay.

**Create (K6)** - Check knowledge in specific, Discussion,Presentations

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10
<b>CO 1</b>	S	S	S	S	S	S	M	S	M	S
<b>CO 2</b>	M	M	M	M	M	M	M	M	M	M
<b>CO 3</b>	S	M	S	M	M	M	M	M	M	M
<b>CO 4</b>	S	S	M	S	M	M	S	M	M	M
<b>CO 5</b>	S	S	M	M	M	M	M	M	M	M

**S-Strong      M-Medium      L-Low**

<b>Course</b>	Elective
<b>Title of the Course:</b>	<b>Industrial Organisation</b>
<b>Credits:</b>	3
<b>Pre-requisites, if any:</b>	
<p><b>Course Objectives</b></p> <p><b>Recall (K1)</b> - List, Identify, Enumerate, Define</p> <p><b>Understand/Comprehend (K2)</b> - Describe, Explain, Outline, Briefly Summarise</p> <p><b>Apply Knowledge (K3)</b> - Interpret, Calculate, Select, Employ, Generalise</p> <p><b>Analyze and Evaluate (K4 and K5)</b> - Compare and Contrast, Differentiate, Evaluate, Critically Assess, Review an Idea</p> <p><b>Create (K6)</b> - Conceive, Theorise, Conceptualise etc</p>	<ul style="list-style-type: none"> <li>• The objective of the course is to provide information regarding market imperfect competition, product quality and price discrimination.</li> <li>• To provide information about monopoly and oligopoly markets barriers and price rigidity in the field of Industrial Organisation.</li> <li>• To provide knowledge on the quality product competition and differentiation.</li> <li>• To provide an awareness and understanding of innovation, patent networks and standards.</li> <li>• To provide an acquaintance of market power and performance theory regarding long run profits.</li> </ul>
<b>Units</b>	
<b>I</b>	Imperfect competition and market distortions – pricing – rent seeking – costs – strategies of firms – product quality – asymmetric information – discrimination – advertisement.
<b>II</b>	Monopoly and regulation – barriers – Oligopoly models – Cournot, Bertrand, Hotelling, Stackelberg, Spencer-Dixit models – collusion – price wars – quality competition – price rigidity.
<b>III</b>	Vertical control – product differentiation – spatial competition – dynamic price competition – tacit collusion – cartel – entry costs – accommodation – merger – acquisition – exit – reputation – limit pricing – Milgrom-Roberts model – predation.
<b>IV</b>	Contestable markets – R&D – innovation – patent networks – networks and standards – joint ventures.

<b>V</b>	Concentration and market power – structure, conduct and performance theory – persistence of long run profits.
<b>Course Outcomes</b>	<ul style="list-style-type: none"> <li>• By the end of the course, the student will acquire a theoretical understanding of market asymmetric information and discrimination.</li> <li>• The students will be able to understand the product quality competition and price rigidity in the markets.</li> <li>• This outcome equips the student’s knowledge about product differentiation and dynamic price competition.</li> <li>• Students will be able to understand the importance of innovation, R&amp;D and patent networks.</li> <li>• The students will obtain knowledge related to market power, market structure and long run profits.</li> </ul>
<b>Reading List (Print and Online)</b>	<ul style="list-style-type: none"> <li>• Jean Tirole: The Theory of Industrial Organisation, Prentice Hall.</li> <li>• Luis Cabral: Introduction to Industrial Organisation, MIT Press.</li> <li>• Dennis W. Carlton and Jeffrey M. Perloff: Modern Industrial Organisation, Cambridge University Press.</li> </ul>

**Method of Evaluation:**

Internal	External	Total
25	75	100

**Methods of assessment:**

**Recall (K1)** - Simple definitions ,Concept definitions

**Understand/ Comprehend (K2)** -Short essays, Concept explanations, Short summary or overview

**Application (K3)** - Suggest idea/concept, Explain

**Analyse (K4)** - Differentiate between various ideas.

**Evaluate (K5)** - Longer essay.

**Create (K6)** - Check knowledge, Discussion, Presentations.

**Map course outcomes for each course with programme outcomes (PO) in the 3-point scale of Strong, Medium and Low**

	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO 10</b>
<b>CO 1</b>	S	M	M	S	S	S	S	L	S	S
<b>CO 2</b>	M	M	M	M	M	M	M	M	M	M
<b>CO 3</b>	M	M	M	M	M	M	M	M	M	M
<b>CO 4</b>	M	M	M	M	M	M	M	M	L	M
<b>CO 5</b>	M	M	M	M	M	M	M	M	L	M

**S-Strong      M-Medium      L-Low**