

**LEARNING OUTCOMES BASED CURRICULUM
FRAMEWORK (LOCF) FOR POSTGRADUATE
PROGRAMMES**

(With effect from 2022-23)

**M.A. Economics
Department of Economics**



**LOYOLA COLLEGE(AUTONOMOUS)
CHENNAI 600034**

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VISION AND MISSION OF LOYOLA COLLEGE

VISION

- Towards holistic formation of youth, grounded in excellence, through accompaniment to serve the humanity.

MISSION

- To provide inclusive education through an integral and holistic formative pedagogy.
- To promote skills that prepare them for the future.
- To kindle in young minds, the spirit of social and environmental justice with a blend of academic excellence and empathy.
- To stimulate critical and conscientious scholarship leading to meaningful and innovative human Capital.

CORE VALUES

- Cura Personalis
- Pursuit of Excellence
- Moral Rectitude
- Social Equity
- Fostering solidarity
- Global Vision
- Spiritual Quotient

VISION AND MISSION OF THE DEPARTMENT OF ECONOMICS

VISION

- Training young men and women to become able economists for future to serve the humanity in justice, truth and love.

MISSION

- To ignite the students with emerging economic ideas to understand the economic scenarios and apply their knowledge to analyze policies to take decisions for the welfare of the society.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)
(SCHOOL OF COMMERCE AND ECONOMICS)

PEO 1	Globally Relevant Curriculum To expose the students in various fields of Economics and Commerce
PEO 2	Core Competency Development To think critically and creatively to respond towards dynamic global business and economic environment.
PEO 3	Professional Skill Development To empower the students with strong interpersonal, decision-making, reasoning, and communication and leadership skills.
PEO 4	Social Skills and Ethics To develop competent, committed, conscious, creative, and socially responsible citizens.
PEO 5	Environment and Sustainability To develop a multidisciplinary perspective to contribute innovatively towards business, economic and environment sustainability.
PEO 6	Life Long Learning To enable students to involve in lifelong learning in the pursuit of excellence.

PROGRAMME OUTCOME (POs)
(School of Commerce and Economics)

PO 1	<p>Disciplinary Knowledge</p> <p>Apply the scientific knowledge acquired in classrooms and labs in real-life situations and work environment.</p>
PO 2	<p>Professional Skills</p> <p>Internalize the learnt concepts of economics and commerce that will enable them to become skilled professionals.</p>
PO 3	<p>Entrepreneurship and Employment Skills</p> <p>Become empowered individuals who will emerge as entrepreneurs or be employed in various positions in industry, academia, and Government.</p>
PO 4	<p>Competency Development</p> <p>Adapt in the workplace by possessing the capacity to embrace new opportunities of emerging technologies, leadership, and teamwork in dynamic economic and business environment.</p>
PO 5	<p>Self-Directed and Lifelong Learning</p> <p>Engage in independent and life-long learning, especially through MOOCs and other online courses to acclimatize themselves in an ever-changing work environment.</p>
PO 6	<p>Environment and Sustainability</p> <p>Contribute innovatively towards business, economic and environment sustainability.</p>
PO 7	<p>Social Skills and Ethics</p> <p>Become competent, committed, conscious, creative, and compassionate men and women for and with others.</p>

M.A. ECONOMICS – PROGRAMME SPECIFIC OUTCOMES (PSOs)

(Department of Economics)

PSO 1	Apply the fundamental principles of economics to evaluate day to day problems
PSO 2	Investigate changes in the economic environment
PSO 3	Perform systematic analysis of data and consolidate the findings
PSO 4	Forecast outcomes of a policy with probability
PSO 5	Suggest measures to practical problems of the society
PSO 6	Empowered to make use of emerging opportunities
PSO 7	Contribute to the economic development of the nation

Correlation Rubrics

High	Moderate	Low	No Correlation
3	2	1	0

Mapping of PEOs with Vision and Mission

	PEO1	PEO2	PEO3	PEO4	PEO5	PEO6
Vision	3	3	3	3	3	3
Mission 1	3	2	3	3	3	2
Mission 2	2	3	3	3	2	3
Mission 3	3	2	3	3	3	3
Mission 4	2	3	3	3	3	3

Mapping of POs with PEOs

	PEO1	PEO2	PEO3	PEO4	PEO5	PEO6
PO1	3	3	2	3	3	2
PO2	3	3	3	2	3	3
PO3	3	3	3	2	2	3
PO4	3	3	3	3	2	310/
PO5	2	3	3	3	3	3
PO6	2	3	2	3	3	3
PO7	2	3	3	3	3	3

Mapping of PSOs with PEOs

	PEO1	PEO2	PEO3	PEO4	PEO5	PEO6
PSO1	3	3	2	3	2	3
PSO2	3	3	3	3	3	2
PSO3	3	3	3	2	3	3
PSO4	2	3	3	3	3	3
PSO5	3	3	3	3	3	3
PSO6	3	3	3	3	3	3
PSO7	3	3	3	3	2	3

Mapping of PSOs with POs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7
PSO1	3	3	2	2	2	3	3
PSO2	3	3	2	2	3	2	3
PSO3	3	3	3	3	3	3	3
PSO4	3	3	3	3	2	3	3
PSO5	3	3	3	3	3	3	3
PSO6	3	3	3	2	3	2	3
PSO7	3	3	3	3	3	3	3

M.A. ECONOMICS CBCS CURRICULUM WITH EFFECT FROM JUNE, 2022

PART	SEMESTER 1	SEMESTER 2	SEMESTER 3	SEMESTER 4	CREDITS
MAJOR CORE (MC)	Advanced Microeconomics – I (6h/6c) Advanced Macroeconomics - I (6h/6c) Statistics for Economists (6h/5c) Mathematics for Economists (6h/5c) International Economics (6h/6c)	Advanced Microeconomics – II (6h/5c) Advanced Macroeconomics – II (6h/5c) Advanced Econometrics (6h/4c) Research Methodology (5h/4c)	Monetary Economics (5h/5c) Public Finance – I (5h/5c) Development Economics (5h/4c) Applied Econometrics with R (5h/4c)	Indian Economic Development and Policy (5h/5c) Public Finance – II (5h/4c) Population Studies (Demography) (5h/4c) Environmental Economics (5h/4c)	81
SUBJECT ELECTIVE (SE)	---	Two courses offered from a pool of six based on students' preference 4 (2 C)	Two courses offered from a pool of six based on students' preference 4 (2 C)	---	4
INTER-DISCIPLINARY (ID)	---	---	Financial Economics 6 (3 C)	---	3
MOOCS/ SELF STUDY COURSES (SSC)	---	2 H # (2C)	---	---	2
LIFE & SOFT SKILLS (SS)	---	2 H # (1C)	2 H # (1C)	---	2

CROSS-DISCIPLINARY COURSES (CD)	---	3 (1C) (from other schools)	---	---	1
VALUE ADDED COURSES (VA)	---	---	2 H # 1 C (from other institutions)	---	1
SUMMER INTERNSHIP (SI)	---	3 to 4 WEEKS # (1 C)	---	---	1
SERVICE LEARNING (SL)	---	---	LEAP 2 H # 1 C	---	1
PROJECT	---	---	---	10 H Project (3 C)	3
TOTAL HOURS (TOTAL CREDITS)	30 (28 C)	30 (23 + 2 = 25 C)	30 (26 C)	30 (20 C)	99

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI

DEPARTMENT OF ECONOMICS

(2022 - Restructured Curriculum)

OVERALL COURSE STRUCTURE

Sem.	Subject Code	Course Title	T/L/P	Category	Hours	Credit
I	PEC1MC01	Advanced Microeconomics – I	T	MC	6	6
	PEC1MC02	Advanced Macroeconomics - I	T	MC	6	6
	PEC1MC03	Statistics for Economists	T	MC	6	5
	PEC1MC04	Mathematics for Economists	T	MC	6	5
	PEC1MC05	International Economics	T	MC	6	6
II	PEC2MC01	Advanced Microeconomics – II	T	MC	6	5
	PEC2MC02	Advanced Macroeconomics – II	T	MC	6	5
	PEC2MC03	Advanced Econometrics	T	MC	6	4
	PEC2MC04	Research Methodology	T	MC	5	4
		ELECTIVE I	T	ME	4	2
		MOOCs	T	MO	2	2
		Life Skills	T	LS	2	1
		Cross Disciplinary	T	CD	3	1
		Summer Internship	-	SI	-	1
III	PEC3MC01	Monetary Economics	T	MC	5	5
	PEC3MC02	Public Finance – I	T	MC	5	5
	PEC3MC03	Development Economics	T	MC	5	4
	PEC3MC04	Applied Econometrics with R	T & L	MC	5	4
	PEC3ID01	Financial Economics	T	ID	6	3
		ELECTIVE II	T	ME	4	2
		Soft Skills	T	SK	2	1
		Value Added Courses	T	VA	2	1
		LEAP	-	SL	2	1
IV	PEC4MC01	Indian Economic Development and Policy	T	MC	5	5

PEC4MC02	Public Finance – II	T	MC	5	4
PEC4MC03	Population Studies	T	MC	5	4
PEC4MC04	Environmental Economics	T	MC	5	4
PEC4PJ01	Project	P	MC	10	3

MAJOR ELECTIVES (ME)

Sem.	Subject Code	Course Title	T/L/P	Category	Hours	Credit
II	PEC2ME01	Agricultural Economics	T	SE	4	2
	PEC2ME02	Health Economics				
	PEC2ME03	Labour Economics				
	PEC2ME04	History of Modern Economic Analysis				
III	PEC3ME01	Industrial Economics	T	SE	4	2
	PEC3ME02	Gender Economics				
	PEC3ME03	Data Analytics for Economists				
	PEC3ME04	Urban Economics				

COURSES OFFERED TO OTHER DEPARTMENTS

Sem.	Subject Code	Course Title	T/L/P	Category	Hours	Credit
II	PEC2CD01	Financial Institutions & Markets	T	CD	3	1
II	PEC2CD02	Game Theory	T	CD	3	1
III	PEC3VA01	Data Analysis using Excel	T/L	VA	2	1

MC – Major Core; **ME**-Major Elective; **ID**-Inter-Disciplinary; **MO**-MOOC; **LS**-Life Skills; **SK**- Soft Skills; **CD**-Cross Disciplinary; **VA**- Value Added; **SI**-Summer Internship; **SL**-Service Learning; **PJ**-Project

COURSE DESCRIPTORS

Course Code	PEC1MC01
Course Title	ADVANCED MICROECONOMICS – I
Credits	06
Hours/Week	06
Category	Major Core (MC) – Theory
Semester	I
Regulation	2022
Overall Course Overview	
<p>The course focus on the advanced microeconomic concepts. The pricing decisions of the firm and use of managerial theories to optimize the resources will be the key areas of the course. The irrational behaviour of the consumers and their choice of the products, use of discounting techniques to decide among the available investment avenues will be part of the course.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To equip the understanding and knowledge on microeconomic theories. 2. To deepen the understanding of the microeconomics concepts with applications. 3. To clarify how various theoretical models influence economic policies and development. 4. To strengthen the comparative and analytical skill on microeconomics. 5. To provide a platform to understand various logical reasons for fixing alternative objectives of the firms. 	
Prerequisites	Price and cost functions, Market structure

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Average Cost Pricing	18	CO 1 CO 2 CO 3 CO 4 CO 5	K1 K2 K3 K4 K5 K6
	Neoclassical Theory of Firm: Marginalist controversy. Hall and Hitch – Full cost Pricing Principles, Gordon’s Attack on Marginalism – Arguments for Marginalism. Representative Model of Average-Cost Pricing: Mark-Up Rule, Comparison with Pure Competition, Prediction of the Average Cost Pricing theory in changing market conditions, Critique of Average Cost Pricing			
II	Limit-Pricing	18	CO 1 CO 2	K1 K2
	Bain’s Limit Pricing Theory; The Recent			

	Developments in the Theory of Limit-Pricing: Sylos-Labini Model; Franco Modigliani Model; Bhagwati Model and Pashigian Model.		CO 3 CO 4 CO 5	K3 K4 K5 K6
III	Managerial Theories of the Firm	18	CO 1	K1
	Baumol's Theory of Sales and Revenue Maximisation; Marris Model of the Managerial Enterprise - Comparison with Baumol's model; Williamson's Model of Managerial Discretion		CO 2 CO 3 CO 4 CO 5	K2 K3 K4 K5 K6
IV	Behavioural Theory of the Firm - Pricing with Market Power	18		
	Behavioural Theory of Cyert and March Models: Goals, Process and Uncertainty, A simple Model of Behaviorism, Comparison with Traditional Theory and Critique. Capturing Consumer Surplus, Price Discrimination, Intertemporal Price Discrimination and Peak Loading Pricing, The Two-Part Tariff, Bundling: Relative valuation, Mixed bundling, Advertising: Rule of Thumb for Advertising, Transfer pricing on the integrated firm.		CO 1 CO 2 CO 3 CO 4 CO 5	K1 K2 K3 K4 K5 K6
V	Investment, Time and Capital Markets	18	CO 1	K1
	Present Discounted Value, NPV criterion for Capital investment. Adjustment for Risk, Investment decisions by consumers, Investment in Human Capital, Intertemporal production decisions – Depletable resources. Determinations of Interest rates		CO 2 CO 3 CO 4 CO 5	K2 K3 K4 K5 K6

Text Books:

1. Koutsoyiannis, A., Modern Microeconomics, 2nd Edition, Macmillan Publications, 1977
2. Pindyck, Robert S. and Rubinfeld, Daniel L., Microeconomics, 6th edition, Prentice Hall of India Pvt. Ltd, 2013

Books for Reference:

1. Varian, Hal. R., Intermediate Microeconomics – A Modern Approach, 8th Edition, W. W. Norton & Company Publications, USA, 2014
2. Ahuja, H.L., Advanced Economic Theory – Microeconomic Analysis, 21st edition, S. Chand & Company Ltd. New Delhi, 2007
3. Jehle, Geoffrey A. and Reny, Philip J, Advanced Microeconomic Theory, 3rd Edition, Prentice Hall University Press, 2011
4. Browning, Edgar K and Zupan, Mark A, Microeconomic Theory and Applications, 13th Edition, Willey, 2019

5. Dwivedi, D N, Microeconomics Theory and Applications, 3rd Edition, Vikas Publishing House PVT LTD, 2016
6. Hirshleifer, Jack, Glazer, Amihai and Hirshleifer, David, Price Theory and Applications – Decisions, Markets and Information, 7th Edition, Cambridge University Press, 2005
7. Greenlaw, Steven A. and Shapiro, David, Principles of Microeconomics, 2nd Edition, Openstax

Journals for Reference

1. Stefan Napel, Advanced Microeconomics – I, Universitat Bayreuth.
2. Emmanuel Ifeanyi, National Open University of Nigeria, Advanced Microeconomic Theory.
3. The Quarterly Journal of Economics, Oxford University Press.
4. Econometrica, Econometric Society.
5. Review of Economic Studies, Oxford University Press.

Web Resources

1. <https://open.umn.edu/opentextbooks/textbooks/193>
2. https://scholar.google.co.in/scholar?q=microeconomics+theory+and+applications+pdf&hl=en&as_sdt=0&as_vis=1&oi=scholart

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Recall basic microeconomic concepts and economic theories.	K1, K2
CO2	Integrate and exhibit the pricing theory models	K3
CO3	Analyse the impact factors of alternative business objectives	K4
CO4	Explain the models of behavioural theory and Cost-Benefit analysis.	K5
CO5	Discuss the quantitative theories and efficiency of the models.	K6

Course Code	PEC1MC02
Course Title	ADVANCED MACROECONOMICS – I
Credits	06
Hours/Week	06
Category	Major Core (MC) – Theory
Semester	I
Regulation	2022
Overall Course Overview	
<p>The course provides the Classical and Keynesian views on economic variables determining the general equilibrium in an economy. The implication of wage and price rigidity. Fluctuations in the economy. Significance of monetary and fiscal policies in controlling inflation and unemployment.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To evaluate the Classical and Keynesian models. 2. To analyze IS-LM model 3. To identify the patterns in business cycle 4. To analyze the shocks in Keynesian models. 5. To discuss the relationship between unemployment and inflation 	
Prerequisites	Demand and supply curve, Shift in in demand and supply curves, Dependent and independent variables, Equilibrium conditions

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Classical versus Keynesians	18	CO1 CO2 CO3 CO4 CO5	K1
	Classical & Keynesian models: Consumption, saving and investment. Generalized disequilibrium: money-wage and price rigidity The New Classical model			K2 K3 K4 K5 K6
II	The IS-LM/AD-AS Model	18	CO1 CO2 CO3 CO4 CO5	K1
	Full-employment line, the IS curve, the LM curve, the complete IS-LM model, Classical versus Keynesian versions of the IS-LM model. The aggregate demand curve, the aggregate supply curve, equilibrium in the AD-AS model. IS-LM Model for an open economy			K2 K3 K4 K5 K6

III	Classical Business Cycle Analysis	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Business Cycle, effects of fiscal policy shocks on the classical model, unemployment in the classical model, role of money and monetary policy in the classical model, misperceptions theory and the non-neutrality of money: monetary policy and the misperceptions theory, rational expectations and the role of monetary policy.			
IV	Keynesian Wage and Price Rigidity	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Real-wage rigidity, the efficiency wage model, employment and unemployment in the efficiency wage model, efficiency wages and the full employment line - price stickiness, monetary and fiscal policy in the Keynesian model, Keynesian theory of business cycles and macroeconomic stabilization, supply shocks in the Keynesian model.			
V	Unemployment and Inflation	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	The Phillips Curve, The Expectations - Augmented Phillips Curve, Shifts in the Phillips Curve – Macroeconomic Policy and the Phillips Curve – The cost of unemployment and inflation – Fighting Inflation: The role of inflationary expectations			
Text Books:				
<ol style="list-style-type: none"> 1. Abel, A.B., Bernanke, B. S., Croushore, D., Macroeconomics, 8th edition, Pearson India Education Services Private Limited., Noida, 2015 2. Scarth, W., Macroeconomics: The Development of Modern Methods for Policy Analysis, Edwar Elgar Publishing Limited, Massachusetts, 2014 				
Books for Reference:				
<ol style="list-style-type: none"> 1. Romer, David. Advanced Macroeconomics, New York: McGraw-Hill, latest Edition. 2. Mankiw, N. Gregory., Principles of Macroeconomics, 6th edition, Cengage Learning India Private Limited, New Delhi, 2015 3. Dornbusch, R., Fischer, S., Startz, R., Macroeconomics, 9th edition, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2012 4. Blanchard, O.J. and Fisher, S., Lectures in Macroeconomics, Cambridge, Mass: M.I.T. Press, 1989 				
Journals for Reference				
<ol style="list-style-type: none"> 1. The Quarterly Journal of Economics, Oxford University Press 2. Journal of Financial Economics, Elsevier 3. Journal of Finance, American Finance Association 				

4. Econometrica, Econometric Society
5. Journal of Economic Literature, American Economic Association

Web Resources

<https://www.econlib.org/library/Enc/bios/Keynes.html>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Review Classical and Keynesian views on economic variables	K1, K2
CO2	Demonstrate the process of general equilibrium	K3
CO3	Analyze the causes for economic fluctuation	K4
CO4	Devise policies to control negative effects of economic fluctuations	K5
CO5	Evaluate the implications of economic policies	K6

Course Code	PEC1MC03
Course Title	STATISTICS FOR ECONOMISTS
Credits	05
Hours/Week	06
Category	Major Core (MC) – Theory
Semester	I
Regulation	2022
Overall Course Overview	
<p>The course will provide a strong foundation in statistical estimation and hypothesis testing. It is designed to handle multivariate data from the real world and apply appropriate statistical tools and infer economic solutions to the real-world problems. The course facilitates in inferring the intensity of relationship between multiple variables and building appropriate statistical models. The models thus formulated can be tested for their significance and can be used for forecasting.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To identify and use appropriate statistical tools for economic analysis 2. To analyze and draw inferences about various statistical hypothesis 3. To enhance ability to build statistical models 4. To provide skills to handle multi-dimensional data and derive statistical inference 5. To identify and evaluate fluctuations in economics and business 	
Prerequisites	Correlation Analysis, Simple Regression Analysis

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Testing of Hypothesis	18	CO1 CO2 CO3 CO4 CO5	K1
	Procedure of testing hypothesis; Type I and Type II errors; two-tailed and one-tailed tests; Tests of significance of attributes; Tests of significance for large samples; Tests of significance for small samples; Z test, F test, ANOVA			K2 K3 K4 K5 K6
II	Non-Parametric Tests	18	CO1 CO2 CO3 CO4 CO5	K1
	Chi-square test; Sign test; Runs test; Mann-Whitney U test; Spearman Rank Correlation; Kruskal-Wallis test; Distinction between Parametric and Non-parametric tests			K2 K3 K4 K5 K6

III	Partial and Multiple Correlation	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Partial correlation coefficient - Zero, first and second order coefficients; Significance of partial correlation coefficient; Multiple correlation – coefficient of multiple correlation; Reliability of estimates; Coefficient of multiple determination (R^2)			
IV	Multiple Regression	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Formulation of a multiple regression model; the Normal equations; Evaluating the model – standard regression coefficients (t test), adjusted R^2 ; The problem of multicollinearity – detection and treatment; Stepwise regression – Backward elimination, Forward selection			
V	Time Series Analysis	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Components of time series; Time series models; Smoothing techniques – moving averages, exponential smoothing; Decomposition of time series			

Text Books:

1. Gupta, SP, Statistical Methods, 46th edition, Sultan Chand & Sons, 2021
2. Webster L. Allen, Applied Statistics for Business and Economics, 2nd Edition, McGraw-Hill Higher Education, 1995

Books for Reference:

1. Gupta, S.C., Fundamentals of Applied Statistics, 7th Edition, S. Chand & Sons, 2018
2. Sharma, J. K., Business Statistics, 2nd Edition, Pearson Education, 2006
3. Karmel, P.H. and Polasek, M., Applied Statistics for Economics, 4th Edition, Pitman, Australia, 2012
4. Bhattacharyya, G. K., and Johnson, R. A., Statistical Concepts and Methods, 1st Edition, John Wiley and Sons, 1997
5. Hollander, M. and Wolfe, D. A., Nonparametric Statistical Methods, 2nd Edition, John Wiley & Sons, 1973

Journals for Reference

1. Duncan, D. B. (1975). "t-Tests and Intervals for Comparisons suggested by the Data" Biometrics, 31, pages 339-359.
2. Welsch, R. E. (1977). "Stepwise Multiple Comparison Procedure", Journal of the American Statistical Association, 72, page 359.
3. Biddle, J. (2017). 2016 hes presidential address: Statistical inference in economics,

1920–1965: Changes in meaning and practice. *Journal of the History of Economic Thought* 39 (2), 149–173.

4. Nickerson, R. S. (2000). Null hypothesis significance testing: a review of an old and continuing controversy. *Psychological methods* 5 (2), 241.

Web Resources

1. https://dss.princeton.edu/online_help/analysis/interpreting_regression.htm
2. <https://www.google.com/search?q=https&sourceid=chrome&ie=UTF-8>
3. <https://www.statisticshowto.com/probability-and-statistics/statistics-definitions/parametric-and-non-parametric-data/>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Identify appropriate statistical tools for economic analysis	K1, K2
CO2	Relate economic variables with hypothesis	K3
CO3	Experiment economic model using statistical techniques	K4
CO4	Design multi-dimensional models	K5
CO5	Predict the outcome and justify the finding with statistical significance	K6

Course Code	PEC1MC04
Course Title	MATHEMATICS FOR ECONOMISTS
Credits	05
Hours/Week	06
Category	Major Core (MC) – Theory
Semester	I
Regulation	2022
Overall Course Overview	
<p>The course is designed to equip the students with sufficient computational skills to undertake economic study and seek optimum solutions under given constraints. The module has tools like Matrix Algebra, Constrained and Unconstrained optimization, Difference and Differential Equations, Comparative Statics and the relevant applications in Economics. It would also equip the students with relevant knowledge of mathematics which in turn will facilitate better understanding of core economic theories.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To grasp essential mathematical tools required for further studies in economic theory 2. To express economic ideas in mathematical terminologies 3. To apply mathematical tools to solve economic problems 4. To understand and apply optimization techniques with and without constraints 5. To acquire knowledge and understanding of mathematical methods used by professional economists 	
Prerequisites	Basic Matrix operations and rules, Optimization of one variable case, Techniques of differentiation and integration, Techniques of differentiation and integration, Micro economic theories, Macro economic theories

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Matrix Algebra	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Partitioned matrices; Input-output analysis; Linear programming – Geometric solution, The Simplex method, The dual of a linear programming problem; Game theory – Solution of two-person two-strategy games, Solution of larger games; Characteristic roots and vectors of a matrix; Vector differentiation			

II	Constrained & Unconstrained Optimization	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Maxima and minima of functions of n variables; Unconstrained optimization – The Hessian determinant; Constrained optimization – Lagrange Multipliers, Bordered Hessian; Kuhn-Tucker conditions for constrained optimization			
III	Differential Equations	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Definition; Classification of differential equations; Solutions of ordinary differential equations; Application of differential equations in economic models – Domar macro models, Evans price-adjustment model, Income-consumption-investment model			
IV	Difference Equations	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Definition; Classification of difference equations; Solutions of difference equations; Application of difference equations in economic models – The Harrod model, General Cobweb model, Income-consumption-investment model			
V	Comparative Statics	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	General comparative-statics analysis; comparative-statics with several endogenous and exogenous variables; comparative-statics for constrained optimization; The envelope theorem; Comparative-statics models in economics – Keynesian model of income determination, linear market model, tax on monopoly, optimal growth; Application of comparative-statics in economics - IS-LM model, Input demands of a competitive firm, The Slutsky equation			

Text Books:

1. Weber, Jean E., Mathematical Analysis: Business and Economic Applications, 4th Edition, Harper & Row, 1982
2. Chiang, A.C., Wainwright, Kevin, Fundamentals of Mathematical Economics, 4th Edition, McGraw – Hill Companies, 2005

Books for Reference:

1. Yamane, Taro., Mathematics for Economists: An Elementary Survey, Prentice Hall of India Pvt. Ltd., 1970
2. Simon, C. P. and Blume L., Mathematics for Economists, First Edition, Norton, 1994

3. Hoy, Michael, Livernois, John, Mckenna, Chris, Rees, Ray, Stengos, Thanasis, Mathematics for Economics, fourth edition, MIT Press, 2022
Journals for Reference
1. Philip E.Gill Walter Murray Michael A.Saunders Margaret H.Wright, Recent developments in constrained optimization, Journal of Computational and Applied Mathematics, Volume 22, Issues 2–3, June 1988, Pages 257-270
2. Peter B.Dixon and B.R.Parmenter, Advances in input-output modeling: A review article, Journal of Policy Modeling Volume 1, Issue 2, May 1979, Pages 271-285
3. Chen, Bang-Yen. (2012). An explicit formula of Hessian determinants of composite functions and its applications. Kragujevac Journal of Mathematics. 36. 27-39.
4. Marques, Jorge. (2014). An Application of Ordinary Differential Equations in Economics: Modeling Consumer's Preferences Using Marginal Rates of Substitution. 10.13140/2.1.1144.9288.
5. Eugene Silberberg, A revision of comparative statics methodology in economics, or, how to do comparative statics on the back of an envelope, Journal of Economic Theory, Volume 7, Issue 2, February 1974, Pages 159-172
Web Resources
1. https://d13mk4zmvuctmz.cloudfront.net/assets/main/study-material/notes/mechanical_engineering_industrial-engineering-operation-research_simplex-and-dual-simplex-method_notes.pdf
2. https://www.economicsnetwork.ac.uk/teaching/Online%20Text%20and%20Notes/Mathematical%20Economics

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Solve set of homogeneous and non-homogeneous equations using matrix algebra	K1, K2
CO2	Trace optimum values of a set of equations using unconstrained optimization techniques and apply them to seek economic solutions	K3
CO3	Identify optimum values of a set of equations using constrained optimization techniques and apply them to seek economic solutions.	K4
CO4	Evaluate solutions for macro-economic growth models using difference and differential equations.	K5
CO5	Test micro economic theories.	K6

Course Code	PEC1MC05
Course Title	INTERNATIONAL ECONOMICS
Credits	06
Hours/Week	06
Category	Major Core (MC) – Theory
Semester	I
Regulation	2022
Overall Course Overview	
<p>The course throws light on international trade theories and trade models. It reviews implications of international trade policies. It also analyse the basics of exchange rate determinations and the role of central bank. It covers policy options adopted by international institutions to reach internal and external balance.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To understand the theories governing international trade 2. To assess the trade models 3. To discuss international trade policies. 4. To evaluate the policies pursued by various economic bodies in the field of international economics 5. To analyze international macroeconomic policy 	
Prerequisites	Principles of Micro and Macro economics

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	International Trade Theory	18	CO1 CO2 CO3 CO4 CO5	K1
	Introduction, Gravity Model, Changing pattern of world trade, Comparative advantage with many goods, The specific factors model, The political economy of trade, international labour mobility, Empirical evidence on the Hecksher-Ohlin Model			K2 K3 K4 K5 K6
II	Trade Model	18	CO1 CO2 CO3 CO4	K1
	Standard trade model, Tariff and export subsidies, Economies of Scale and international trade, External economies and international trade, imperfect			K2 K3 K4

	competition and international trade, Multinationals and outsourcing		CO5	K5 K6
III	International Trade Policy	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Cost and benefits of a tariff, other instruments of trade policy, Arguments for and against free trade, Income distribution and trade policy, international negotiations and trade policy, import-substituting industrialization, trade and growth in Asia, arguments for activist trade policy, globalization and low wage labor			
IV	Exchange Rate and Open Economy Macroeconomics	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	The balance of payments accounts, Exchange rates and international transactions, the foreign exchange market, the demand for foreign exchange currencies, Money, the price level and the exchange rate in the long run, Purchasing power parity, problems and beyond PPP, Central Bank intervention and the money supply			
V	International Macroeconomic Policy	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	The open-economy monetary trilemma, gold standard, interwar years, Bretton woods system and IMF, Analyzing policy options for reaching internal and external balance, The floating exchange rate, Developing country borrowing and debt, East Asia:Success and Crisis.			

Text Books:

1. Krugman, Paul R. and Obstfeld, Maurice, International Economics – Theory and Policy, 11th edition, Pearson Publication, 2018
2. Salvatore, Dominick, International Economics, Wiley India Pvt. Ltd., 2011

Books for Reference:

1. Sodersten, Bo and Geoffery, Reed, International Economics, Hong Kong: Macmillan Education Ltd, 1998
2. Carbaugh, Roebert J., International Economics, 9th edition, Thomson Asia Pvt. Ltd, 2004
3. Kindleberger, Charles, International Economics, 6th edition, Irwin Inc, 1978
4. Cherunilam, Francis, International Business, 6th edition, Wheeler Publishers, 1998
5. Sawyer, W. Charles and Sprinkle, Richard P, International Economics, Prentice Hall of India, 2003

Journals for Reference

1. International Economics and Economic Policy, Springer
2. Journal of International Economics, Science Direct
3. Review of International Economics, Wiley

Web Resources

1. <http://www.imf.org>
2. <http://www.wto.org>
3. <http://www.economagic.com>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Describe the international economic issues	K1, K2
CO2	Discover the reasons behind international economic policies	K3
CO3	Examine the determinants of exchange rate	K4
CO4	Summaries international macroeconomic policy options	K5
CO5	Evaluate the policy options in international trade	K6

Course Code	PEC2MC01
Course Title	ADVANCED MICROECONOMICS - II
Credits	05
Hours/Week	06
Category	Major Core (MC) – Theory
Semester	II
Regulation	2022
Overall Course Overview	
<p>The course guides to understand the concept of equilibrium from different dimension. It uses the fundamental techniques to think about an individual/firm decision on optimal exchange/production and helps to understand the nature, applicability and consequences of Pareto optimality. The course provides an opportunity to study the efficient allocation of the given resources on welfare implications with different theories. The course also enables to understand the decision making of an individual/firm with external costs and benefits and the economic situations in precise game theory.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To understand the concept of General Equilibrium. 2. To acquire knowledge on Welfare theories. 3. To excavate the understanding on modern theory of welfare economics with compensation principles. 4. To impart and improve the critical reviews and analytical capacity with advanced microeconomic applications. 5. To deal with the findings of different forms of game theory strategies along with applications of economics. 	
Prerequisites	General equilibrium theories, quantitative techniques, and probability models.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Theory of General Equilibrium	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Concepts of General Equilibrium. The Walrasian System, Existence, Uniqueness and Stability of an equilibrium. The Path to General Equilibrium. General Equilibrium (2 x 2 x 2 model): Equilibrium in Consumption, Equilibrium in Production and Simultaneous Equilibrium of Production and Consumption. General Equilibrium and the			

	Allocation of Resources, Prices of Commodities and Factors, Factor Ownership and Income Distribution			
II	Welfare Economics	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Pareto Optimality - Kaldor-Hicks compensation principle, Scitovsky Paradox, Posner wealth maximization - Grand Utility Possibility Frontier and Welfare Maximization. Constraint Bliss on utility possibility frontier. Social Welfare Functions and Social Choice: Bergson-Samuelson Model, Arrow's Model.			
III	Theory of Auctions and Game Theory	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Auctions: Concept, Classifications, Bidding Rules, Auction Designs, Forms of Auction, Position Auction – Two Bidders and More than two bidders. Problems with Auctions, The concept of Winner's Curve, Stable Marriage Problem, Mechanism Design. Game Theory: The Payoff Matrix of a Game, Nash Equilibrium, Mixed Strategies, Prisoner Dilemma, Tit-for-Tat-Repetitive and non-repetitive games. A Game of Entry Deterrence – Application of Game theory.			
IV	Market Failure	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Market Failure and Sources of Market failure: Externalities of Production and Consumption. Public Good: Characteristics, Free Rider Problem, Public Good and Pareto Efficiency - The Theory of Second Best.			
V	Market with Asymmetric Information	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Asymmetric information – Market for Lemons – Adverse Selection - Screening and its applications: Credit rationing, Regulation, Optimal Income Taxation – Moral Hazard and its application: Managerial incentive schemes – Market Signaling and its application: Corporate financing and investment decisions.			
Text Books:				
1. Koutsoyiannis, A., Modern Microeconomics, 2 nd Edition, Macmillan Publications, 1977				
2. Varian, Hal. R., Intermediate Microeconomics – A Modern Approach, 8 th Edition, W.W. Norton & Company Publications, USA, 2014				

Books for Reference:

1. Pindyck, Robert S. and Rubinfeld, Daniel L, Micro Economics, Printice Hall India, New Delhi, 2003.
2. Bolton, P. and Dewatripont, M., Contract Theory, MIT Press, 2005
3. Mankiw, Geogory N., Principles of Microeconomics, 7th Edition, Cengage Learning India Pvt. Ltd, 2015
4. Jehle, Geoffrey A. and Reny, Philip J, Advanced Microeconomic Theory, 3rd Edition, Prentice Hall University Press, 2011
5. Browning, Edgar K and Zupan, Mark A, Microeconomic Theory and Applications, 13th Edition, Willey, 2019
6. Hirshleifer, Jack, Glazer, Amihai and Hirshleifer, David, Price Theory and Applications – Decisions, Markets and Information, 7th Edition, Cambridge University Press, 2005

Journals for Reference

1. Stefan Napel, Advanced Microeconomics – I, University of Bayreuth.
2. Emmanuel Ifeanyi, National Open University of Nigeria, Advanced Microeconomic Theory.
3. The Quarterly Journal of Economics, Oxford University Press.
4. Econometrica, Econometric Society.
5. Review of Economic Studies, Oxford University Press.

Web Resources

1. <https://open.umn.edu/opentextbooks/textbooks/193>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Infer basic microeconomic concepts and economic theories	K1, K2
CO2	Model the exhibition of advanced economic theories	K3
CO3	Analyze the impact of alternative and modern approaches to obtain the real economic objectives	K4
CO4	Explain the gap of theoretical models and practical behavioral difficulties in the market structure	K5
CO5	Construct and analyze various strategies of the quantitative game theories to estimate the efficacy and logical reasoning.	K6

Course Code	PEC2MC02
Course Title	ADVANCED MACROECONOMICS - II
Credits	05
Hours/Week	06
Category	Major Core (MC) – Theory
Semester	II
Regulation	2022
Overall Course Overview	
<p>This course compares early growth model with new growth theories which includes, Research and Development model, Human Capital Model etc. It analyses Keynesian and Post-Keynesian Growth Models. It also includes New-Keynesian economics and Dynamic stochastic general equilibrium model.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To study the process of economic growth using growth models 2. To analyse the allocation to research and development from the overall capital stock 3. To evaluate the labour force and the importance of human capital 4. To assess the impact of lack of coordination among the sellers in the market 5. To critique the Phillips Curve and its implication 	
Prerequisites	Shift in in demand and supply curves, Dependent and independent variables, Equilibrium conditions, Differential calculus

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Early Growth Models	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Solow Growth Model – The impact of a change in the Saving Rate – Applications of Solow Model – Infinite Horizon and Overlapping Generations Models: The Ramsey-Cass-Koopmans Model – The Diamond Model.			
II	New Growth Theory	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Research and Development Model: Determinants of the allocation of resources to R&D – The Romer Model. Time Series Tests of Endogenous Growth Models - Extending the Solow model to include Human Capital – Accounting for Social Infrastructure and Cross-Country Income Differences.			

III	Real Business Cycle Theory and Exogenous Nominal Rigidity	18	CO1	K1
	Real –Business Cycle Theory, Money and Output, Assessing the Baseline Real Business Cycle Model – Price rigidity, Wage rigidity and departures from Perfect Competition in the Goods and Labor Markets – The cyclical behavior of Real Wage		CO2 CO3 CO4 CO5	K2 K3 K4 K5 K6
IV	Microeconomics foundations of Incomplete Nominal Adjustment	18	CO1	K1
	Imperfect competition and price setting – Real rigidity - Coordination-Failure Models and Real Non- Walrasian Theories - The Lucas imperfect information model, Rational expectations hypothesis, Random Walk Model Inflation and Monetary Policy – Seignorage and Inflation.		CO2 CO3 CO4 CO5	K2 K3 K4 K5 K6
V	Dynamic Stochastic General – Equilibrium Models of Fluctuations	18	CO1	K1
	Building blocks of dynamic New Keynesian Models, Predetermined Prices: The Fischer Model, Fixed Prices: The Taylor Model, The Calvo Model and the New Keynesian Phillips Curve – State dependent pricing – The Canonical New Keynesian Model		CO2 CO3 CO4 CO5	K2 K3 K4 K5 K6
Text Books:				
<ol style="list-style-type: none"> 1. Romer, David. Advanced Macroeconomics, 4th edition, McGraw-Hill, New York, 2011 2. Scarth, W., Macroeconomics: The Development of Modern Methods for Policy Analysis, Edwar Elgar Publishing Limited, Massachusetts, 2014 				
Books for Reference:				
<ol style="list-style-type: none"> 1. Dornbusch, R., Fischer, S., Startz, R., Macroeconomics, 9th edition, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2012 2. Abel, A.B., Bernanke, B. S., Croushore, D., Macroeconomics, 8th edition, Pearson India Education Services Private Limited., Noida, 2015. 3. Mankiw, N. Gregory, Principles of Macroeconomics, 6th edition, Cengage Learning India Private Limited, New Delhi, 2015. 4. Blanchard, O.J. and Fisher, S., Lectures in Macroeconomics, Cambridge, Mass: M.I.T. Press, 1989 				
Journals for Reference				
<ol style="list-style-type: none"> 1. The Quarterly Journal of Economics, Oxford University Press 2. Journal of Financial Economics, Elsevier 3. Journal of Finance, American Finance Association 4. Econometrica, Econometric Society 5. Journal of Economic Literature, American Economic Association 				

Web Resources

1. <https://www.econlib.org/library/Enc/bios/Lucas.html>
2. <https://in.mathworks.com/company/newsletters/articles/simulating-the-ramsey-cass-koopmans-model-using-matlab-and-simulink.html>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Identifies the different growth models.	K1, K2
CO2	Illustrate the superiority of one model with the other.	K3
CO3	Infer the outcome of different models.	K4
CO4	Develops models to address economic issues	K5
CO5	Evaluate models and suggest measures	K6

Course Code	PEC2MC03
Course Title	ADVANCED ECONOMETRICS
Credits	04
Hours/Week	06
Category	Major Core (MC) – Theory
Semester	II
Regulation	2022
Overall Course Overview	
<p>The course introduces the General Linear Model, its assumptions and properties, Extension to GLM by introducing dummy variable models and investigates the importance of violation to the assumptions of the CLRM. Qualitative Response models are introduced with explanations of models relating to Discrete Binary Choice and Multinomial models including LPM, Logit, Probit and Censored Regression. It also covers Single and Simultaneous equation methods. The course ends up by discussing the phenomenon of spurious regression.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. This course provides the theoretical underpinnings for conducting applied econometric studies. 2. It provides the conceptual framework on which such analyses are based, supplemented by illustrative empirical applications. 3. To get acquainted with the tools of Econometrics analyses for applied research in Economics. 4. To impart the knowledge of econometric techniques. 5. Relate to the key concepts in time series econometrics. 	
Prerequisites	Regression and Correlation followed by CLRM: Two Variable Linear Model, OLS estimation and its properties, Elementary matrix algebra, differential, and integral calculus, probability theory, theoretical distributions and testing of hypothesis, Econometric models using single equation methods and their estimation process, Time series data

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Multiple Regression Models – Estimation	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	GLM: Assumptions and properties – OLS estimation of Partial Regression Coefficients - Gauss Markov Theorem. Relaxing the assumptions of Classical Model: Estimation in the presence of Multicollinearity – Method of GLS in the presence Heteroscedasticity and Autocorrelation. Extensions to GLM: Dummy Variable Regression Models- Nature, ANOVA and ANOCOVA models, Use of Dummy variables in Deseasonalization of Time Series data.			
II	Qualitative Response Models	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Discrete Choice Models – Models for Binary Choice – The Linear Probability Model (LPM), Maximum Likelihood LOGIT and PROBIT Models – Multinomial LOGIT and PROBIT models – Censored Regression: Tobit Model.			
III	Panel Data Regression and Dynamic Econometric Models	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Panel Data Regression Models: Pooled OLS, Fixed Effect, LSDV Model and W-G Estimator, Random Effects Model. Dynamic Econometric Models: Auto Regressive and Distributed Lag Models. Estimation of Distributed-Lag model: Koyck's approach – Polynomial Distributed Lag Model: The Almon Approach - Estimation of Auto Regressive Models.			
IV	Simultaneous Equation Models	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Nature of Simultaneous equation methods – Simultaneous Equation Bias - Problem of identification: Structural and Reduced Forms. Limited Information Single Equation Methods: ILS, Instrumental variable, Two Stage Least Squares, Maximum likelihood Full Information Method: Three stage least squares.			
V	Time Series Econometrics – Basic concepts	18	CO1 CO2	K1 K2
	Key concepts in Time series Econometrics: Stationery			

	stochastic processes – Non-stationery Stochastic processes: Random Walk Models - Unit roots Stochastic Process - Trend Stationery and Difference Stationery Stochastic processes – Integrated Series – Phenomenon of Spurious Regression.		CO3 CO4 CO5	K3 K4 K5 K6
Text Books: <ol style="list-style-type: none"> 1. Gujarati and Porter, Basic Econometrics, Sixth Edition, McGraw Hill, Inc., 2017 2. Johnston, J., Econometric Methods, Fourth Edition, McGraw Hill Inc., 1994 				
Books for Reference: <ol style="list-style-type: none"> 1. Greene, William, Econometric Analysis, Seventh Edition, Pearson, 2012 2. Johnson, Aaron, C Jr., et al., Econometrics: Basic and Applied, First Edition, Macmillan Publishing Co., 1987 3. Stock, James H. and Watson, Mark W., Introduction to Econometrics, First Edition, Pearson Education Inc., 2011 4. Scott, J., Regression Models for Categorical and Limited Dependent Variables, Second Edition, Sage publications Ltd, 1997 5. Pindyck, R. and Rubinfeld, D., Time Series and Panel Data Econometrics, Oxford University Press, 2000 				
Journals for Reference <ol style="list-style-type: none"> 1. The Econometrics Journal, Oxford University Press. 2. Handbook of Econometrics, Elsevier 3. Econometrica, Journal of the Econometric Society 4. Journal of Time Series Analysis, John Wiley & Sons Ltd 5. Econometric Theory, Cambridge University Press. 				
Web Resources <ol style="list-style-type: none"> 1. https://www.economicsnetwork.ac.uk/teaching/Online%20Text%20and%20Notes/Advanced%20Econometrics%20and%20Quantitative%20Techniques 2. https://www.journals.elsevier.com/ 3. https://onlinelibrary.wiley.com/ 4. https://mjl.clarivate.com/ 5. https://ugccare.unipune.ac.in/ 				

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Understand the core concepts employed for estimating single and simultaneous equations.	K1, K2
CO2	Identify the uniqueness of categorical data and its subsequent estimation procedures.	K3
CO3	Illustrate the various concepts to familiarize and initiate the empirical phenomena.	K4
CO4	Analyze the estimated econometric models and check for their precision and reliability.	K5
CO5	Construct relevant data models for appropriate estimation and economic forecasting.	K6

Course Code	PEC2MC04
Course Title	RESEARCH METHODOLOGY
Credits	04
Hours/Week	05
Category	Major Core (MC) – Theory
Semester	II
Regulation	2022
Overall Course Overview	
<p>This course describes the ethical issues in social science research and the present position of economic research. It covers data collection methods and different types of research design. It also discusses about qualities of a good research report.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To understand the basic ingredients of research and application of computer. 2. To prepare an outline of a project in economics 3. To collect data for conducting research 4. To create appropriate research design 5. To summarize the research report 	
Prerequisites	Micro and Macro economic principles, Statistical Techniques, Econometric Tools

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Ethics in Social Science Research	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Ethical Problems in the Early Years of the Twentieth Century, Ethics and Plagiarism, The Impact of Ethical Lapses, Ethical Guidelines, The Importance of Social Context in Deciding on Ethics in Research, The Ethical Issues: Deception and Controversy about Deception, The Controversy About Deception, Ethical Issues in Special Circumstances, Ethics in Cross-cultural Research, Ethics in Internet Research			
II	Research in Economics	15	CO1 CO2 CO3 CO4	K1 K2 K3 K4
	Meaning, Objectives, need and scope – Types of social research – Research methods versus Methodology - Basic elements of scientific method, fact, conceptual			

	and operational definitions, assumptions, hypotheses, theories and laws – Present position of research in Economics in India.		CO5	K5 K6
III	Data Collection	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Sources of primary and secondary data; Collection of Primary data: Observation method - participant and non-participant observation; Interview Method – advantages and limitations of different types of interview method; Other methods of primary data collection – Meaning and significance of Pilot study and pre-testing - Difference between Questionnaires and Schedules - Steps involved in constructing Questionnaires and Schedules; Sources of Secondary data - Challenges involved in using secondary data			
IV	Research Design	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Meaning and Significance, Features of a good research design; Meaning, Purpose and Key Characteristics and steps in conducting Different types of research designs: Surveys and Sampling research design, Quantitative Research Designs: Correlational designs, Experimental designs. Qualitative Research Designs: Grounded Theory designs, Ethnographic designs, Narrative Research designs. Mixed Methods Design - Action Research Design – Case study method.			
V	Report Writing	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Significance of Report writing, Meaning and Key Characteristics of different Types of Reports, Steps in Writing Report, Layout of the Research Report, Style and mechanics of writing research reports, Requisites of a good report			
Text Books:				
<ol style="list-style-type: none"> 1. Cresswell, John W., Research design, 4th Edition, Sage Publications, 2014 2. Goode, William J and Paul, K Hatt, Methods in Social Research, McGraw-Hill International Book Co, 1983 3. Kothari, C.R., Research Methodology, 2nd Edition, New International Publishers, 2004 				
Books for Reference:				
<ol style="list-style-type: none"> 1. Young, Pauline V., Scientific Social Surveys and Research, 4th Edition, Prentice Hall of India, 1977 2. Bryman, Alan, Social research methods, 4th Edition, Oxford University Press, 2008 3. Patton, M.Q., Qualitative Research and Evaluation Methods, 3rd Edition Sage Publications, 2002 				

Journals for Reference

1. Review of Economic Studies, Oxford
2. Quarterly Journal of Economics
3. Journal of Social Science Research

Web Resources

1. www.socialresearchmethods.net
2. www.ualberta.ca
3. <http://finmin.nic.in>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Describe the ethical issues and process of conducting research	K1, K2
CO2	Apply quantities and qualitative research designs	K3
CO3	Evaluate various methods of data collection.	K4
CO4	Formulate research hypothesis and suggest solutions	K5
CO5	Evaluate different kinds of research reports	K6

Course Code	PEC3MC01
Course Title	MONETARY ECONOMICS
Credits	05
Hours/Week	05
Category	Major Core (MC) – Theory
Semester	III
Regulation	2022
Overall Course Overview	
<p>The course explains the basic concepts of the nature of money, outline the role of banking and non-banking financial institutions, understand the banking and financial reforms, identify the basic concepts of demand for money and money supply. The course focuses on the impact of interest rates on monetary policy, the transmission mechanism on the monetary policy and understand the role central bank of the country and its autonomy.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To identify the role of money, banking and its impact on the economy 2. To understand the theories that relate to the existence of money 3. To develop an understanding of the supply of money and its impact on the economy 4. To evaluate the transmission mechanism and its impact on the interest rate 5. To develop an understanding about the monetary policy and instruments 	
Prerequisites	Financial systems, various schools of thought relating to money, supply of money, the interest rate and their determination, the central bank

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Demand for Money	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Evaluation of Quantity theory of money – Cambridge Cash balance approach – Wicksell’s theory – Keynes theory of money – Keynes’s and the early Keynesian’s preference for fiscal versus monetary policy- Friedman quantity theory of money – Friedman versus Keynes on money demand – Baumol – Tobin’s analysis of the demand for a riskless asset versus a risky one - Gurley & Shaw, Radcliffe hypothesis - Neumann Morgenstern expected utility hypothesis			

II	Supply of Money	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Theories of Supply of Money-Determinants-Base Money - Impact of money supply changes on output and employment – User cost of money – Assessment of deviation from Neutrality and Super-neutrality of money – Welfare cost of inflation – Mechanical theories of the money supply – Behavioural theories of the money supply			
III	Theories of Interest Rate	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Nominal and real rates of interest – Application of Walras’s law in the IS-LM models – Bonds and interest rate determination – Dynamic determination of interest rate – Comparison of the liquidity preference and the loanable funds theories of interest – Neutrality versus non-neutrality of the money supply for the real rate of interest – Determinants of the long run real rate of interest and the non-neutrality of fiscal policy.			
IV	Monetary Policy Transmission Mechanism	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Traditional interest-rate effects – Exchange rate effects on net exports – Tobin’s q theory – Wealth effects – Bank lending channel – Balance sheet channel – Cash flow channel – Unanticipated price level channel – Household liquidity effects.			
V	Monetary Policy and Central Bank	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Relationship between goals, targets and instruments and difficulties in the pursuit of monetary policy – Monetary aggregates versus interest rates as operating targets – The price level and inflation rate as targets - Lags in Monetary Policy - Administered interest rates and economic performance – Monetary conditions index – Inflation targeting and the Taylor rule - Rules vs Discretion - Central Bank Autonomy - Measurement of Autonomy			

Text Books:

1. Bain, Keith and Howells, Peter: Monetary Economics: Policy and its theoretical Basis, Palgrave Macmillian, 2nd Edition, 2009
2. Mishkin .S. Frederic-The Economics of Money ,Banking and Financial Markets, Pearson Publication, 11th Edition, 2015

Books for Reference:

1. Pathak, Bharati V., Indian Financial System, 5th Edition, Pearson Education, 2008
2. Handa, Jagadish, Monetary Economics, 2nd Edition, London: Routledge, 2009
3. Laidler, David E.W., The Demand for Money: Theories and Evidence, Allied Publishers Private Ltd., 1972
4. Newlyn, W.T., Theory of Money, Clarendon Press, 1971
5. Hosek, William R and Frank Zahn, Monetary Theory, Policy and Financial Markets, McGraw-Hill Book Company, 1977

Journals for Reference

1. Journal of Monetary Economics
2. International Journal of Monetary Economics and Finance
3. OECD Journal: Economic Studies
4. Journal of Financial Economics
5. Journal of Economic Literature

Web Resources

1. www.rbi.org.in
2. www.nber.org
3. www.bis.org
4. <https://bulletin.rbi.org.in/>
5. <https://finmin.nic.in/>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	To understand and identify the dynamic role of money and its impact on the economy	K1, K2
CO2	To apply and explain the various theories of money and its impact on the economy	K3
CO3	To analyze and determine how the monetary policy of the country helps the economy	K4
CO4	To justify and evaluate the role of the financial system and its impact on the economy	K5
CO5	To design policies to combat economic fluctuations	K6

Course Code	PEC3MC02
Course Title	PUBLIC FINANCE - I
Credits	05
Hours/Week	05
Category	Major Core (MC) – Theory
Semester	III
Regulation	2022
Overall Course Overview	
<p>The course introduces the fundamental principles and functions of the Government, highlights the difference in the efficient provision of public and private goods, the various public choice and public expenditure related theories. This course exhibits the structure and dynamic growth and its reasons of public expenditure in India and explores the cost- benefit analysis with special reference to different projects of the government.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To assess the regular functions of the government 2. To relate public choices and public expenditure through different models 3. To study the process and criteria of cost-benefit analysis. 4. To analyze the pricing policy and budget of the Government. 5. To critically examine the public debt redemption methods in India. 	
Prerequisites	Role of Public Finance, Ideas of Public choice, Free-rider Problem, Principles of cost and benefit, Pricing Principles of the Government and Basic Principles of Budget, Public borrowing

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Budget Analysis and Deficit Financing	15	CO1 CO2 CO3 CO4 CO5	K1
	The Budget deficit in recent years – The Budget process – Measuring the budgetary position of the Government: Alternative approaches – Long run perspective on current debts and deficits – Importance of Governments fiscal position			K2 K3 K4 K5 K6
II	Externalities and Public Goods	15	CO1 CO2 CO3 CO4	K1
	Externality theory – Private sector solution to negative externalities – Public sector remedies for externalities Price and quantity approaches to address Externalities			K2 K3 K4

	– Optimal provision of public goods – private provision of public goods – public provision of public goods		CO5	K5 K6
III	Cost – Benefit Analysis and Political Economy	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Measuring the costs and benefits of public projects – Discounting future benefits – Cost-effectiveness analysis – Lindahl pricing – Mechanisms for aggregating individual preferences – Public choice theory: The implications of Government failure -			
IV	Fiscal Federalism	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Optimal fiscal federalism: Tiebout model – Role of Government in education: Free public education and crowding out – solving the crowding out problem – Implications of competition in education market – Recommendations of the last three finance commission – Finance and performance of local bodies			
V	Social Insurance and Redistribution	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Social insurance versus self-insurance – Government intervention in insurance market - Consumption smoothing benefits of social security - Social security reforms – Unemployment insurance – Disability insurance and Workers’ compensation			
Text Books:				
<ol style="list-style-type: none"> Jonathan Grober., Public Finance and Policy, Second Edition, Worth Publishers, New York, 2007 Harvey S Rosen, Ted Gayer., Public Finance, Ninth Edition, McGraw Hill Higher Education, 2010 				
Books for Reference:				
<ol style="list-style-type: none"> Joseph E Stiglitz., Economics of Public Sector, Third Edition, W.W. Norton & Co. New York, 2000 Herber, Bernard P., Modern Public Finance, 5th edition, All India Traveller Book Seller, Delhi, 1988 Musgrave R. A., Theory of Public Finance, McGraw Hill Book Company, New Delhi, 2000 Musgrave R. A & Musgrave P. B., Public Finance in Theory & Practice, 18th reprint, McGraw Hill Publishing Company Ltd. New Delhi, 2016 Prest. R. Public Finance in Developing Countries, 3rd edition, St. Martin’s Press, New York, 1985 				

Journals for Reference

1. Journal of Public Economics
2. Journal of Economic Perspectives
3. Asia-Pacific Journal of Public Administration
4. American Economic Review
5. National Tax Journal

Web Resources

1. <https://finmin.nic.in>
2. <https://www.indiabudget.gov.in/>
3. <https://www.india.gov.in/my-government/documents/policy>
4. <http://www.niti.gov.in>
5. <http://fincomindia.nic.in>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Outline the provision of public and private goods	K1 & K2
CO2	Identify the various public choice models	K3
CO3	Analyze the application of cost-benefit analysis	K4
CO4	Evaluate the public sector pricing policy	K5
CO5	Discuss the impact of public debt on India	K6

Course Code	PEC3MC03
Course Title	DEVELOPMENT ECONOMICS
Credits	04
Hours/Week	05
Category	Major Core (MC) – Theory
Semester	III
Regulation	2022
Overall Course Overview	
The course enables to understand the determinants of development It enables to assess the strength and weakness in developing an economy. It also provides the skill required to frame the developmental policies.	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To equip with the theories of economic growth and development 2. To create awareness about critical issues of economic growth and development. 3. To analyze theoretical and empirical issues in economic growth and development. 4. To comprehend theoretical and empirical development across countries and region for policy purposes 5. To discuss impact of human capital on economic development 	
Prerequisites	Micro and Macro economic principles, Elementary Mathematical techniques.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Theories of Growth and Development	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Development as Growth and the Linear Stages Theories – Structural Changes Models – The International-Dependence Revolution – The Neoclassical Counter-Revolution: Market Fundamentalism – Reconciling the differences. The Big Push: A graphical model – Problem of Multi Equilibria – Michael Kremer’s O-Ring Theory – The Hausmann – Rodrik -Velasco Growth Diagnostics Framework			
II	Poverty, Inequality and Development	15	CO1 CO2	K1 K2
	Measuring Inequality: Size distributions, Lorenz			

	Curves, Gini Coefficients and Aggregate Measures of Inequality, The Ahluwalia-Chenery Welfare Index – Measuring Absolute Poverty: Income Poverty, Multidimensional Poverty Measurement – Poverty, Inequality and Social Welfare - Growth and Poverty – The Functional Distribution – Labour and Inclusive Development – Policy Options on Income Inequality and Poverty		CO3 CO4 CO5	K3 K4 K5 K6
III	Population Growth and Economic Development: Causes, Consequences and Controversies Population Growth and the Quality of Life, The Causes of High Fertility in Developing Countries: The Malthusian and Household Models, Conflicting Perspectives – Policy recommendations. The Role of Cities – Understanding Urban Giants: Causes and Consequences – The Urban Informal Sector – Migration and Development – Economic Theory of Rural – Urban Migration	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
IV	Human Capital The central roles of Education and Health – Investing in Education and Health: Social versus private benefits and costs – The Gender gap – Educational Systems and Development – Health measure and disease burden – Behavioural economics insights for designing Health policies and programmes – Health, Productivity and Policy	15	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
V	Development Policy Making Development Planning Process: Basic Models – Government failure and preferences for Markets over Planning – The market economy - Private Foreign Direct Investment and The Multinational Corporation – The role and growth of Remittances – Foreign Aid: The Development Assistance debate – Conflict and Development	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
Text Books:				
1. Michael p. Todaro and Stephen C. Smith, Economic Development, 13 th edition, Pearson Education, UK, 2020				
2. Yujiro Hayami, Development Economics: New Delhi Oxford University Press, 2003				
Books for Reference:				
1. Gerald Meir, Leading Issues in Economic Development, Oxford University Press, 2003				

<ol style="list-style-type: none"> 2. A. Banerjee, R. Benabou, D. Mookerjee, Understanding Poverty, Oxford University Press, 2006 3. P. Bardhan, Awakening Giants, Feet of Clay: Assessing the Economic Rise of China and India, Oxford University Press, 2010 4. K. Basu, The Oxford Companion to Economics in India, Oxford University Press, 2007 5. D. Ray, Development Economics, Princeton University Press, 1998
<p>Journals for Reference</p> <ol style="list-style-type: none"> 1. Journal of Development Economics 2. Journal of International Development 3. Review of Development Economics 4. Economic Development Quarterly
<p>Web Resources</p> <p>https://hdr.undp.org/</p> <p>https://sdgs.un.org/goals</p> <p>https://www.fao.org/</p>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	To equip the learners with the theories of economic growth and development	K1, K2
CO2	To create aware about critical issues of economic growth and development.	K3
CO3	To analyze theoretical and empirical issues in economic growth and development.	K4
CO4	To understand various economic growth models and its impact on economic development.	K5
CO5	To comprehend theoretical and empirical development across countries and region for policy purposes.	K6

Course Code	PEC3MC04
Course Title	APPLIED ECONOMETRICS WITH ‘R’
Credits	04
Hours/Week	05
Category	Major Core (MC) – Theory
Semester	III
Regulation	2022
Overall Course Overview	
<p>This course is a combination of theoretical and practical learning of econometric concepts using the R software. The course gives a detailed introduction to R and R studio, programming basics followed by import and export of data. The course focuses on applications relating to multiple regression estimation and inference. Various tests for detecting the violations to the CLRM is also employed. The course helps to apply the estimation binary choice models and inference. The course guides to estimate panel data and identifies the specification errors and violations of the assumptions of the same. The course also analyze the time series econometric modelling and forecasting techniques.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. Use standard and prominent software for estimation and forecasting. 2. Understand quantitative and qualitative response methods of estimation using single and system equations. 3. Work on real data estimation and forecasting applications. 4. Apply time series econometric forecasting methods to practical forecasting settings. 5. Apply time series econometrics to a wide variety of macro and micro data problems. 	
Prerequisites	Basic knowledge on data coding and decoding, import and export of data using MS Excel. Graphical and trend analyses and their interpretation. Basic understanding of Statistical and Mathematical tools and techniques. Basic idea about Estimation and Statistical Inference.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Introduction to R Program	18	CO1	K1
	Introduction to R and R Studio – Data types – Data Structures – Data Frames – Importing and Exporting Data - Programming basics – Summary statistics – Plotting –Summarizing two variables.		CO2 CO3 CO4 CO5	K2 K3 K4 K5 K6

II	Multiple Regression- Problem of Inference	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Multiple Regression – Testing Equality, Partial, and Overall significance of Regression Coefficients – Testing linear restrictions and functional form – Model Specification and Diagnostic testing – Tests for specification errors: DW, Ramsey’s RESET and LM Tests – Tests for Model Selection Criteria: R^2 , AIC, SIC, Mallow’s C_p - Tests for model stability: Chow test, RELS, CUSUM test. Detecting violations of the assumptions of CLRM: Testing for Multicollinearity, Heteroscedasticity and Autocorrelation.			
III	Qualitative Response Models – Estimation and Inference	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Estimation of Individual and Grouped Logit Model – Inference – Logit Interpretation – Computing Probabilities– Testing the significance of the coefficients – Likelihood Ratio Test – Measuring Goodness of Fit: Pseudo R^2 . Estimation of Probit (Normit) Model – Interpretation of Probit Estimates – Computation of Marginal Effects			
IV	Panel Data Regression – Inference	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Testing the significance of the Group Effects – The within-and-Between-Groups Estimators - Unbalanced Panels and Fixed Effect. Testing for Random Effects: Hausman’s Specification Test- Heteroscedasticity in Random Effects Model – Autocorrelation in Panel Data Models.			
V	Time Series Econometric modelling and Forecasting	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Test for Stationarity: Graphical Analysis, ACF and PACF, Correlogram, Unit Root: DF and ADF Tests – Cointegration: EG and AEG Tests – ECM. Approaches to Econometric Forecasting: AR, MA, ARMA and ARIMA modelling of Time Series Data – BJ methodology – VAR Models: Estimation and Forecasting, Granger Causality Test – Measuring volatility in Financial Time Series: ARCH and GARCH Models.			

<p>Text Books:</p> <ol style="list-style-type: none"> 1. Hanck C, Arnold M et al., Introduction to Econometrics with R, 2021 2. Gujarati, Damodar, Basic Econometrics, 5th Edition, Singapore: McGraw Hill, Inc, 2017
<p>Books for Reference:</p> <ol style="list-style-type: none"> 1. Kleiber C, Zeileis A, Applied Econometrics with R, Springer Publication, 2008 2. Johnson, Aaron C Jr et al., Econometrics: Basic and Applied, New York: Macmillan Publishing Co, 1987 3. Stock, James H. and Watson, Mark W., Introduction to Econometrics, Pearson Education Inc, 2011 4. Pesaran, H.M., Time Series and Panel Data Econometrics, Oxford University Press, 2000 5. Pindyck, R. and Rubinfeld, D., Econometric Models and Economic Forecasts, Fourth Edition, McGraw-Hill, 1998
<p>Journals for Reference</p> <ol style="list-style-type: none"> 1. The Econometrics Journal, Oxford University Press. 2. Journal of Applied Econometrics, John Wiley & Sons Ltd 3. Econometrica, Journal of The Econometric Society 4. Journal of Time Series Analysis, John Wiley & Sons Ltd 5. Econometric Theory, Cambridge University Press.
<p>Web Resources</p> <ol style="list-style-type: none"> 1. https://www.econometrics-with-r.org/ 2. https://www.zeileis.org/teaching/AER/ 3. https://scpoecon.github.io/ScPoEconometrics/ 4. https://www.journals.elsevier.com/ 5. https://onlinelibrary.wiley.com/

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Identify and acquire skills in R program for application of econometric models.	K1, K2
CO2	Demonstrate various econometric models and related tools for testing model adequacy, stationarity etc.	K3
CO3	Investigate the suitability of data for analyzing the various economic indicators under study.	K4
CO4	Construct econometric models appropriate for forecasting using real data.	K5
CO5	Assess and infer the estimated regression results for an effective forecasting and effective policy implications.	K6

Course Code	PEC4MC01
Course Title	INDIAN ECONOMIC DEVELOPMENT AND POLICY
Credits	05
Hours/Week	05
Category	Major Core (MC) – Theory
Semester	IV
Regulation	2022
Overall Course Overview	
<p>The course content helps to understand the strategies of development employed in India since independence. It helps to design the policies of development by evaluating various sectoral and macro policies for the Indian economy. The course constitutes the effect of the structural changes and its impact on Indian economy.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To equip with sector-specific knowledge and skills 2. To analyse key economic issues and policy documents of Indian economy. 3. To enable and relate theoretical frameworks of macroeconomics and microeconomics to the Indian context. 4. To analyze basic problems in Indian economy and suggest measures. 5. To find out solutions for economic and social maladies 	
Prerequisites	Types of Infrastructure, Poverty dimensions, Policies

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Growth, Development and Sustainability	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	New view of Economic Development – Development, Freedom and opportunities – Current state of Human Development – Economic factors and Non-Economic Factors in Development. Process, Role, Problem of Capital Formation - Theory of Balanced Growth – Foreign Capital and Economic Development.			
II	Economic Development in India since Independence	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5
	Indian Economy at Independence – Planning, Market and the State – Monetary, Fiscal and Budgetary Developments Policies and their impact – Fiscal			

	Federalism: Centre-State Fiscal Relations – Demographic Constraint: Population Change and Economic Development – India’s Demographic Transition – India’s Labour Market since 2000.			K6
III	Growth and Structural Change	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Growth and Structural Change Since 1951 – The Recovery of India: Economic Growth in the Nehru Era – Growth Record of the India Economy, 1950-2008 – Growth and Investment: The Interlinks.			
IV	Assessment of the Indian Development Experience	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Assessment of the Growth Experience, Poverty, Inequality and Unemployment – Labour and Employment in Fast Growing India: Issues of Employment and Inclusiveness – Counting the Poor: Measurement and Other Issues – Inequities in Access to Health Services in India Caste, Class and Region.			
V	Comparative Picture of India Economy	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	China and India: Idiosyncratic Paths to High Growth – Indian Economy Today: Overview and Comparative Perspective – NITI Aayog – Provisions and implications.			

Text Books:

1. Kapila, Uma, Indian Economy: Economic Development and Policy, Academic Foundation, New Delhi.
2. Datt, Gaurav & Mahajan, Ashwani, 73nd Revised Edition, Indian Economy, S.Chand & Company, 2020

Books for Reference:

1. Singh, Ramesh, Indian Economy, 6th Edition, McGraw Hill Education Series, New Delhi
2. Bhagwati. J, India in Transition: Freeing the Economy, Clarendon Oxford, New Delhi, 2000
3. Dilip Mookherjee,., Indian Industry, Oxford University Press, New Delhi, 1995
4. Department of Disinvestment. White Paper. 2000
5. Centre for Monitoring Indian Economy –Recent Issues.
6. Sen Raj Kumar and Chatterjee, Biswajit, Indian Economy: Agenda for the 21st century, Deep and Deep Publications, New Delhi, 2001

Journals for Reference

1. Kurshektra
2. Economic and Political Weekly

3. Yojana 4. Southern Economist
Web Resources 1. http://planningcommission.nic.in/aboutus/history/spemsabody.html 2. http://en.wikipedia.org/wiki/Economic_development_in_India 3. http://sae.sagepub.com/content/3/1/77/abstract . 4. www.data.gov.in 5. www.census.org

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Summarize sector-specific knowledge and skills	K1, K2
CO2	Identify key economic issues and policy documents	K3
CO3	Inspect the theoretical frameworks of macroeconomics and microeconomics to the Indian context.	K4
CO4	Explain basic Indian economic problems	K5
CO5	Formulate solutions for economic and social maladies	K6

Course Code	PEC4MC02
Course Title	PUBLIC FINANCE – II
Credits	04
Hours/Week	05
Category	Major Core (MC) – Theory
Semester	IV
Regulation	2022
Overall Course Overview	
<p>The course deals with the fiscal policy and its applicability of present growth theories. This course highlights the impact of monetary and fiscal policy. The course exhibits the Centre-State financial relations and fiscal consolidation. The course explores the recent finance commission recommendations and local finance. This course also discusses the Indian tax structure and expenditure pattern of Centre and State Governments and investigates the GST council and recent budget.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To assess the compensatory finance, the fiscal policy and its applicability of present growth theories. 2. To integrate the monetary and fiscal policy through Keynesian and Post Keynesian analysis 3. To study the Centre-State financial relations, fiscal consolidation, FRBM Act and recent finance commission recommendations 4. To critically examine the Indian tax structure and expenditure pattern, GST council, recent budget and deficit finance 5. To analyze the concept and theories of Incidence and Shifting of Tax, excess burden and allocation effects. 	
Prerequisites	Fiscal policy, its objectives and functions, Integration of monetary and fiscal policy, Constitutional rules of Centre-state financial relations, Indian tax structure and its expenditure pattern

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Incidence and output effects of budget policy	18	CO1	K1
	Economic consequences of Budget Policy – Types of Budget adjustment and concepts of incidence – Measure of incidence: Measure of change in real		CO2 CO3 CO4	K2 K3 K4

	income of individual – Individual income before and after change – Incidence and output effects		CO5	K5 K6
II	Adjustment in work effort	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	A proportional tax on work income – A progressive tax on work income – Income taxes with capital income – General and partial tax on consumption – Transfer payments – Good and Service Expenditures			
III	Consumption, Saving, Price and Output adjustment in budget policy	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Adjustment in the composition of consumption – consumption and saving by individual – consumption and saving by group – Tax on net income, gross income, unit of output and cost of payment			
IV	Investment Adjustment in budget policy	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Adjustment in financial and real investment – Relationship between general and discriminatory taxes – Tax incidence of general and discriminatory taxes – Adjustments in absolute prices – Effects on growth and factor shares – Differential incidence without growth effects – Discriminatory income tax and capitalization			
V	Goods and Services Tax (GST) and Income Tax	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Recommendations of Asim Dasgupta Committee – Vijay Kelkar Committee – Twelfth Finance Commission on GST – Implementation of GST: CGST – IGST – SGST – Subsume of other indirect taxes – GST Council Structure - Devolution of GST: Issues and Challenges – Choksi Committee – LK Jha Committee – Comparative analysis of Income Tax structure			

Text Books:

1. Musgrave R. A., Theory of Public Finance, McGraw Hill Book Company, New Delhi, 2000
2. Musgrave R. A & Musgrave P. B., Public Finance in Theory & Practice, Eighteenth Reprint, McGraw Hill Publishing Company Ltd. New Delhi, 2016

Books for Reference:

1. Stiglitz, Joseph E, Economics of Public Sector, Third Edition, W.W. Norton & Co, 2000
2. Gruber, Jonathan, Public Finance and Policy, Second Edition, Worth Publishers, 2007
3. Herber, Bernard P, Modern Public Finance, Fifth Edition, All India Traveller Book Seller,

<p>1988</p> <ol style="list-style-type: none"> 4. R. A., Musgrave, Theory of Public Finance, McGraw Hill Book Company, 2000 5. Prakash, Om, Public Economics Theory and Practice, Second Edition, Vishal Publishing Co., 2012 6. Reddy Y.V. & Ram, Reddy G, Indian Fiscal Federalism, First Edition, Oxford University Press, 2019 7. Prest, A.R., Public Finance in Developing Countries, Third Edition, St. Martin's Press, 1985
<p>Journals for Reference</p> <ol style="list-style-type: none"> 1. Journal of Public Economics 2. Journal of Economic Perspectives 3. Asia-Pacific Journal of Public Administration 4. American Economic Review 5. National Tax Journal
<p>Web Resources</p> <ol style="list-style-type: none"> 1. https://finmin.nic.in 2. https://www.indiabudget.gov.in/ 3. https://www.india.gov.in/my-government/documents/policy 4. http://www.niti.gov.in 5. http://fincomindia.nic.in

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Infer conceptual clarity of fiscal policy and compensatory finance.	K1 & K2
CO2	Assess impact of the monetary policy and fiscal policy	K3
CO3	Analyze the application of Fiscal consolidation, FRBM Act and recommendations of the recent finance commissions	K4
CO4	Evaluate the tax and expenditure reforms in India and GST Council	K5
CO5	Discuss the incidence and shifting of tax, excess burden and allocation effects	K6

Course Code	PEC4MC03
Course Title	POPULATION STUDIES
Credits	04
Hours/Week	05
Category	Major Core (MC) – Theory
Semester	IV
Regulation	2022
Overall Course Overview	
<p>The course helps to gain clear understanding of the interplay between demographic process and economic development, population growth in developed and developing countries, know major development in demographic concepts and techniques by highlighting both quantitative and qualitative aspects, analyze the structure and characteristics of the population and assess migration and its impact on the society.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To understand the demographic process and its relationship with economic growth and development 2. To familiarize the various theories of population 3. To analyze the basic concepts like population pyramid, population trap, and life tables 4. To discuss the census and its impact on the framework of population policy 5. To assess the quantity and quality of population and its contributions to socio-economic development 	
Prerequisites	Various economic schools of thought relating to population, Indicators of economic development

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Introduction to Demography	18	CO1 CO2 CO3 CO4 CO5	K1
	Nature and Scope - Development of population studies – Its development in India – Its relationship with other disciplines -Sample surveys dual report system- Population growth in developed and developing countries			K2 K3 K4 K5 K6
II	Population Theories	18	CO1 CO2 CO3	K1
	Malthusian theory - Classical and Neo-classical schools of thought – Optimum population theory --			K2 K3

	Biological theories.- Theory of demographic transition		CO4 CO5	K4 K5 K6
III	Structure And Characteristics	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Population structure and characteristics -- Census-growth rate and population - Sex ratio in India – factors affecting sex ratio, age structure -- Meaning and measures of Mortality – infant mortality – child mortality - causes of death.- Fertility -Meaning – factors affecting fertility - social and cultural factors - Proximate determinants of fertility - measures of fertility (GFR ASFR – TFR -GRR – NRR – Child-woman ratio) –Methods of contraception - levels and trends in fertility in India - factors related to high fertility in India – fertility differentials in India --- Migration, Meaning - differentials in migration – internal migration in India			
IV	Sources of Demographic Data	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Study of the census in India- history of Census in India- nature of the information collected in2001,2011 and 2021 census in India- National Family Health Survey (NFHS) I, II and III and District Level Household Survey (DLHS) their relative merits and demerits.			
V	Population and Development	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Population Growth and Development: Effects of Change in Population Size and Structure, and Composition on Economic and Social Development, and vice-versa, Sustainable Development Goals, Physical Quality of Life Index (PQLI) and Human Development Index (HDI)-Millennium Development Goals. Labour force Meaning – economically active population – measures of labor force participation - trends and levels of labor-force participation in India - Population Policy in the 21 st century.			
Text Books:				
<ol style="list-style-type: none"> 1. Bhende, Asha A. and Kanitkar, Tara, Principles of Population Studies, Sixth Edition, Himalaya Publishing House,1994 2. Weeks, John, Population: An Introduction to Concepts and Issues, 12th Edition, Wordsworth Learning, 2015 				

Books for Reference:

1. Agarwala S.N., India's Population Problem, Tata McGraw-Hill Co., 1972
2. Bose, A., India's Basic Demographic Statistics, B.R. Publishing Corporation, 1996
3. Bogue, D.J., Principles of Demography, John Wiley, 1971
4. Srinivasan, K., Basic Demographic Techniques and Applications, New Delhi: Sage Publications, 1999
5. Ram, F and Pathak, K.B, Techniques of Demographic Analysis, Himalaya Publishing house, 1998
6. Sen, Amartya K., Women's survival as a development problem, Bulletin of the American Academy of Arts and Sciences, 1989
7. Raj, Hans., Fundamentals of Demography, Third Edition, Surjeet Publications, 1984

Journals for Reference

1. Journal of Population Research
2. Journal of Demography
3. Journal of Population and social studies
4. International Journal of Population Research
5. International Journal of population Data science

Web Resources

1. <https://main.mohfw.gov.in/>
2. <https://www.census.gov/programs-surveys/geography/about/related-sites>
3. <https://cghs.gov.in/>
4. <https://www.india.gov.in/ministry-health-and-family-welfare>
5. <https://www.un.org/en/development/desa/population/theme/policy/index.asp>

Course Outcomes (Cos) and Cognitive Level Mapping

Cos	Statements	Cognitive Level
CO1	Identify the demographic characteristics of the population and its impact on the economy	K1, K2
CO2	Estimate and predict the demographic variables and their impact on population policy	K3
CO3	Determine how population can be harnessed for the betterment of the economy	K4
CO4	Assess the solutions to overcome the problems of population	K5
CO5	Design population policy for a sustainable development	K6

Course Code	PEC4MC04
Course Title	ENVIRONMENTAL ECONOMICS
Credits	04
Hours/Week	05
Category	Major Core (MC) – Theory
Semester	IV
Regulation	2022
Overall Course Overview	
<p>The course introduces and discuss about various environmental concepts, helps to understand the importance of the subject, various environmental issues and their impact on the economy. The course also explains the relation between the environment and the economy, the role of environment education and international conferences, understand the relation between environment and society and analyze the cost benefit analysis on environment.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To familiarize various environmental concepts. 2. To develop the knowledge about the ecological balance. 3. To understand various types of pollution. 4. To explain the environmental factors influencing on the development of the country. 5. To explain about the taxes related to the industries. 	
Prerequisites	Economic development, Sustainable Development, Environmental planning and Management

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	The Economy and the Environment	18	CO1	K1
	Importance of Incentives – The Design of Environmental Policy – Environment and Growth – Environment and Development – The Environment as an Economic and Social Asset - Emissions, Ambient Quality and Damages – Types of Pollutants		CO2 CO3 CO4 CO5	K2 K3 K4 K5 K6
II	Analytical Tools	18	CO1	K1
	Benefits and Costs, Supply and Demand: Willingness to Pay, Benefits, Cost, Technology, The Equi-marginal Principle. Markets, Externalities and Public		CO2 CO3 CO4	K2 K3 K4

	Goods:Market and Social Efficiency, External Costs and Benefits. The Economics of Environmental Quality: Pollution Control, Pollution Damages, Abatement Costs, The Socially Efficient Level of Emissions, Enforcement Costs, Emission Reductions		CO5	K5 K6
III	Environmental Analysis	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Impact Analysis – Cost-Effectiveness Analysis – Damage Assessment – Benefit-Cost Analysis – Risk Analysis. The Damage Function – Measuring Damage Costs Directly – Willingness to Pay: Estimating Methods, Revealed Preference Methods, Stated Preference Methods, Problems in Benefit Estimation. The Distribution of Costs – Costs of Single Facilities, Local Regulation, Regulating an Industry – Future Costs and Technological Change -			
IV	Environmental Policy Analysis	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Criteria for Evaluating Environmental Policies – Decentralized Policies: Liability laws, Property Rights, Voluntary Action - Command and Control Strategies: The Case of Standards - Incentive Based Strategies: Emission Charges and Subsidies, Market Trading Systems.			
V	Global Environmental Issues	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Global Climate Change – International Efforts in Global Warming: The Kyoto Protocol, A New Global Greenhouse Climate Agreement – Estimating the Social Cost of Carbon – Biological Diversity – The Economics of International Agreements – The Distribution of Costs – The Montreal Protocol – Globalization – Environmental Degradation in Developing Economies – Environmental Policy Choices in Developing Countries.			
Text Books:				
1. Barry C Field, Martha K. Field, Environmental Economics: An Introduction, 7 th Edition, McGraw Hill Education, 2016				
2. Shunsuke Managi and Koichi Kuriyama, Environmental Economics, Routledge 2017				
Books for Reference:				
1. Sanyal, K., and Kundu,M., & Rana,S, Ecology and Environment,				
2. Perman, Roger & Ma, Yue & McGilvray, James & Common, Michael, Natural Resource and Environmental Economics, 4 th Edition, Addison Wesley, 2011				

<ol style="list-style-type: none"> 3. Eugene, T., Environmental Economics, Vrinda Publication, 2005 4. Dayal, Maheswar, Renewable energy, Konark Publishers, 1989 5. Rao, P K., International Environmental Law and Economics, Wiley- Blackwell, 2001 6. Trivedi,P.R., Environmental Education, APH Publishing corp,1998 7. Somashekar, Ne. Thi., Development and Environmental economics, 2nd Edition, New Age International pvt, ltd, 2019
<p>Journals for Reference</p> <ol style="list-style-type: none"> 1. Journal of Environmental Science 2. Annual Review of Environment and Resources 3. Journal of Environmental Research 4. Journal of Environmental Economics and Management 5. Environmental Economics and Policy Studies
<p>Web Resources</p> <ol style="list-style-type: none"> 1. http://moef.gov.in/ 2. http://www.cpcb.nic.in/ 3. www.undp.org 4. http://hdr.undp.org/ 5. https://sdgs.un.org/

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Identify the environmental significance and their impacts on the economy	K1, K2
CO2	Demonstrate various theories relating to environmental economics	K3
CO3	Appraise environmental benefits by analyzing environmental cost	K4
CO4	Estimate the environmental opportunities to the society	K5
CO5	Compile and prepare an environmental policy	K6

Course Code	PEC2ME01
Course Title	AGRICULTURAL ECONOMICS
Credits	02
Hours/Week	04
Category	SUBJECT ELECTIVE (SE) – Theory
Semester	II
Regulation	2022
Overall Course Overview	
<p>The course enables the students to understand and evaluate the cropping pattern in an economy. A complete picture of agriculture and allied activities will be captured. It enables to understand the policies related to enhance the agriculture. The evaluation on various agencies involved in agriculture finance and performance of Indian agricultural sector in foreign trade constitutes the significant part of the course.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To study the significance of agriculture in economic development. 2. To correlate the theories with reality. 3. To orient the theories of agriculture. 4. To understand the impact of globalization in agriculture. 5. To design agriculture policies at national and international level. 	
Prerequisites	Cropping pattern, Microeconomic tools, Concepts of isoquant, Iso cost, PPC, Agricultural finance sources, International tariffs and regulations

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Nature and scope of agricultural economics	12	CO1 CO2 CO3 CO4 CO5	K1
	Role of agriculture in economic development, Types of farm organisation, Types of farming, Inputs in agriculture- land, labour and capital, Economics of land reforms, Risk and uncertainty in Agriculture			K2 K3 K4 K5 K6
II	Theories in Agricultural Development	12	CO1 CO2 CO3 CO4	K1
	Shultz's thesis of transforming traditional agriculture, Mellor's Theory of Agricultural development, Boserup's theory of agricultural development, Lewis			K2 K3 K4

	Model of economic development, Fei & Ranis model of agricultural development.		CO5	K5 K6
III	Agricultural Price Policy Farm Management and Farm Efficiency	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Need, objectives and enunciation of Agricultural Price Policy in India, Farmer's Terms of Trade, Tools of farm management, Case for and against farm mechanization, Scope for mechanization in India, Relationship and findings between size and productivity,			
IV	Agricultural Finance/Credit	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Classification of agricultural credit, Essentials of agricultural credit, Estimation of credit requirements, Sources of agricultural credit, Evaluation of sources of agricultural credit			
V	Foreign Trade and Agriculture	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Current status of Indian Agricultural foreign trade, Export promotion policies and strategies, Agreement on agriculture (AoA), Uruguay Round Agreement on Agriculture (URAA), Impact of URAA on Indian agriculture			
Text Books:				
<ol style="list-style-type: none"> 1. Singh, Amarjit, Sadhu, A.N. Singh, Jashir. Fundamentals of Agricultural Economics, Himalaya Publishing House 12th edition 2012 2. Soni, R.N. Leading issues in Agricultural Economics, Vishal Publishing Co., 2006 				
Books for Reference:				
<ol style="list-style-type: none"> 1. Uma Kapila, Indian Economy Since Independence, 32nd edition, Academic Foundation, 2021 2. Singh, Ramesh, Indian Economy, 13th Edition, McGraw Hill Education Series, New Delhi, 2021 3. Bhagwati. J, India in Transition: Freeing the Economy, Clarendon Oxford, New Delhi, 2000 				
Journals for Reference				
<ol style="list-style-type: none"> 1. Kurushetra, Monthly journal, Ministry of Rural Development 2. Third Concept, 3. Yojana, A development Monthly 4. Economic and Political Weekly 				
Web Resources				
<ol style="list-style-type: none"> 1. www.rbi.org 				

2. www.nabard.org
3. www.indiabudget.gov.in
4. <http://agricoop.gov.in>
5. www.commerce.gov.in

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Study the significance of agriculture in economic development	K1 & K2
CO2	Correlate the theories with reality	K3
CO3	Orient the theories of agriculture	K4
CO4	Discuss the impact of globalization in agriculture	K5
CO5	Design sustainable agriculture methods	K6

Course Code	PEC2ES02
Course Title	HEALTH ECONOMICS
Credits	02
Hours/Week	04
Category	SUBJECT ELECTIVE (SE) – Theory
Semester	II
Regulation	2022
OVERALL Course Overview	
<p>The course introduces the importance of health and health related aspects of economic individuals. Relevance of economics in health care, macro and micro health indicators, Grossmann’s model of health, determinants of health status, demand and supply of health care are part of the course. The course dwells into the market for pharmaceuticals and health care professionals of health care sector. Evaluation of Health care using tools like Costs of illness, effectiveness, benefit, and social welfare analysis are covered with the help of modeling in economic evaluation including QALY, Willingness -to-pay, Decision Tree and Sensitivity analysis. The role and importance of Government in improving efficiency in health care system will be discussed.</p>	
OVERALL Course Objectives	
<ol style="list-style-type: none"> 1. To gain knowledge on economic aspects of health and healthcare. 2. To analyze the various health indicators and its performance in improving efficiency and quality of health. 3. To identify the demand – supply mechanisms of health care, health insurance and implications in health care markets. 4. To evaluate the health care performance using various economic tools. 5. To attain a broader perspective on Indian health care sector, health policy and management. 	
Prerequisites	Microeconomic theory, Elementary Mathematical and Statistical concepts, Economic indicators, Macroeconomic concepts, Developmental aspects of Indian Health System, Socio-cultural and economic issues related to health sector.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Relevance of Economics in Health	12	CO1	K1
	Health Economics Defined – Key Economic Concepts		CO2	K2

	– The Micro and macroeconomic views of Health – Health Indicators – Relevance of Economics in Healthcare: Economic Optimization		CO3 CO4 CO5	K3 K4 K5 K6
II	Demand and Supply of Healthcare Health Production function – Measures and Determinants of Health Status - Demand for Healthcare: Healthcare as an Investment - Grossman’s Model. The Market for Health Insurance: Health Insurance and the Consumption of Health Care, Risk selection in Health Insurance Markets. Supply: Production and Costs in the short and long run for a medical firm- Managed Care: Types, Quality Differences between Managed Care and Fee-for-Service Care	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
III	Healthcare Markets The Perfectly Competitive market – Market failures: Imperfect Information, Moral Hazards, Externalities. The Market for Healthcare Professionals – Alternative Models of Hospital Behaviour: Utility Maximizing and Physician-Control Models. The Market for Pharmaceuticals	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
IV	Evaluation of Healthcare Types of Economic Evaluation: Cost-of-Illness Studies, Cost-Benefit, Cost-Effectiveness and Social Welfare Analyses. Approaches to Modeling in Economic Evaluation: QALY, Willingness to Pay Approach, Decision Trees, Markov Models, Sensitivity Analysis.	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
V	Healthcare System in India Various health indicators - health care expenditure - different options for financing healthcare – Forms of delivery of Medical Care- Role of urban / rural local bodies and of non-governmental organizations - Sociocultural and economic issues related to healthcare – Public Policy and role of Government in improving efficiency of the healthcare system- Future challenges.	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
Text Books: 1. Henderson J.W. Health Economics and Policy, 6 th edition, South-Western College				

Publishing, 2014

2. Guinness L, Wiseman V., Introduction to Health Economics, 2nd edition McGraw-Hill House, 2011
3. Dewar, Diane M., Essentials of Health Economics, Jones and Bartlett Publishers USA, 2010.

Books for Reference:

1. Bhattacharya J, Hyde Timothy, Peter Tu., Health Economics, Macmillian Publishers Ltd, England, 2014
2. Peter Zweifel, Friedrich Breyer, Mathias Kifmann., Health Economics, 2nd edition, Oxford University Press; 2009.
3. Dewar, Diane M., Essentials of Health Economics, Jones and Bartlett Publishers USA, 2010.
4. Folland, S, A.C. Goodman and M. Stano.,-Economics of Health and Health Care, 5th edition, Pearson Prentice Hall, 2006.
5. Culyer, A. J. and J.P. Newhouse, Handbook of Health Economics, Volumes 1A & B, North-Holland, 2000
6. Sanjay Kumar and Jugal Kishore, Public Health Care in India, Century Publications, India, 2020.

Journals for Reference

1. Journal of Health Economics, Elsevier
2. Health Economics, Policy and Law, Cambridge University Press.
3. The European Journal of Health Economics, Springer International Publishing.
4. Health Economics, John Wiley & Sons Ltd.
5. Applied Health Economics and Health Policy, Springer International Publishing.

Web Resources

1. <https://www.journals.elsevier.com/>
2. <https://onlinelibrary.wiley.com/>
3. <https://mjl.clarivate.com/>
4. <https://ugccare.unipune.ac.in/>
5. <https://www.springer.com/>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Identify the importance of economic concepts in health care sector.	K1, K2
CO2	Examine the theoretical framework of the health care services.	K3
CO3	Assess the performance standards of different health care markets.	K4
CO4	Interpret the empirical findings in health economics.	K5
CO5	Critically analyze the economic aspects of Indian health issues.	K6

Course Code	PEC2ME03
Course Title	LABOUR ECONOMICS
Credits	02
Hours/Week	04
Category	Subject Elective (SE) – Theory
Semester	II
Regulation	2022
OVERALL Course Overview	
<p>The course exhibits the recent trends of contract labour, casual labour and migratory labour, demand for and supply of labour. It highlights the implication of absenteeism and its causes and remedial measures, explore the present position of labour turnover, investigate the trade union movement in India. This course explains the wage policy in India. The course also covers the social security measures in India and analyze the current trends of contributory pension scheme 2004.</p>	
OVERALL Course Objectives	
<ol style="list-style-type: none"> 1. To study the recent trends of contract labour and migratory labour. 2. To assess the implications of absenteeism and labour turnover in India. 3. To compare the association of Indian trade unions with international trade unions. 4. To evaluate the principles of code of discipline and wage policy in India. 5. To analyze the current trends of social security measures and contributory pension scheme. 	
Prerequisites	Absenteeism and labour turnover, Principles of trade union and its current trends, Fundamental ideas of ethical codes and wage policy in India, General over view of social security measures in India

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Industrial Labour in India	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Sectoral distribution of labour force – Participation of women in major industries - Employment in organized and un-organized Industries – Contract Labour – Casual Labour – Demand for and Supply of Labour in India – Characteristics of Indian Labour – Absenteeism: Effects, causes, measures of absenteeism - Labour Turnover – Measurement,			

	Effects, Causes and methods to reduce Labour turnover			
II	Trade Union	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Trade Union Movement Since Independence and Present Scenario of the Trade Union Movement– AITUC – INTUC – HMS – UTUC – Association of Indian Trade Unions with International Trade Unions –Problems of Trade Unions – Essentials for success of a Trade Union - The Trade Union Act, 1926			
III	Industrial Relations	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Factors affecting industrial relations - Classification, impact and causes of industrial conflicts – Industrial unrest in India - Industrial Resolution Policy, 1991			
IV	Resolution of Industrial Conflicts	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	The code of Discipline – Principles of the Code of Discipline – Chief Features and objectives of the Code of Discipline – Code of Discipline in Industry - Collective Bargaining – Settlement Machinery: Conciliation – Arbitration – Adjudication			
V	Labour Welfare	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Meaning of Social Security – Social insurance and social assistance – ILO and Social Security – Social Security Measures in India: Workmen Compensation Act, 1923 -Maternity Benefit Act – Employees State Insurance Scheme 1948 – Employees Provident Fund Act 1952, Employees Family Pension Scheme 1971-Contributory Pension Scheme 2004-Pandemic and Labour Issues.			

Text Books:

1. Mamoria C.B, Mamoria S. and Gankar S.V., Dynamics of Industrial Relations, Sixteenth Edition, Himalaya Publishing House Pvt. Ltd., 2008
2. Tyagi B.P., Labour Economics and Social Welfare” Jai Prakash Nath & Co., 2003

Books for Reference:

1. Mittal A.C and Sharma S.P, Labour Economics, RBSA Publishers, 2002
2. Singh, Jiwitesh Kumar, Labour Economics, Deep &Deep Publishers, 1998
3. Kamik, V.B, Indian Trade Union: A Survey, Allied Publishers Pvt. Ltd, 1966
4. Mc Connell & R, Capbell, & Brue, Stanley. L., Contemporary Labour Economics,

<p>McGraw-Hill Book Co., 1989</p> <ol style="list-style-type: none"> Reynolds, Lloyd, Labour Economics and Labour Welfare, Prentice- Hall of India Pvt. Ltd, 1978 Sapsford, David and Tzannatos, Zafiris, Current Issues in Labour Economics, MacMillan Publishers, 1990 Verma, Pramod, Labour Economics and Industrial Relations, Tata McGraw Hill Publishing Co. Ltd, 1987
<p>Journals for Reference:</p> <ol style="list-style-type: none"> Labour Economics Indian Journal of Labour Economics Manpower Journal The Economic and Labour Relations Review Economic and Political Weekly
<p>Web Resources:</p> <ol style="list-style-type: none"> https://www.ilo.org http://www.isleijle.org https://labour.gov.in https://www.epfindia.gov.in https://www.cvs.edu.in

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Identify the nature of employment in organized and un-organized sector	K1 & K2
CO2	Assess and integrate the issues of absenteeism and labour turnover	K3
CO3	Compare the approach of Indian trade unions and International trade unions.	K4
CO4	Evaluate the code of discipline and wage policy in India.	K5
CO5	Formulate the various social security measures in India	K6

Course ode	PEC2ME04
Course Title	HISTORY OF MODERN ECONOMIC ANALYSIS
Credits	02
Hours/Week	04
Category	ELECTIVE COURSE (EC) – Theory
Semester	II
Regulation	2022
Overall Course Overview	
<p>This course critically examines the views of different school of thought. The course includes Karl Marx and marginalist revolution, Walras General equilibrium and helps to understand the stability of equilibrium. The course through light on welfare economics. It also discusses about the breakdown of capitalism. The course covers Piero Sraffa views on Money and Sraffian schools. It also focuses on the age of disaggregation.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To critically examine the views of economist of different school of thought 2. To trace the history of economic thought. 	

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Karl Marx and Marginalist Revolution	18	CO1	K1
	The critique of capitalism and exploitation – accumulation and expanded reproduction– The laws of movement of capitalism - critical assessment – Marxism after Marx – The marginalist revolution – Equilibrium between scarcity and demand – Jevons – Carl Menger –Max Weber – Bohm-Bawerk – Swedish school – Hayek		CO2 CO3 CO4 CO5	K2 K3 K4 K5
II	General and Partial Equilibrium	18	CO1	K1
	Walras – Vilfredo Pareto and Lausanne school – Irving Fisher – The debate on the existence, uniqueness and stability of equilibrium- Alfred Marshall – Ideas from <i>Principles of Economics</i> – Monetary theory: New Cambridge school – Marshallian developments – Thorstein Veblen and Institutionalism – Welfare economics and imperfect		CO2 CO3 CO4 CO5	K2 K3 K4 K5

	competition.			
III	Keynes and Schumpeter	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5
	Probability and uncertainty -The treatise on money – The General Theory – The Asymmetries of economic policy in an open economy and international institutions – Michal Kalecki – The New Cambridge School – Joseph Schumpeter: From statics to dynamics – The breakdown of capitalism			
IV	Piero Sraffa	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5
	Money and Banking – criticism of Marshallian theory – imperfect competition and the critique of the representative firm – Cambridge: Wittgenstein and Keynes – The critical edition of Ricardo’s writings – Production of commodities by means of commodities - The Sraffian schools			
V	The Age of Disaggregation	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5
	Shift of economic culture from Europe to United States – The New foundations: General equilibrium and expected utilities – Behavioral paradoxes and Behavioral Economics – The lowbrow theory – The new theories of the firm – Econometrics and A-theoretical empiricism – Evolutionary theory and Institutionalism – Economics and ethics.			

Text Books:

1. Roncaglia, Alessandor, The Wealth of Ideas: A History of Economic Thought, Cambridge University Press, 2007

Books for Reference:

1. Hunt, E.K., Lautzenheiser, Mark, History of Economic Thought, 3rd edition, M.E. Sharpe, New York, 2011.
2. Bruce, Stanly L, Grant, Randy R., The Evolution of Economic Thought, 8th edition, Cengage Learning, US, 2007.
3. Steven G Medma, Warren J. Samuels, Lionel Robbins A History of Economic Thought: The LSE Lectures, Princeton University Press, 2000
4. Warren J. Samuels, Jeff E. Biddle, John B. Davis, Samuels, A Companion to the History of Economic Thought, Blackwell, 2003

Journals for Reference

1. Journal of History of Economic Thought
2. Journal of Economic Literature
3. Cambridge Journal of Economics

Web Resources

https://ebrary.net/112930/history/a_brief_history_of_economic_thought

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Identify the economic ideas of different schools of thought.	K1, K2
CO2	Relate the views of economists	K3
CO3	Explain the different principles of economics	K4
CO4	Evaluate the theories of economics	K5
CO5	Generalize economic principles	K6

Course Code	PEC3ME01
Course Title	INDUSTRIAL ECONOMICS
Credits	02
Hours/Week	04
Category	SUBJECT ELECTIVE (SE) – Theory
Semester	III
Regulation	2022
Overall Course Overview	
<p>The course brings out the determinants and measurement of industrial efficiency. The course analysis the competitive environment and the significance of industrial location. It also covers market concentration and performance of firms'. It helps to identify the motives for diversification, integration and merger. The course also cover the growth in industries, constraints and regulatory mechanism.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To recognize the importance of industrial size and location. 2. To understand the significance of spatial pricing policies. 3. To analyze the relationship between market concentration and firms performance. 4. To discuss the need for diversification and integration of firms. 5. To trace the growth of industries and understand the regulatory mechanism in India. 	
Prerequisites	Principles of Economics.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Industrial efficiency	12	CO1 CO2 CO3 CO4 CO5	K1
	Nature and Scope of Industrial economics - Determinants of economic efficiency – Measurement of efficiency – Efficiency conditions in the theory of production – Efficiency and decision making process.			K2 K3 K4 K5 K6
II	Industries and Location	12	CO1 CO2 CO3 CO4	K1
	Competitive environments, Cost-Minimizing Location Model – Agglomeration economies – Location to Maximize revenue and Profit: Spatial Pricing policies			K2 K3 K4

	- Theories of Industrial Location: Weber, Sargant Florence - Determinants of industrial location – Industrial Locational trends in India.		CO5	K5 K6
III	Market Concentration	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Measurement of Market concentration: Herfindahl-Hirschman Index, The Rosenbluth Index, The Entropy Index, The Linda Index, The Horvath Index, The Dispersion measures, The Lerner Index, The Rothschild Index, The Elasticity Index, The Profit Ratio – Concentration and the Market performance of firms.			
IV	Diversification Vertical integration and Merger	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Motives for Diversification, Vertical integration and merger – Merger and acquisitions - Types of merger - Measurement of diversification, integration and merger.			
V	Growth and Regulation of Industry	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Industrial growth in India: Trends and prospects - Public enterprises performance constrains - Ways and means of Government regulation of Industries - The legal framework of industrial regulation – Industrial location policy in India.			
Text Books:				
1. Barthwal R.R., Industrial Economics, 3 rd edition, New Age International Publishers, 2013				
2. Harrington, J.W., and Warf, B., Industrial Location; Principles, Practice and Policies, Toutledge, London 2002				
Books for Reference:				
1. Cherunilam, Francis, “Industrial Economics Indian Perspective”, Himalaya Publishing House, Bombay, 1989.				
2. Desai. S.S.M, “Industrial Economy of India”, Himalaya Publishing House, Bombay. 1988.				
3. Kuchhal. S.C., “Industrial Economy of India”, Chaitanya Publishing House, Allahabad. 1978.				
Donald A. Hay and Derek J. Morris., Industrial Economics: Theory and Evidence, Oxford University Press, 1984				
Journals for Reference				
1. Economic and Political Weekly				
2. Industrial Economist				
3. The Economist				
4. Southern Economist				

Web Resources

1. <https://www.indiabudget.gov.in/economicsurvey/>
2. <https://commerce.gov.in/publications-reports/>
3. <https://www.mca.gov.in/MinistryV2/mergers+and+acquisitions.html>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Identify the significance of industrial location	K1, K2
CO2	Discover the ways and means of increasing productivity.	K3
CO3	Explain the need for diversification and integration.	K4
CO4	Estimate the concentration of market.	K5
CO5	Formulate policies to optimal utilization of resources.	K6

Course Code	PEC3ME02
Course Title	GENDER ECONOMICS
Credits	02
Hours/Week	04
Category	Subjective Elective (SE) – Theory
Semester	III
Regulation	2022
OVERALL Course Overview	
<p>This course gives a theoretical base for the concepts, ideologies and theories of feminist economists. It examines economic development from a gender dimension and highlights the significance of gender equality in achieving developmental goals. This course outlines the gender bias in economic theories and propounds alternate theories through a gender lens. It manifests the non-market contributions of women and identifies household as an economic unit. It enables to foresee the contributions of women as active economic agents and strategies to empower women and reduce gender inequalities. Finally it emphasizes the need for gender mainstreaming with greater role by the government and also prescribes methodologies to monitor and evaluate gender planning.</p>	
OVERALL Course Objectives	
<ol style="list-style-type: none"> 1. To sensitize students on gender related issues 2. To study and analyze economic theories with gender lens 3. To understand the impact of gender in economic development 4. To understand how common economic problems affect men and women differently 5. To formulate and assess relevant policy measures from a gender perspective 	
Prerequisites	Demographic structures in developing countries, Development concepts, Micro economics of labour market and wage determination, Budgeting and planning

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Introduction to Gender Economics	12	CO1	K1
	Meaning and scope of gender economics; sex Vs gender; nature Vs nurture; Differences between men and women – biological, psychological, anthropological, sociological, political science and economic perspectives; Patriarchy and gender; Gender		CO2	K2
			CO3	K3
			CO4	K4
			CO5	K5
				K6

	demographics and status of women; Access to health, education and resources; Feminization of poverty			
II	Gender and Development	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Approaches to women, gender and development – welfare approach, Women in Development (WID), Gender and Development (GAD), Women and Development (WAD), the efficiency approach, Gender and the Environment (GED), mainstreaming gender equality; Ecofeminism; Millennium development goals; Sustainable development goals			
III	Economics of Gender Differences	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Economics as an Imperialist Science; Gender and Neo-classical economic theory; Gender bias in the theories of value and distribution; Intrinsic value paradox; effects of minimum wage on covered (men) and uncovered (women) labour markets; Labour market equilibrium in the presence and absence of discrimination; Statistical discrimination; The efficiency wage theory of discrimination			
IV	Woman as an Economic Agent	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Household as an economic unit; Family & household labour; Measurement of women’s work; Gender differences in usage of time; Gender and labour market; Contribution of women to National Income; Economic independence and decision making			
V	Gender Governance	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Moving towards gender equality; Women empowerment strategies; Gender mainstreaming; Gender responsive planning & development; Gender Budgeting; Monitoring and evaluation			
Text Books:				
1. Jacobsen, Joyce , ‘The Economics of Gender’, Third Edition, Blackwell Publishers Ltd., UK, 2007				
2. Momsen, J.H. Gender and Development, Routledge, London, 2004				
Books for Reference:				
1. Mukesh Eswaran, ‘Why Gender Matters in Economics’, Princeton, NJ: Princeton University Press, 2014				
2. Boserup, E., ‘Women’s Role in Economic Development’, New York, NY, St. Martin’s				

Press. 1970

3. Thakkar Usha & Desai Neera, 'Women in Indian Society', National Book Trust, New Delhi, India 2001
4. Blau, F. D., Ferber, M. A., & Winkler, A. E., 'The economics of women, men, and work', Upper Saddle River, NJ: Prentice Hall, Chicago, 1998
5. Nelson A Julie, 'Feminism Objectivity & Economics', Routledge, London, 2003

Journals for Reference

1. Dewan, Ritu. 'Gender in Neoclassical Economics: Conceptual Overview', Economic & Political Weekly, Vol. 30, Issue 17, WS-46, 1995
2. Gary S. Becker, 'A Theory of Allocation of Time', The Economic Journal, Vol. 75, No. 299. pp. 493-517, Sep., 1965
3. Mazumdar, Indrani and N Neetha (2011): "Gender dimensions: Employment Trends in India, 1993-94 to 2009-10", CWDS Occasional Paper No 56, EPW
4. Mazumdar, Indrani and N Neetha (2011): "Gender dimensions: Employment Trends in India, 1993-94 to 2009-10", CWDS Occasional Paper No 56, EPW
5. Mazumdar, Indrani and N Neetha: "Gender dimensions: Employment Trends in India, 1993-94 to 2009-10", CWDS Occasional Paper No 56, EPW, 2011.
6. Folbre, Nancy.. 'Cleaning House: New Perspectives on Households and Economic Development,' Journal of. Development Economics 22, 5-40. 1986.
7. Himmelweit, Susan. The discovery of "unpaid work." Feminist Economics 1 (2):. 1-20, 1995

Web Resources

2. <https://www.oecd.org/dac/gender-development/43041409.pdf>
3. <https://www.unescap.org/sites/default/files/Framework-and-Indicator-set.pdf>
4. <https://data.unwomen.org/country/india>
5. <https://wcd.nic.in/gender-budgeting>
6. <https://unu.edu/publications/articles/achieving-gender-equality-in-india-what-works-and-what-doesnt.html>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Identify the economic significance of women.	K1, K2
CO2	Discover the importance of development of women.	K3
CO3	Explain the gender differences and its implications.	K4
CO4	Support economic independence and decision making.	K5
CO5	Develop strategies for women empowerment.	K6

Course Code	PEC3ME03
Course Title	DATA ANALYTICS FOR ECONOMISTS
Credits	02
Hours/Week	04
Category	Subjective Elective (SE) – Theory
Semester	III
Regulation	2022
Overall Course Overview	
<p>This course describes the concept of Data mining and challenges involved in it. It also covers sources of big data and standardizing them for effective use. The course helps the learners to use predictive, descriptive, survival analysis and social network analysis. It also facilitates the learners to develop models and applications.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To impart data handling and statistical programming skills based on real life example datasets. 2. To enable the students to understand data mining and data analytics 	
Prerequisites	Statistical and mathematics techniques. Basic econometric tools.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Data Mining	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Basic Data Mining Tasks, Data Mining Versus Knowledge Discovery in Databases, Data Mining Issues, Data Mining Metrics, Social Implications of Data Mining, Data Mining from a Database Perspective			
II	Big Data and Analytics	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Analytics process model – Analytical profile requirements – Data sources – Data elements – Dealing with missing values – outlier – Standardizing data – Weights of evidence coding – variable selection			
III	Predictive and Descriptive Analytics	12	CO1 CO2 CO3 CO4	K1 K2 K3 K4
	Linear and logistic regression - Decision trees – Neural networks – Support Vector Machines – Ensemble methods – Multiclass Classification Techni			

	-ques – Evaluating Predictive Models – Association Rules – Sequence Rules – Segmentation		CO5	K5 K6
IV	Survival and Social Network Analytics	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Survival Analysis measurements - Kaplan Meier Analysis – Parametric Survival Analysis – Proportional Hazards Regression – Evaluating Survival Analysis Models – Social Network metrics and learning – Relational Neighbor Classifier - Relational Logistic Regression			
V	Backtesting Analytical Models	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Benchmarking – Data quality – Software – Privacy – Model design and documentation – Corporate Governance – Applications			
Text Books:				
<ol style="list-style-type: none"> 1. Bart Baesens, Analytics in a Big Data World: The Essential Guide to Data Science and its applications, Wiley India Pvt. Ltd., 2014 2. Margatret H. Dunham, Data Mining – Introductory and Advanced Topics, Pearson Education, 2006 				
Books for Reference:				
<ol style="list-style-type: none"> 1. Christian Albright, S, Winston, Wayne L, Business Analytics: Data Analysis and Decision Making, Cengage Learning, US, 2015. 2. Arshdeep Bahga, Vijay Madisetti, Big Data Science & Analytics: A Hands on Approach, Arshdeep, 2019 3. Mohiuddin Ahmed, Al-Sakib Khan Pathan, Taylor and Francis, Data Analytics Concepts Techniques And Applications 1St Edition, Taylor and Francis, 2020 				
Journals for Reference				
<p>Big Data Research Journal of Big Data Computational statistics and Data Analysis</p>				

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Identify the sources of big data.	K1, K2
CO2	Calculate the relationship between economic variables.	K3
CO3	Infer the validity of outcome.	K4
CO4	Measures the longevity of economic implications.	K5
CO5	Develops models and write applications for solving problems.	K6

Course Code	PEC3ME04
Course Title	URBAN ECONOMICS
Credits	02
Hours/Week	04
Category	SUBJECT ELECTIVE (SE) – Theory
Semester	III
Regulation	2022
Overall Course Overview	
<p>The course guides to understand how urban areas are formed, pattern involved and analyze the dynamic challenges of urbanization. The course aids to understand the framework and analyze the challenges urban planning. The pricing of urban economic infrastructure and the urban finance involved in arriving the equilibrium will be part of the course. The course outlines the issues of urban poverty and its impact on urbanization.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To understand the impact of urbanization on the environment 2. To find techniques that need to be adopted for a better urban planning 3. To familiarize the concept of urban economic infrastructure and pricing of the same 4. To analyze the urban sources of finance and Good Governance 5. To Frame policies for urban sustainability 	
Prerequisites	Planning and city structure, Economic infrastructure, Pricing of public goods, Poverty

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Introduction to Urban Economics	12	CO1	K1
	Definition of an urban area, components of urban growth, extent, and pattern of urbanization in India, challenges of urbanization in India.		CO2	K2
			CO3	K3
			CO4	K4
			CO5	K5
II	Urban Planning	12	CO1	K1
	Broad contours of urban planning, city master plans, FSI as a city planning instrument, analysis of FSI as a solution to growing urbanization, arguments for and against higher FSI, challenges of urban planning in India.		CO2	K2
			CO3	K3
			CO4	K4
			CO5	K5

III	Urban Economic Infrastructure	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5
	Urban transport – motorized and non-motorized transport infrastructure need for a new urban transport policy. Urban water – structure, financing, policy and regulation, performance in terms of service delivery parameters and efficiency parameters - Urban Power – analysis of power situation, sustainable urban electricity development, load shedding models including the concept of zero load shedding.			
IV	Urban Finance and Governance	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5
	A municipal financing framework, market worthiness, and urban local government, the practice of PPP in urban infrastructure, solid waste management, challenges of good urban governance in India.			
V	Urban Poverty and Urban Sustainability	12	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5
	Extent of urban poverty, urban slums, housing in urban India, a critical review of urban poverty alleviation programmes and policies- Sustainable development - Challenges for Urban sustainability			
Text Books:				
<ol style="list-style-type: none"> 1. Jha, R., Chandiramani, J., Perspectives in Urban Development: Issues in Infrastructure, Planning and Governance, Capital Publishing Company, New Delhi, 2012. 2. Ahluwalia, I.J., Kanbur, R., & Mohanty, P.K., Urbanisation in India, SAGE Publications, New Delhi, 2014. 				
Books for Reference:				
<ol style="list-style-type: none"> 1. O' Sullivam, Urban Economics, 8th edition, McGraw Hill Education, 2011 2. Kundu, Singh and Sivaramakrishnan., A Handbook of Urbanisation in India, 2nd edition, Oxford University Press, 2002 3. Kundu A, India Urban Poverty Report, Oxford, 2010 4. India Infrastructure Report, Urban Infrastructure, 3i Network, 2006 5. V.V.Subrahmanyam & R.L.Bawa – Urban Economic Development in India. 6. Werner Z.Hirsch, Urban Economic analysis, Tata McGraw-Hill Company, New Delhi, 1975. 7. Vickerman, R.C., Urban Economics, Heritage Publishers, New Delhi, 1985 				
Journals for Reference				
<ol style="list-style-type: none"> 1. Journal of urban economics 2. Journal of cities 3. Journal of Environment and urbanization 4. Journal of urban technology 5. Journal of Transport and Land use 				

Web Resources

1. <http://moud.gov.in>
2. www.smartcities.gov.in
3. www.smartnet.niua.org
4. www.niua.org
5. <https://censusindia.gov.in/>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Examine the problems and challenges of Urbanization	K1, K2
CO2	Demonstrate the impact of urban-economic problems	K3
CO3	Analyze the impact of economic policies of urbanization	K4
CO4	Formulate solutions to overcome urban problems	K5
CO5	Create urban policies to attain urban sustainability	K6

Course Code	PEC3ID01
Course Title	FINANCIAL ECONOMICS
Credits	03
Hours/Week	06
Category	Major Core (MC) – Theory
Semester	III
Regulation	2022
Overall Course Overview	
In the current scenario, finance is acting as the major element for the economic growth. Investments need to be scrutinized in an elegant way to maximise the earnings. The course will offer various concepts to invest efficiently and enlighten on the risk in investment.	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To compute the risk and return of the portfolio 2. To identify various types of risk in investment avenues 3. To choose the optimum investment among the various options 4. To understand the operations of the bond market 5. To hedge the investment securities using futures and options 	
Prerequisites	Basic financial computations. Demand and Supply analysis.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Investment	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Meaning of investment – speculation and Gambling – Investment avenues - Types of investors – Investment objectives – The investment process – Security Analysis – Meaning of security – Types of securities – Meaning of security analysis - Fundamental and technical analysis			
II	Risk and Return	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Risk and Return – Computation of return – Meaning and definition of risk – Types: (Systematic risk- Market risk, purchasing power risk, Interest rate risk, Unsystematic risk- Business risk (Internal, External), Financial risk) – Minimising risk Exposure – Risk measurement - Standard deviation – Meaning of Beta			

	– Computation and interpretation – Use of beta in estimating returns. (Including simple problems)			
III	Portfolio Analysis	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Selection and Evaluation – Meaning of portfolio – Reasons to hold portfolio – Diversification analysis – Markowitz’s Model – Assumptions – Specific model – Risk and return optimization – Efficient frontier – Efficient portfolios. Leveraged portfolios – Corner portfolios – Sharpe’s Single Index model – Portfolio evaluation measures – Sharpe’s Performance Index – Treynor’s Performance Index – Jensen’s Performance Index.			
IV	Bond Markets	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Types of bonds – Bond returns and price – Preferred stock valuation – Systematic and Unsystematic risk in holding fixed income securities – Major factors in the bond rating process – Earning power – Bond Management Strategies			
V	Derivatives Markets	18	CO1 CO2 CO3 CO4 CO5	K1 K2 K3 K4 K5 K6
	Options: Put and Call option – Mechanics of option trading – determination of option values – option question and strategies – Option pricing: Black-Scholes model. Futures: Comparison of futures with option. Technical analysis: Market indicators, forecasting individual stock performance.			
Text Books:				
<ol style="list-style-type: none"> 1. Fischer, D.E.& Jordan, R.J, Security Analysis and Portfolio Management, Pearson Education, 2018 2. Pandian, Punithavathy, Security Analysis and Portfolio Management, 2nd Edition, Vikas Publishing House Pvt. Ltd, 2013 				
Books for Reference:				
<ol style="list-style-type: none"> 1. Grinblatt M and S Titman., Financial Markets and Corporate Strategy. 2nd edition, McGraw Hill Irwin, London, 2002 2. Brearley And S C Myers., Principles of Corporate Finance, 4th edition, Tata McGraw–Hill Publishing Company Ltd, New Delhi, 1996 3. Chance D M., An Introduction to Derivatives and Risk Management, 6th edition, Thomson South – Western, 2004 4. Elton E J., M J Gruber, S J Brown and W N Goetzman., Modern Portfolio Theory and Investment Analysis, Ed John Wiley and Sons, New York, 2003 				

5. Bhalla V K., Investment Management – Security Analysis and Portfolio Management, S Chand and Company Ltd. New Delhi, 2001
6. Prasanna Chandra., Investment Analysis and Portfolio Management, Tata Mc Graw – Hill Publishing Company Ltd, New Delhi, 2003

Journals for Reference

1. Journal of Finance
2. Journal of Financial Economics
3. International Journal of Finance and Economics
4. Review of Financial Economics
5. Annual Review of Financial Economics

Web Resources

1. www.ft.com
2. www.bloomberg.com
3. www.economist.com
4. www.cnbc.com
5. www.nseindia.com

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Compare various investment avenues	K1, K2
CO2	Make use of various instruments to construct a portfolio	K3
CO3	Inspect the theories on finance and investment	K4
CO4	Evaluate the risk and return tradeoff	K5
CO5	Predict the efficient investment avenues	K6

Course Code	PEC2CD01
Course Title	FINANCIAL INSTITUTIONS AND MARKETS
Credits	01
Hours/Week	03
Category	Cross Disciplinary (CD) – Theory
Semester	II
Regulation	2022
Overall Course Overview	
<p>The course introduces financial institutions and markets. The course is distributed as banking and non-banking financial institutions, money, and capital, derivative, and foreign exchange markets. The course provides clear idea on various banking institutions under the organized sector and unorganized sector. The course also throws light on money market, its various components and performance and the regulatory mechanism of RBI in Indian money market. The importance of capital markets and regulatory mechanism of SEBI are discussed. The emergence of various derivatives instruments and various trading mechanisms in Indian financial market will be part of the course.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To understand the various components of financial institutions and markets. 2. To identify the functions of financial institutions in the organized and unorganized sectors. 3. Demonstrate an awareness of the current structure and mechanism of Indian financial market. 4. To relate the different money and capital market instruments relevant to the current financial scenario. 5. To establish the regulatory functions of the respective bodies for the functioning of financial market. 	
Prerequisites	Fundamental concepts of Economics and Finance, Characteristics of Indian Economy and various economic indicators, Dimensions of Indian Financial system, Follow up of Markets and Business-related updates through media, Business reports, financial operations and policy revisions.

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	Banking Institutions In India	12	CO1	K1
	Financial Institutions in India: Banking Sector –		CO2	K2

	Reserve Bank of India – Commercial Banks: Public, Private and Foreign Banks - Co-operative Banks: State, District and Primary levels - Land Development Banks– Regional Rural Banks.		CO3 CO4 CO5	K3 K4 K5
II	Non-Banking Financial Institutions In India.	12	CO1	K1
	Non-Banking Financial Intermediaries: Chit and Nidhi Companies – Benefit Societies – Finance Companies – Leasing and Hire Purchase Companies – Factoring Companies.		CO2 CO3 CO4 CO5	K2 K3 K4 K5
III	Indian Money Market	12	CO1	K1
	Call Money Market – Acceptance Market - T Bills and Gilt-edged Securities – Commercial Bills and Bill Re-discounting Scheme – CDs and CPs – Collateral Loan Market - Money Market Instruments and Mutual Funds – Repo and Reverse Repo Markets – Regulatory Mechanism of Indian Money Market.		CO2 CO3 CO4 CO5	K2 K3 K4 K5
IV	Capital Market	12	CO1	K1
	Bonds – Equities – Primary Market: New Issue Market – Public issue, Offer for Sale, Private Placement, Rights to Issue, e-IPOs – Secondary Market: Stock Exchange, Auction and Dealer Markets, OTCEI – Regulatory Mechanism of Indian Capital Market.		CO2 CO3 CO4 CO5	K2 K3 K4 K5
V	Derivative And Foreign Exchange Markets	12	CO1	K1
	Indian Derivative Market: Forward and Futures contract, Options Trading, Swaps contract – Platform for Sale of Derivative instruments. Foreign Exchange Market: Authorized Dealers, Money Changers, Foreign Banks, Importers and Exporters – Regulatory mechanism of Foreign Exchange Markets: Exchange Control – FERA – FEMA.		CO2 CO3 CO4 CO5	K2 K3 K4 K5
Text Books:				
1. Pathak V. Bharathi, Indian Financial System, 5 th edition, Pearson Publication, 2018.				
2. Varshney P.N. and Mittal D.K., Indian Financial System, Sultan Chand and Sons –India, 2015.				
Books for Reference:				
1. Mishkin S Frederic, Eakins Stanley, Financial Markets and Institutions, 9th edition, Pearson Publication, 2018.				
2. Gurusamy S, Capital Markets – 2 nd edition, Tata McGraw Hill Education – India, 2009.				

3. Chance D M. An Introduction to Derivatives and Risk Management. 10th edition, Thomson South-Western, 2015.
4. Grinblatt M and S Titman., Financial Markets and Corporate Strategy. 2nd edition, Tata McGraw Hill Irwin, London, 2002.
5. Bhalla V K., Investment Management: Security Analysis and Portfolio Management, 19th edition, S Chand and Company Ltd. New Delhi, 2013.

Journals for Reference:

1. Journal of Financial Markets- Elsevier
2. International Research Journal of Finance and Economics
3. Journal of International Financial Markets Institutions and Money

Web Resources

1. <https://www.coverfox.com/personal-finance/mutual-funds/money-market-instruments/>
2. <https://www.investopedia.com/investing/primary-and-secondary-markets/>
3. <https://tutorstips.com/capital-market-its-meaning-and-components/>
4. <https://groww.in/p/secondary-market/>

Course Outcomes (Cos) and Cognitive Level Mapping

Cos	Statements	Cognitive Level
CO1	Identify the different concepts and compare intra and inter financial scenario.	K1, K2
CO2	Interpret the mechanism of various financial instruments in short- and long-term transactions.	K3
CO3	Assess the financial markets and to establish its performance	K4
CO4	Evaluate the current short- and long-term financial markets within the regulatory mechanism in India.	K5
CO5	Discuss the Indian regulatory mechanism with other countries.	K6

Course Code	PEC3ME04
Course Title	GAME THEORY
Credits	01
Hours/Week	03
Category	Cross Disciplinary (CD) – Theory
Semester	III
Regulation	2022
Overall Course Overview	
<p>The course covers all the fundamental concepts of game theory strategies, payoffs are informed to learners. The course helps to compute equilibrium in different type of games. The course analysis the different strategic alternatives in business and facilitate the learner in decision-making process using game theory. This course also includes applications of game theory, case studies, review based activities and assessments which make the learners to deepen their knowledge in game theory on different scenarios.</p>	
Overall Course Objectives	
<ol style="list-style-type: none"> 1. To help the learners to understand the basic concepts and models of different strategies of Game Theory. 2. To acquire knowledge on modeling behavior of the game and its relevancy. 3. To provide a platform to the learner to extract strategic, interactive decision making among rational individuals. 4. To improve the critical review capacity of the learners with perfect and imperfect information. 5. To impart practical knowledge on different forms of game theory through economic applications. 	
Prerequisites	Microeconomics and quantitative techniques, Fundamental Knowledge on Game Theory, Comparative skills and knowledge on various market structure, various strategies of game theory

SYLLABUS

UNIT	CONTENT	HOURS	COs	COGNITIVE LEVEL
I	History of Game Theory	18	CO1	K1
	Game Theory: Introduction, the theory of rational choice, Games with Perfect Information, Theory of Nash Equilibrium, Best Response Functions.		CO2	K2
CO3			K3	
CO4			K4	
CO5			K5	
			K6	

II	Mixed Strategy Equilibrium	18	CO1	K1
	Introduction, Strategic Games, Mixed Strategy Nash Equilibrium, Dominated Actions, Equilibrium in a single population, Reporting a Crime, The formation of Players belief.		CO2	K2
III	Theory of Extensive Games with Perfect Information:	18	CO3	K3
	Introduction, Extensive Game with Perfect Information, Strategies and Outcomes, Subgame Perfect Equilibrium, Subgame perfect equilibria of finite horizon games,		CO4	K4
IV	Games with Imperfect Information	18	CO5	K5
	Bayesian Games: Introduction, General definitions, Cournot's duopoly game with imperfect information, providing a public good, Actuations.		CO1	K1
V	Applications of Game Theory	18	CO2	K2
	Best Response Curves, Mixed Strategies, Games of Coordination, Battle of the Sexes, Prisoner's Dilemma. Games of Competition, Games of Coexistence, Games of Commitment.		CO3	K3
			CO4	K4
			CO5	K5
				K6

Text Books:

1. Martin J. Osborne, 'An Introduction to Game Theory', Oxford University Press, 2012
2. Giacomo Bonanno, 'Game Theory', 2nd Edition, MIT Press, 2018

Books for Reference:

1. Hal. R. Varian, 'Intermediate Microeconomics – A Modern Approach', 8th Edition, W. W. Norton & Company Publications, USA, 2010.
2. Binmore, K, Fun and Games, Houghton Mifflin, 1992
3. Friedman, J, Oligopoly and the Theory of Games, North Holland, 1977.
4. John von Neumann, Oskar Morgenstern, '*Theory of Games and Economic Behavior*', Princeton University Press, 2007.
5. Drew Fudenberg. and Jean Tirole, 'Game Theory', Cambridge, Mass. and. London, MIT Press, 1991.
6. Mailath, J. and Larry Samuelson. 'Repeated Games and Reputations: Long-Run Relationships', Oxford University Press, 2006
7. Erich Prisner. 'Game Theory - through Examples' Published and Distributed by The Mathematical Association of America. 2014

Journals for Reference

1. Roberts and H. Sonnenschein, (1976), "On the Existence of Cournot Equilibrium without Concave Profit Functions," Journal of Economic Theory, vol. 13, pp. 112-117.
2. S. Grossman, (1981), "Nash Equilibrium and the Industrial Organization of Markets with Large Fixed Costs," Econometrica, vol. 49, pp. 1149-1172,
3. H. Varian, (1981), "A Model of Sales," American Economic Review, vol. 70, no. 4, pp. 651-659.
4. Games and Economic Behavior, ELSEVIER.
5. International Journal of Game Theory (INT J GAME THEORY). Springer.

Web Resources

1. http://www.stern.nyu.edu/networks/Roberts_Sonnenschein_On_the_Existence_of_Cournot_Equilibrium.pdf
2. http://www.stern.nyu.edu/networks/phdcourse/Grossman_S_Nash_equilibrium.pdf.
3. http://www.stern.nyu.edu/networks/phdcourse/Dixit_A_model_of_dupoly.Pdf
4. <http://www.sapub.org/journal/aimsandscope.aspx?journalid=1021>
5. <https://www.journals.elsevier.com/games-and-economic-behavior>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Understand basic concepts of Game Theory.	K1, K2
CO2	Examine and exhibit the mixed strategies of game theory with microeconomic theories.	K3
CO3	Identify and observe the impact of perfect and imperfect information on extensive form of game theories.	K4
CO4	Illuminate and estimate the impact of gap between theory and applications of games.	K5
CO5	Construct and constitute various strategies of game theories to extract the efficacy of game theory models.	K6

Course Code	PEC3VA01
Course Title	DATA ANALYSIS USING EXCEL
Credits	1
Hours/Week	2
Category	Value Added Course
Semester	III
Regulation	2022

Course Overview

1. The course will meet out the modern firm's requirement of excel skills as prerequisite
2. The course provides hands on experience on excel and its functions
3. The course enables to implement formulas and functions in excel
4. The course helps to sort, filter, clean and prepare detail data in excel
5. The course aids to conduct data analysis in excel

Course Objectives

1. To specialize with formulas and functions to perform calculations on data
2. To visualize and present the quantitative and qualitative data
3. To solve business problems using spreadsheet
4. To build model using excel
5. To adapt advanced functions for problem solving

SYLLABUS

Unit	CONTENT	H rs		
I	Presentation of quantitative data – Data visualization – Analysis of quantitative data: Graphical Analysis, Linear Regression, Covariance and Correlation, Other forecasting models	6	CO1,CO2 CO3, CO4 CO5	K1, K2, K3, K4, K5, K6
II	Presentation of qualitative data: Data Queries with Sort, Filter, Advanced Filter – Data visualization – Analysis of qualitative data: Pivot Table	6	CO1, CO2 CO3, CO4 CO5	K1, K2, K3, K4, K5, K6
III	Inferential statistical analysis of data: Chi Square, Z-test, t-test, ANOVA.	6	CO1, CO2 CO3, CO4 CO5	K1, K2, K3, K4, K5, K6
IV	Classification of models – Important elements of a model – Model building with excel: Sensitivity models, Option buttons, Scroll Bars	6	CO1, CO2 CO3, CO4 CO5	K1, K2, K3, K4, K5, K6
V	Types of simulation and uncertainty – The Monte Carlo Sampling methodology: VLOOKUP and HLOOKUP functions – Solver, scenarios and Goal Seek Tools	6	CO1, CO2 CO3, CO4 CO5	K1, K2, K3, K4, K5, K6

Text Books

- Hector Guerrero, Excel Data Analysis, 2nd edition, Springer Publication, USA, 2019
- Wayne L Winston, Microsoft Excel 2019 Data Analysis and Business Modeling, 6th edition, Microsoft Press, 2019

Suggested Readings

- Greg Harvey, Excel 2019 All-in-One for dummies, John Wiley & Sons Inc., New Jersey, 2019
- Michael Alexander, Dick Kusleika, Excel 2019 Bible, John Wiley & Sons Inc., Indiana, 2019
- William L. Fischer, Excel: QuickStart Guide – From Beginner to Expert, CreateSpace Independent Publishing Platform, 2016
- Bill Jelen and Michael Alexander, Microsoft Excel 2019 Pivot Table Data Crunching, Microsoft Press, 2019
- Michael Alexander and John Walkenbach, Microsoft Excel Dashboard and Reports, 2nd edition, John Wiley and Sons Inc., New Jersey, 2013

Web Resources

www.trumpexcel.com

www.xelplus.com

<https://support.microsoft.com/en-us/excel>

<https://edu.gcfglobal.org/en/excel/>

Course Outcomes (Cos) and Cognitive Level Mapping

COs	Statements	Cognitive Level
CO1	Outline tools available in excel for various sources of data	K1, K2
CO2	Identify the different components and its uses in the excel	K3
CO3	Examine and explore the spreadsheet concepts	K4
CO4	Interpret the results and output delivered by excel	K5
CO5	Design the best method to achieve the required goal	K6

LOCF BASED DIRECT ASSESSMENTS

COGNITIVE LEVEL (CL) AND COURSE OUTCOME (CO) BASED CIA QUESTION PAPER FORMAT (PG)

SECTION		Q. NO	COGNITIVE LEVEL (CL)					
			K1	K2	K3	K4	K5	K6
A	(5 x 1 = 5) Answer ALL	1(a)	+					
		(b)	+					
		(c)	+					
		(d)	+					
		(e)	+					
	(5 x 1 = 5) Answer ALL	2(a)		+				
		(b)		+				
		(c)		+				
		(d)		+				
		(e)		+				
B	(1 x 8 = 8) Answer 1 out of 2	3			+			
		4			+			
C	(1 x 8 = 8) Answer 1 out of 2	5				+		
		6				+		
D	(1 x 12 = 12) Answer 1 out of 2	7					+	
		8					+	
E	(1 x 12 = 12) Answer 1 out of 2	9					+	
		10					+	
No. of CL based Questions with Max. marks			5 (5)	5 (5)	1 (8)	1 (8)	1 (12)	1 (12)
No. of CO based Questions with Max. marks			CO1		CO2	CO3	CO4	CO5
			10 (10)		1 (8)	1 (8)	1 (12)	1 (12)

Forms of questions of **Section A** shall be MCQ, Fill in the blanks, True or False, Match the following, Definition, Missing letters. Questions of **Sections B, C, D and E** could be Open Choice/ built in choice/with sub sections. Component III shall be exclusively for cognitive levels K5 and K5 with 20 marks each. CIA shall be conducted for 50 marks with 90 min duration.

COGNITIVE LEVEL (CL) AND COURSE OUTCOME (CO) BASED END SEMESTER EXAMINATION QUESTION PAPER FORMAT (PG)

SECTION		Q. NO	COGNITIVE LEVEL (CL)						
			K1	K2	K3	K4	K5		
A	(5 x 1 = 5) Answer ALL	1(a)	+						
		(b)	+						
		(c)	+						
		(d)	+						
		(e)	+						
	(5 x 1 = 5) Answer ALL	2(a)		+					
		(b)		+					
		(c)		+					
		(d)		+					
		(e)		+					
B	(3 x 10 = 30) Answer 3 out of 5	3			+				
		4			+				
		5			+				
		6			+				
		7			+				
C	(2 x 12.5 = 25) Answer 2 out of 4	8				+			
		9				+			
		10				+			
		11				+			
D	(1 x 15 = 15) Answer 1 out of 2	12					+		
		13					+		
E	(1 x 20 = 20) Answer 1 out of 2	14						+	
		15						+	
No. of CL based Questions with Max. marks			5 (5)	5 (5)	3 (30)	2 (25)	1 (15)	1 (20)	
No. of CO based Questions with Max. marks			CO1		CO2	CO3	CO4	CO5	
			10 (10)		3 (30)	2 (25)	1 (15)	1 (20)	

IMPORTANT

- Forms of questions of **Section A** shall be MCQ, Fill in the blanks, True or False, Match the following, Definition, Missing letters.
- Questions of **Sections B, C, D and E** could be Open Choice/ built in choice/questions with sub divisions.
- Maximum sub divisions in questions of Sections B, C shall be 2 and 4 in Sections D, E).

TOTAL MARKS DISTRIBUTION OF DIRECT ASSESSMENTS BASED ON CL AND CO (PG)

Course Outcome	CO1		CO2	CO3	CO4	CO5	TOTAL
Cognitive Levels	K1	K2	K3	K4	K5	K6	
CIA 1	5	5	8	8	12	12	50
CIA 2	5	5	8	8	12	12	50
Comp III	-	-	-	-	20	20	40
Semester	5	5	30	25	15	20	100
Total Marks (CL)	15 (6%)	15 (6%)	46 (19%)	41 (17%)	59 (25%)	64 (27%)	240
Total Marks (CO)	30 (12%)		46 (19%)	41 (17%)	59 (25%)	64 (27%)	240