Programme	B.A. Economics Honours				
Course Title	**ANALYTICAL TOOLS FOR ECONOMICS I**				
Type of Course	**Major**				
Semester	III				
Academic Level	200 - 299				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	4	4	-	-	60
Pre-requisites	Basic Economics Course of 0 – 99 level				
Course Summary	Students shall acquire in-depth knowledge and able to explain the concepts of sets, functions, Differentiation, Integration and their applications in Economics.				

COURSE OUTCOMES (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	To Understand the basic concept of set theory and functions	U	C	Instructor-created exams / Quiz
CO2	To Apply differentiation in solving economic problems	Ap	P	Practical Assignment / Observation of Practical Skills
CO3	To apply integration in solving economic problems	U	P	Seminar Presentation / Group Discussion
CO4	To analyse relationship between economic variables mathematically, analyze, optimize and interpret them	An	P	Instructor-created exams / Home Assignments
CO5	To equip the students to identify a problem, investigate to find out relevant facts and find a logical conclusion	Ap	F	Viva Voce/Project
* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C) # - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)				

DETAILED SYLLABUS:

Module	Unit	Content	Hrs	Marks
I		**Set theory and Functions**	**10**	**15**
	1	Set theory: concepts, set operations, relations, functions and their properties	4	
	2	Elementary types of functions – linear, quadratic, cubic, polynomial, exponential and logarithmic	3	
	3	Graphs of functions-linear and quadratic algebraic functions	1	
	4	Applications of functions in Economics	2	
II		**Differential Calculus**	**18**	**25**
	5	Limits and continuity of functions	2	
	6	Meaning of Derivative, Rules, Derivative of single variable and multi variable (except trigonometric function)	2	
	7	Derivatives of implicit functions and Inverse functions	2	
	8	Rate of change- Slope of a curve	2	
	9	Partial Differentiation	2	
	10	Marginal concepts related to Economic functions, Elasticity	2	
	11	Second order Derivatives	2	
	12	Conditions for Optimisation, Single and Multivariate Optimisation	2	
	13	Application in consumption and production decisions	2	
III		**Integral Calculus**	**10**	**15**
	14	Meaning of integral, The Definite Integral, Rules of Integration, Integration by substitution	3	
	15	Integration by parts	2	
	16	Area under a curve-estimation of producers and consumers surplus.	1	
	17	The First and Second Fundamental Theorems of Calculus	2	
	18	The Mean Value Theorem for integrals.	2	
IV		**Linear Models and Matrix**	**10**	**15**
	19	Matrix: Meaning, Types and operations	2	
	20	Linear Models and Matrix Algebra and their Applications in Economics	3	
	21	Rank of a Matrix- Solving linear equations using Matrix Inverse	2	
	22	Determinants, Properties of Determinants and Cramer's Rule and their applications	3	
V		**Open Ended Module**	**12**	
	1	Develop critical thinking and problem-solving skills		

		by applying statistical methods in Economic theories		
	2	Discussion based on statistical tools		
	3	Practical Assignments		
	4	Seminar		

Note: The course is divided into five modules, with four modules together having total 22 fixed units and one open-ended module with a variable number of units. There are total 48 instructional hours for the fixed modules and 12 hours for the open-ended one. Internal assessments (30 marks) are split between the open-ended module (10 marks) and the fixed modules (20 marks). The final exam, however, covers only the 22 units from the fixed modules. The 70 marks shown in the last column, distributed over the first four modules, are only for the external examination.

REFERENCE:

1. Chiang, A and Wainwright, K. (2005). Fundamental methods of mathematical economics. Boston, Mass. McGraw- Hill/Irwin. EC (1262)-18.08.202219(**Module 1,2,3,4&5**)
2. Hoy, M., Livernois, J., McKenna, C., Rees, R., Stengos, T. (2001). Mathematics for Economics, Prentice-Hall India. (**Module 1,2,3,4&5**)
3. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Educational Asia: Delhi, 2002. (**Module 1,2,3,4&5**)
4. Introduction to Mathematical Economics, Third edition, Edward T Dowling, Schaum's outline series, McGraw – Hill (Module 1,2,3,4&5)

ADDITIONAL READINGS

1. A.Chiang & K.Wainwright: Fundamental Methods of Mathematical Economics, McGraw Hill.
2. E. Silberberg & Suen: The Structure of Economics, McGraw Hill
3. Simon & Blume, Mathematics for Economists, Viva Books.
4. Rudin W.: Principles of Mathematical Analysis, McGraw-Hill
5. D. Varberg, E. J. Purcell, S. E. Rigdon. Calulus, Eighth Edition, Prentice Hall.

MAPPING OF COS WITH PSOS:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9
CO 1	3	-	-	-	-	-	-	-	-
CO 2	-	-	-	1	-	-	2	-	3
CO 3	-	-	-	1	-	-	2	-	3
CO 4	-	-	-	1	-	-	2	-	3
CO 5	-	2	-	-	-	-	2	-	3

CORRELATION LEVELS:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Viva Voce/ Discussion / Seminar
- Internal Exam
- Practical Assignments (20%)
- Final Exam (70%)

Mapping of COs to Assessment Rubrics:

	Internal Exam	Quiz / Assignment/ Viva Voce/ Discussion / Seminar	Practical Assignment	End Semester Examination
CO 1	✓	✓		✓
CO 2	✓		✓	✓
CO 3	✓	✓		✓
CO 4	✓	✓		✓
CO 5		✓	✓	

Programme	B.A. Economics Honours				
Course Title	**EVOLUTION OF ECONOMIC THEORIES**				
Type of Course	**Major**				
Semester	III				
Academic Level	200 - 299				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours
	4	4	-	-	60
Pre-requisites	Basic Economics Courses of 100 – 199 level				
Course Summary	This course aims to explore the key ideas of lasting value in the history of economic theory.				

COURSE OUTCOMES (CO):

CO	CO Statement	Cognitive Level*	Knowledge Category#	Evaluation Tools used
CO1	Acquire knowledge of basic economic principles behind various economic issues	U	C	Instructor-created exams / Quiz
CO2	Understand the origins of key economic concepts and models	U	C	Seminar Presentation / Group Discussion
CO3	Trace the evolution of major ideas through time	An	P	Seminar Presentation / Group Discussion
CO4	Discuss the influence and value of different writers and their contributions	Ap	P	Instructor-created exams / Home Assignments
CO5	Place theories and ideas studied within the context of the time	Ap	P	Practical Assignment / Observation of Practical Skills

* - Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), Create (C)
# - Factual Knowledge(F) Conceptual Knowledge (C) Procedural Knowledge (P) Metacognitive Knowledge (M)

DETAILED SYLLABUS:

Module	Unit	Content	Hrs	Marks
I	**People and Markets (Microeconomics) – Market mechanism, Competition, Price and Utility**		**13**	**19**
	The Invisible Hand of the Market			
	1	From Mercantilism to Market Economy	1	
	2	Monopolies and the Cournot Point	1	
	Competition in Theory and in Practice			
	3	From ‘‘Perfect Competition’’ to Dynamic Competition	1	
	4	Competition Policy: Harvard versus Chicago	1	
	5	Natural Monopolies and Government Market Access	1	

		Barriers		
	Prices, Costs and Profits			
	6	Alfred Marshall's Scissor Theorem	1	
	7	The Laws of Large-Scale Production and Their Limits	1	
	8	Turgot's Law of Returns and Marshall's Producers' Surplus	1	
	9	Trade Margins and Speculation	1	
	10	Fair Prices and Government Intervention into Markets	1	
	The Utility and Real Value of Commodities:			
	11	The Classical Paradox of Value and Gossen's Laws,	1	
	12	Pareto Optimality and Distribution of Income,	1	
	13	Consumer Sovereignty and Merit Goods	1	
II	**People and Markets (Microeconomics) –Market Failure, Wage and Capital**		**10**	**15**
	14	**Causes of Market Failure:** Should the State Act as Night Watchman? Natural Collective Goods, The Non-Applicability of the Exclusion Principle, Externalities and Environmental Problems, Are Environmental Taxes and Charges Unjust? Voluntary Negotiations: The Coase Theorem, The Environment and Politics	4	
	15	**Fair Wages and the Right to Work:** Thunen's Equation for a Natural Wage, Karl Marx's Labour Theory of Value, Problems of Socialism, The Pareto Curve, Minimum Wages and Maximum Income Limits? Productivity and Wage Rates	3	
	16	**The Mystery of Capital and Interest:** Interest Rates and Bans on Interest, Who do Capital Gains Belong to? Bohm-Bawerk's Third Reason, Paradoxes of Capital Theory, Natural Interest Rates and Monetary Policy	3	
III	**Crises of Market Economies (Macroeconomics) – Money and Business Cycle**		**13**	**19**
	17	**How Does Money Enter the Economy?** From Shell Money to the Peel Banking Act, Money Supply and Price Levels	3	
	18	**Business Cycles and Shortages in Demand:** Francois Quesnay's Tableau Economique, The Say Theorem, Marx's Theory of Crises and the Theory of the Purchasing Power of Wages, The Keynesian Revolution	5	
	19	**Why Do Business Cycles Fluctuate?** Knife-Edge Growth, Aftalion's Use of Fire as an Example: The Accelerator Principle, Business Cycle Policy: Is it Possible to Master the Chaos? Business Cycle Theory at a Political Level, The Influence of Politicians on the Business Cycle	5	
IV	**Crises of Market Economies (Macroeconomics) – Inflation, Unemployment and Growth**		**12**	**17**
	20	**Inflation and Unemployment:** The Quantity Theory, The Controversy about the Philips Curve, The Bullionist Controversy	4	
	21	**Growth and Wealth:** In Praise of Saving, Shortages of	4	

		Capital and Underdevelopment, The Golden Rule of Accumulation, The Connection Between Interest Rates and Growth Rates		
	22	**Limits of Economic Growth:** The Oil Price Shocks of the 1970s, Are the World's Raw Materials Running Out? The ''Robber-Booty'' Problem and the Hotelling Rule, Is there any Justice for Future Generations?	4	
V	**Open Ended Module**		**12**	
		Discussion based on reports about economic problems such as high unemployment or rising government debt.		
		Practical Assignments to trace the evolution of major ideas through time		
		Seminar on the influence and value of different writers and their contributions to the development of modern economic thought		

Note: The course is divided into five modules, with four modules together having total 22 fixed units and one open-ended module with a variable number of units. There are total 48 instructional hours for the fixed modules and 12 hours for the open-ended one. Internal assessments (30 marks) are split between the open-ended module (10 marks) and the fixed modules (20 marks). The final exam, however, covers only the 22 units from the fixed modules. The 70 marks shown in the last column, distributed over the first four modules, are only for the external examination.

REFERENCE:

1. Van Suntum, U. (2005). The Invisible Hand: Economic Thought Yesterday and Today.

   Springer Science & Business Media. **(All modules)**

ADDITIONAL READINGS

1. Haney, L. H. 1. (2018). History of Economic Thought; A critical account of the origin and development of the economic theories of the leading thinkers in the leading nations. Franklin Classics.
2. Blaug, M. (1997). *Economic theory in retrospect*. Cambridge University Press.
3. Wolff, R. D., & Resnick, S. A. (2012). Contending economic theories: Neoclassical, Keynesian, and Marxian. MIT Press.
4. Buchholz, T. G. (2007). *New Ideas from Dead Economists: An Introduction to Modern Economic Thought*. Penguin.

Mapping of COs with PSOs:

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8	PSO9
CO 1	3	-	-	-	2	-	-	2	-
CO 2	3	-	-	-	-	-	-	-	-
CO 3	-	-	1	-	-	-	3	-	-
CO 4	-	-	-	2	-	-	3	-	-
CO 5	-	-	2	2	-	-	-	3	-

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

Assessment Rubrics:

- Quiz / Assignment/ Viva Voce/ Discussion / Seminar
- Internal Exam
- Practical Assignments (20%)
- Final Exam (70%)

Mapping of COs to Assessment Rubrics:

	Internal Exam	Quiz / Assignment/ Viva Voce/ Discussion / Seminar	Practical Assignment	End Semester Examination
CO 1	✓	✓		✓
CO 2	✓			✓
CO 3	✓	✓		✓
CO 4	✓	✓		✓
CO 5		✓		