	MAHATMA GANDHI UNIVERSITY **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics		
Programme			
Course Title	Introductory Microeconomics		
Course Type	Minor		
Course Level	100-199		
Course Code	MG1DSCUEC121		
Course Overview	Basics of Microeconomics is presented in the first unit. Fundamentals of demand theory is provided in this unit which is followed by production and cost theories and their application. The third unit deals with the nature of perfect competitive market while monopoly power is measured in the fourth chapter. The last chapter addresses market in practice compared to perfect competitive market and monopoly market. Every unit has assignments relating to numerical problems, field study and policy analysis.		
Semester	1	**Credit**	4
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	
	45	15	

Pre-requisite	Pass in plus two-level Programme

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome *Upon completion of this course, students will be able to;*	Learning Domains	PSO No.
1	Understand the basics of Economics	U	
2	Assess the theoretical and policy implications of demand, production and costs	A	
3	Make familiar with different forms of market based on the degree of competition	An	
4	Make capable to take decisions in output and price to reach profit maximisation under different forms of market	S	
5	Empower to solve numerical problems and to conduct policy analysis.	E	
6	**Create interest in analysing policy tools like elasticity, tax incidence, profit maximisation etc.**	C	

*(Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S))

COURSE CONTENT

Module 1	**Hours 13**	**CO No**
Trade Offs, Prices and markets, Equilibrium, Theories and Models, Positive and Normative Analysis	**1**	
Market Defined, Real and Nominal Prices, Decision Making and Policy Design	**1**	
Market Equilibrium, Changes in Market Equilibrium	**2**	
Elasticities of Demand and Supply	**1**	

Consumer Preferences and Indifference Curves	**1**	
Budget Constraints and Consumer Equilibrium	**2**	
Price Effect, Substitution, and Income effects	**2**	
Elasticity of Demand and Consumer Surplus	**1**	
Practice: Collecting data on real and nominal prices; Measuring elasticity of demand based on field level data	**2**	
Computation of substitution and income effect; Computation of consumer surplus based on field data	**2**	

Module 2 Production and Costs	**Hours 14**	**CO No**
Production Decision and Technology of Production	**1**	**R**
Law of Production- One and two Inputs	**2**	**U**
Law of Production- Returns to Scale	**2**	**A**
Concepts of Costs	**1**	**U**
Determinants of Costs and Cost-Minimising Input Choice	**2**	**A**
Short-Run and long-Run Cost	**2**	**An**
Production Possibility Curve and The Learning Curve	**2**	**S**
Practice: Fitting a production function based on actual data; Classification of costs based on field data	**1**	**A**
Computation of short-run and long-run costs; Understanding actual nature of learning curve.	**2**	**AN**
Production Decision and Technology of Production	**1**	**C**

Module 3 Market Structure, Competitive Market and Monopoly Power	**Hours 15**	**CO No**
Characteristics of a Perfectly Competitive Markets	**1**	**R**
Profit Maximisation, Revenue and Supply Curve	**2**	**U**
Market Equilibrium, Changes in Market Equilibrium	**2**	**U**
Producer Surplus and long-Run Equilibrium	**2**	**A**
Industry's Long-Run Supply Curve	**2**	**An**
Monopolists' Output Decision- Shift in Demand and Effect tax under Monopoly	**2**	**A**
Monopoly Power and Sources of Monopoly Power	**2**	**E**

Practice: Visit a rural agricultural market and compare with the properties of Perfect competition; Prepare a supply curve by interviewing a few sellers.	**1**	**C**
Compute producers' surplus based on a numerical example, Compare short-run and long-run supply curves based on change in cost trends based on actual data.	**2**	**S**
Trace the history of Indian Railway or KSRTC as a monopoly firm	**1**	**E**

Module 4 Imperfect Competitive Market	**Hours 16**	**CO No**
Social Costs of Monopoly Power	**1**	
Monopsony and Monopsony Power	**1**	
Price Discrimination	**2**	
Monopolistic Competition and equilibrium	**2**	
Monopolistic Competition and Economic Efficiency	**1**	
Equilibrium in the Oligopoly Market	**2**	
The Cournot Model and Stackelberg Model	**2**	
Price Competition with Homogenous Products	**1**	
Price Competition with Differentiated Products	**2**	
Practicum: Study price discrimination by KSEB or Kerala Water Authority; Compute monopoly Power; study the role of a purchaser as a monopsonist.	**2**	
Take the case of a monopolistic Industry like Bath soap or textile industry	**2**	
Study the case of telecom or Airline firms in India as a case of Oligopoly	**2**	

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, Numerical Analysis, Self-Assessment by students,** **Field activities: Visits to market, Households and Industries.** **Lab based activities:** Computer Lab

Mode of Assessment	Continuous Internal Assessment (CIA) • Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar • Assignments • Numerical applications • Policy discussion • Semester End examination

Learning Resources

1) Robert S. Pindyck, Daniel L Rubinfeld and Prem L Mehta (2013): Microeconomics, Pearson Prentice Hall of India Ltd.: New Delhi
2) Robert. H. Frank (2000): Microeconomics and Behavior, Irwin Mc Graw – Hill.
3) A Koutsosiannis (1978): Modern Microeconomics, Macmillan.

https://digitalcommons.du.edu/cgi/viewcontent.cgi?article=1372&context=etd
https://ceswp.uaic.ro/articles/CESWP2015_VII3_BAL.pdf

Relevance of Learning the Course/ Employability of the Course
This is a theory-oriented course but has application side like policy analysis and managerial decision making. Those who are employed as managers and policy analysts require basic training in this field. This course is important for getting employment as managers, engineers, policy analysts, capital market analysts etc.

	MAHATMA GANDHI UNIVERSITY **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics		
Programme			
Course Title	Economic History of India		
Course Type	Minor		
Course Level	100-199		
Course Code	MG1DSCUEC141		
Course Overview	The course starts with Indian Economy under Sultanate and Vijaya Nagar empire. It deals with agrarian and non-agrarian economy of that period. The second unit is a panoramic view of the Mughal economy with a touch of south Indian economy. The agricultural and non-agricultural systems in medieval and early modern period of Indian economy are sketched in the third unit. The development of modern Indian economy is the theme of the last unit. Every unit has assignments relating to maps, numerical data, field study and comparative analysis.		
Semester	1	**Credit**	4
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	
	45	15	
Pre-requisite	Pass in plus two-level Programme		

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome *Upon completion of this course, students will be able to;*	Learning Domains	PSO No.
1	Understand the nature of Indian economy over centuries	U	
2	Assess the evolvement of agricultural and non-agricultural sectors in parts of India	A	
3	Make familiar with the development of foreign trade, balance of payments, and monetary system in India through centuries	An	
4	Make capable to know the nature of population, and emergence of urban areas in India since medieval India	S	
5	Empower to compare regional development of the various sectors of the Indian economy through centuries.	E	
6	Create interest in analysing the nature of Indian economy compared to the pre-independent period.	C	

*(Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S))

COURSE CONTENT

Module 1 Indian economy under Sultanate and Vijayanagar Empire	**Hours 15**	**CO No**
Geographical and general background of North and South India	**2**	**U**
Economy under the Sultanate	**1**	**R**
Agrarian economy	**2**	**U**
Non-agrarian economy- Currency system	**2**	**An**
Vijayanagar Empire	**1**	**R**
Maritime trade of India.	**2**	**U**
Population 1500-1700	**2**	**U**

State and the Economy	**1**	**A**
Practice: Mapping of the course of main rivers in North India	**2**	**S**
Locating major urban and major settlements under Sultanate and Vijayanagar Empire.	**2**	**C**

Module 2 Economy under Mughal Period	**Hours 14**	**CO No**
State and the economy under Mughal Empire	**2**	**R**
State and the economy in Maharashtra	**1**	**U**
State and the economy in Deccan	**1**	**U**
State and the economy in South	**1**	**U**
Systems of agriculture production- Mughal India	**2**	**A**
Systems of agriculture production- South India	**2**	**An**
Agrarian relations and land revenue- North India	**2**	**S**
Practice: Compare state of economy medieval Maharashtra and deccan with modern period.	**2**	**A**
Analyse present agricultural systems in North and South India in the light of such systems in Mughal period	**2**	**AN**
Compare the status of the present State Economies in South India	**2**	**C**

Module 3 Agricultural and Non-agricultural Systems in Medieval and Early Modern India.	**Hours 15**	**CO No**
Agrarian relations and land revenue- Maharashtra	**1**	**U**
Agrarian relations and land revenue- Medieval Deccan	**1**	**U**
Non-agricultural production- North and South India	**2**	**U**
Inland and Foreign Trade in medieval India	**2**	**A**
Monetary systems and prices in India before 1750	**2**	**An**
Urbanisation and Standard of living in India before 1750	**2**	**A**
Agrarian relations and regional economies in India before 1750	**2**	**E**
Practice: Study present nature of non-agricultural production in North India and South India compared to Medieval period	**2**	**C**
Develop the pattern of foreign trade today and in 16th and 17 th centuries in India	**2**	**S**
Trace the history of urbanisation process in India	**2**	**E**

Module 4 Modern Indian Economy	**Hours 16**	**CO No**
National Income and occupational structure around 18th century India	**1**	**U**
Growth of Industry in India since 1750	**1**	**R**
Growth of Infrastructure in India since 1750	**2**	**R**
Emergence of modern financial system in India	**2**	**U**
Foreign trade in India since 1750	**1**	**U**
Transformation of BOP in India since 1750	**1**	**An**
Inflation in India since 1750	**2**	**A**
Fiscal system under British system and Post-independent India	**2**	**E**
Structure of Indian Economy since 1950	**1**	**U**
Practicum: map major industrial clusters in India	**2**	**U**
Map important dams and railway stations in india	**2**	**S**
Compare trend in inflation and fiscal indicators in India	**2**	**C**

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, DataAnalysis, Self-Assessment by students,** **Field activities: Visits to some locations and record its economic history context** **Lab based activities:** Lab based mapping
Mode of Assessment	Continuous Internal Assessment (CIA) • Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar • Assignments • Data applications • Policy discussion • Semester End examination

Learning Resources

1) Raychaudhuri, Tapan and Irfan Habib (ed.): The Cambridge Economic History of INDIA- Vol. 1: *c. 1200-c.* 1750, Cambridge University Press, 2008.

2) Dharma Kumar (ed.): The Cambridge Economic History of INDIA- Vol. i: *c. 1200-c.* 1750, Cambridge University Press, 2008. Vol. 2: *c. 1750 -c.* 1970, 2008.

3) Sen, A.K. (2005): The Argumentative Indian, London: Penguin.

4) Dreze, Jean and Amartya Sen (2013): An Uncertain Glory-India and its Contradictions, London: Penguin

5) Tirthankar Roy : The Economic History of India, 1857 to 1947, OXFORD, 2011.

Relevance of Learning the Course/ Employability of the Course
This is a chronology-oriented course but has the possibility to compare past with contemporary economic reality. This has an interdisciplinary touch so that candidates from other programmes in social sciences will be immensely benefited from this course. This is useful to those who specialise in political economy and teaching profession.

	MAHATMA GANDHI UNIVERSITY **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics		
Programme			
Course Title	Introductory Macroeconomics		
Course Type	Minor		
Course Level	100-199		
Course Code	MG2DSCUEC121		
Course Overview	Basics of Macroeconomics is presented in the first Module. Two sector economy is the concern of the next module. Money market, theory of money, monetary policy and fiscal policy are the components in the third module. Twin deficits and open economy models are the concern of the fourth module. Capital mobility is a major theme in the last module.		
Semester	2	**Credit**	4
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	
	52	8	

Pre-requisite	Pass in plus two-level Programme

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome *Upon completion of this course, students will be able to;*	Learning Domains	PSO No.
1	Comprehend the basic concepts and circular flow of the Macroeconomy.	U	
2	Assess the influence of real and money markets..	A	
3	Analyse the impact of changes in expenditure, rate of interest and exchange rate on income.	An	
4	Compare real market, money market, domestic economy and open economy.	E	
5	Create interest in critically assessing the policy implications in the fluctuations of the economy.	A,	
6	Create interest in analysing policy tools like multiplier, budget deficit, trade deficit etc.	C	

*(Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S))

COURSE CONTENT

Module 1 Nature Macroeconomics in an Economy	**Hours 16**	**CO No**
Macroeconomics Defined	1	1
Macroeconomics in the short run and long run.	2	1
National Income (NI) concepts	1	2
NI – Income approach	2	2
NI – Product approach	2	1
NI – Expenditure approach	2	1
National Income Statistics in India	2	1
Limitations of NI accounts	2	1

Practicum: Assess Fluctuations in Indian economy; Find out items of income and expenditure in India	2	3
Prepare a brief write up on the nature of national income data in India	2	3

Module 2 Two Sector Economy	**Hours 15**	**CO No**
Income flow from business firms to households	2	1
Nominal GDP, Real GDP, and GDP deflator	2	1
Consumption function	2	3
Saving function	1	2
Investment Function	2	3
Multiplier effect, interest rate, rate of return , and Autonomous spending.	2	3
Equilibrium of the economy	2	6
Practicum: Consumption and saving behaviour in India	2	1
Computation of multiplier based on Indian national income data.	2	4

Module 3	Hrs. 14	Co. No.
Money market	2	4
Quantity theory of money	2	2
Role of monetary policy and economic equilibrium	2	3
Role of fiscal policy and economic equilibrium	2	3
Interaction of monetary and fiscal policies	2	3
Policy mix	2	4
Practicum: Money market in India	2	5
Crowding out in India	2	6

Module 4 The Open Economy	**Hours 15**	**CO No**
The Twin Deficits	2	1
Budget deficit in developing countries	1	4
Foreign Trade and the Balance of Payments	1	3

Exchange Rate Systems	2	3
Determinants of Net Exports	2	4
The Real Exchange Rate and the Interest Rate	2	4
Capital Mobility	1	5
Aggregate Demand and Aggregate Supply	2	4
Practicum: History of Budget Deficit in India	2	1
The Impact of COVID – 19 and twin Deficits in India	2	6

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, Numerical Analysis, Self-Assessment by students,** **Field activities: Interactions with Chamber of Commerce, Industrialists, Service providers, Consumers' Associations** **Lab based activities:** Computer Lab
Mode of Assessment	Continuous Internal Assessment (CIA) • Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar • Assignments • Numerical applications • Policy discussion • Semester End examination

Learning Resources

1. Robert J Gordon: Macroeconomics, Harper Collins.
2. N George N Mankiw: Principles of Macroeconomics, Cengage, 9th Edition.

Relevance of Learning the Course/ Employability of the Course
Understanding of macroeconomy is necessary to know one's own economy. This is an important course for competitive examinations like civil services, RBI, NABARD, Banking services etc. The impact of economic policies on common man can be understood only through a basic training in macroeconomics. It is also significant in understanding the relative position of the one's own economy in the context of global economy.

	MAHATMA GANDHI UNIVERSITY **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics		
Programme			
Course Title	An Introduction to the Indian economy		
Course Type	MDC		
Course Level	100-199		
Course Code	MG1MDCUEC101		
Course Overview	The course in 'Introduction to Indian Economy' is a basic treatment of the economy meant for learners of different disciplines. It has three modules where a travel is arranged from pre-colonial period to the present in the first module. Development experience of India with a few burning issues are presented in the second module. The content of the last module touches the recent issues in Indian Economy. Each module has topics for understanding the local economy in the light of the content of this course.		
Semester	1	**Credit**	3
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	

	38	7
Pre-requisite	Pass in plus two-level Programme	

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome *Upon completion of this course, students will be able to;*	Learning Domains	PSO No.
1	Understand the evolution of the Indian economy from the medieval period to the present.	U	
2	Try to translate national level ideas to apply to a local context.	A	
3	Analyse the modernisation of the economy and its advantages to the people.	An	
4	Analyse the various economic issues of the Indian economy.	E	
5	Create interest in critically assessing the policy implications in addressing the issues of the economy.	C	
6	Develop ability to understand a local or regional economy	S	

*(Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S))

COURSE CONTENT

Module 1 Indian Economy from Pre-colonial Period to the Present	**HRs. 15**	**CO. No.**
India from 'Fabulous riches of the East' to 'Asiatic Mode of Production' and Colonial Indian Economy.	2	**1**
Drain theory, Swadeshi movement, Economy during world wars and the population divide	2	**1**

India as a Mixed economy- Nehru-Mahalanobis model and an overview of economic planning in India	2	1
Plan holidays, Structural retrogression and turnaround of the Economy in the 1980s	3	2
New Economic Policy and Globalizing India.	3	1
Practicum: A debate on the economic history of India since the pre-colonial period	2	2
Prepare a document on the Planning experience in India	2	2
Collect information from at least ten respondents' perception about the economic reforms in India.	2	3

Module 2 Major Aspects in Indian Economy	**Hours** **15**	**CO No**
Development experience of India, Kerala, Gujarat and UP: A comparison	2	1
Poverty and Inequality-economic, social, gender and spatial dimensions	2	2
Farmer's Distress and Protests	2	2
Energy insecurity and vulnerable climatic conditions	2	3
India's instability in Foreign Trade and Balance of Payments	2	3
The termination of Five-Year Plans and the installation of NITI Ayog	2	4
Practicum: Document the extent of poverty and inequality in your locality.	2	2
Try to comprehend the condition of farmers in a village and report it	2	1
What are the impacts of climate variability in one's locality?	2	4

Module 3 Recent Trends in Indian Economy	Hrs. 15	Co. No.
Demonetization and its impact on various sectors	2	5
Introduction of GST and its outcome.	2	5
Insolvency and Bankruptcy Code (IBC) and its implications	2	5
Import Substitution and Atma Nirbhar Bharat	2	5
Digitalisation of Indian economy	2	3
India as the Chairing Country of G-20 and global economy	2	1
Unemployment among Youths in India	1	3
Practicum: Enquire the impact of demonetisation among small traders and households in your locality.	2	6
Study the fact relating to unemployment among youth, the impact of digitalisation and demand for domestic goods in your village or town.	2	5

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, Numerical Analysis, Self-Assessment by students,** **Field activities: Visits to villages and towns to assess the condition of local economy.** **Lab based activities:** Graphing of Indian Economic Data
Mode of Assessment	Continuous Internal Assessment (CIA) • Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar • Assignments • Numerical applications • Policy discussion . Reports based on field visits • Semester End examination

Learning Resources

1.Kurien, C. T. (1992): The Economy: An Interpretative introduction, New Delhi: Sage.

2. Sen, A.K. (2005): The Argumentative Indian, London: Penguin.

3. Dreze, Jean and Amartya Sen (2013): An Uncertain Glory-India and its Contradictions, London: Penguin

4. Economic Survey, Govt. of India, Various issues.

Relevance of Learning the Course/ Employability of the Course
As a multidisciplinary course, this is useful learners from any discipline. A learner's understanding of economic environment enables them to compete in various careers from civil service, managerial posts to clerical posts. This is also relevant in developing appropriate technology by scientists and technocrats. Further, a basic knowledge in Indian economy makes a person to judge economic policies before casting her vote.

	MAHATMA GANDHI UNIVERSITY **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics		
Programme			
Course Title	**Basics of Data Analysis for Basic Sciences and Social Sciences.**		
Course Type	MDC		
Course Level	100-199		
Course Code	MG2MDCUEC101		
Course Overview	This course is designed to impart training in statistical methods required for research in Social Science/ Humanities. Topics are so designed in such a way that even students who have no primary knowledge of Statistics can understand the basic theory and procedures involved. The course starts with the basic ideas relating to social science research (Module 1) and research design. Different methods of sampling and presentation of data are provided in module 2. Study about various descriptive measures is included in module 3. Use of relevant soft- wares is also the concern of that module.		
Semester	1	**Credit**	3
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	
	35	10	

Pre-requisite	Pass in plus two-level Programme

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome *Upon completion of this course, students will be able to;*	Learning Domains	PSO No.
1	Familiarise with the basic and advanced concepts in social science research.	U	
2	Prepare questionnaires, collect data and present it scientifically	A	
3	Analyse both secondary and primary data	An	
4	Design research and assess data to prepare a brief report.	E	
5	Conduct a sample survey independently	C	
6	Explore new ways of presenting and analysing data with help of software.	S	

*Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S)

COURSE CONTENT

Module 1 BASIC CONCEPTS OF SOCIAL SCIENCE RESEARCH	**HRs. 16**	**CO. No.**
Features of research in social sciences and humanities – Meaning, objectives, and significance of research - tools and methods of research – Different research designs .	4	1
Types of data - Quantitative and qualitative data—Sources of data—Distinction between primary data and secondary data	3	2
Various methods of collecting primary and secondary data – Observation method, interview method, Questionnaire method, schedule method	3	2

Guidelines for preparing a questionnaire – Difference between questionnaire method and schedule method – merits and demerits - difference between survey and experiment	3	2
Practicum: Collect a few examples from secondary data and give a few observations from them	2	4
Prepare a questionnaire assuming a set of objectives	2	2
Document a few facts based on observation of a field/ lab situation and an interview method.	2	2

Module 2 Sample Design and Presentation of Data	**Hours 14**	**CO No**
Sampling Design -Census or Sample Survey - – Different steps in sampling design	2	4
Different types of sample design - Probability and non-probability sampling.	2	4
Different methods to obtain a random and non-random sample from a population	3	4
Processing and presentation of collected data	2	3
Presentation of data using diagrams and graphs	2	3
Practicum: Conduct a census method (very small population) and sample survey.	2	5
Have a debate on the advantages and disadvantages of random and non-random sampling	2	1
Present the collected data based on census and sample methods	2	3

Module 3 Descriptive Statistics and Software Training	Hrs. 15	Co. No.
Descriptive measures – its properties - Measures of central tendency	3	3
Measures of dispersion – relative and absolute measures – coefficient of variation - Merits and demerits of each.	3	4
Moments – raw and central - Measures of skewness and kurtosis.	2	4
Bivariate distribution - Correlation analysis	2	4

Introduction of Software packages: Excel, SPSS	3	3
Practicum: Presentation of Data based on Excel	2	3
Presentation of Data and computation of Descriptive Statistics based on SPSS	2	6

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, Data Analysis, Self-Assessment by students,** **Field activities: Visits to villages and towns to collect data** **Lab based activities:** Presentation and analysis of data
Mode of Assessment	Continuous Internal Assessment (CIA) • Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar • Assignments • Numerical applications and data analysis • Reports based on field visits • Semester End examination

Learning Resources

1. Johne Freund (1981): *Modern Elementary Statistics*, (new Delhi: Prentice-Hall of India).
2. A.L. Nagar & R.K. Das (1977): *Basic Statistics*, (Delhi: Oxford Univ. Press).
3. A.L. Nagar, V.N. Pandit & Balvir Singh (1979): *Elementary Statistics*, (Delhi: Oxford Univ. Press).

Relevance of Learning the Course/ Employability of the Course
This is a course fit to learners of all disciplines. Data analysis has become a base for scientific approach in almost all sciences. This is a powerful capacity building course for getting employment in the fields like capital market, market research, research institutions, policy analyst etc. Moreover, skill in data analysis is a must for understanding most of the disciplines.

	**MAHATMA GANDHI UNIVERSITY** **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics		
Programme			
Course Title	**Quantitative Techniques for Economics**		
Course Type	Minor		
Course Level	200-299		
Course Code	**G3DSCUEC221**		
Course Overview	This course focuses on probability & sampling distributions, estimation theory, and testing of hypothesis. The first module deals with random variable, mathematical expectations, discrete and continuous distributions. The next module touches on population and sample, chi-distribution, t & F distribution along with central limit theorem. Different methods of estimation are incorporated in the third module and both parametric and non-parametric testing of hypothesis are contained in the last module.		
Semester	3	**Credit**	4
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	

	48	12
Pre-requisite	Pass in plus two-level Programme	

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome *Upon completion of this course, students will be able to:*	Learning Domains	PSO No.
1	Comprehend basic concepts in inference Statistics	U	
2	Compare population and sample, point and interval estimation, parametric and non-parametric estimation, discrete and continuous distributions.	An	
3	Develop evaluation capability with respect to risk, uncertainty, oligopoly market, asymmetric information etc.	E	
4	Create interest in analysing information to become a good researcher.	A, C	
5	Able to critically check the validity of economic theory.	A	

*(Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S))

COURSE CONTENT

Module 1 RANDOM VARIABLES AND PROBABILITY DISTRIBUTIONS	**Hours 14**	**CO No**
1.1 An overview of probability Theory	2	1
1.2 Random variable – Discrete and Continuous type - probability distributions – Its properties.	2	2
Mathematical Expectation– Theorems on Mathematical Expectation and its properties	1	2

1.3 Moments – Raw and Central moments and its role for describing the characteristics of a probability distribution.	2	2
1.4 Standard Distributions – Discrete Distributions – Binomial distribution and Its properties.	2	1
Continuous Distributions – Normal Distribution – its importance – properties	2	1
Applications of Normal and Binomial Distributions.	1	5
Practicum: Utility and Uncertainty	2	4
Consider a large sample and see whether the properties of normal distributions are present in it,	2	5

Module 2 SAMPLING DISTRIBUTIONS	**Hours 12**	**CO No**
Sampling Distribution - Population and Sample, Parameter and Statistic.	1	1
Sampling from Normal Population - Sampling Distribution and Standard Error.	2	1
Chi-square Distribution – properties	1	3
Applications – Chi-Square tables – Practice problems.	2	5
Student's t- Distribution – Properties	2	3
Snedecor's F Distribution – Properties – Applications – F-tables – Relation connecting various sampling distributions – Numerical problems.	2	3
Central limit theorem - Statement and application – Its importance in statistics.	2	4
Practicum: Check the sampling procedure by NSSO in India relating to consumption survey,	2	5
Computation the relationship between income and preferences of consumers.	2	4

Module 3 ESTIMATION THEORY	Hrs.	Co.

	13	No.
Statistical inference - Theory of estimation: Point estimation	2	2
Basic concepts--Unbiasedness, consistency, efficiency and sufficiency – Examples.	2	1
Methods of Estimation – Maximum Likelihood Method	1	3
Method of Moments – Properties – Examples	2	4
Interval estimation -Basic concepts -Confidence interval for mean, difference of means,	2	4
population proportion, difference of proportions, population variance based on large and small samples.	2	4
Practicum: Testing a demand function	2	5
MLE and spatial economic models population proportion, difference of proportions, population variance based on large and small samples.	2	4

Module 4 Hypothesis Testing	**Hours 21**	**CO No**
Tests of hypothesis: Basic concepts - Null and alternative hypothesis -Simple and Composite hypothesis - Two types of errors – Significance level, Critical region etc.	2	1
Large sample tests - Tests concerning means, difference of the means, proportion, difference of proportions using large samples.	1	4
Chi-square test of goodness of fit, test of independence and test of association between qualitative characteristics (Non- Parametric tests)	1	3
Small sample tests – Tests concerning means and difference of the means using small samples – its conditions	2	3
Paired sample t-test – Test about variance and equality of variances of two populations.	2	2
Practicum: Test the hypothesis that MPC is less than one	2	4
Take two samples from university students and test their differences in means	2	5

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, Numerical Analysis, Self-Assessment by students,** **Field activities: Interactions with consumers, Service providers, Consumers' Associations** **Lab based activities:** Computer Lab
Mode of Assessment	Continuous Internal Assessment (CIA) • Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar • Assignments • Numerical applications. Discussion on different tools of analysis • Semester End examination

Learning Resources

Speigal. M.R.(1992), Theory and Problems of Statistics, McGraw Hill, London.

Suggested Reading

Alexander M. Mood, Franklin A. Graybill & Daune C. Boes (1974): *Introduction to Theory of Statistics*.

Relevance of Learning the Course/ Employability of the Course
This is a course fit to learners of all disciplines. Inference statistics has become a base for scientific approach in almost all sciences. This is a powerful capacity building course for getting employment in the fields like capital market, market research, research institutions, policy analyst, basic sciences etc. Moreover, skill in data analysis and testing of hypothesis are must for understanding most of the disciplines.

	**MAHATMA GANDHI UNIVERSITY** **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics
Programme	
Course Title	Fundamentals of Optimisation Techniques in Operation Research
Course Type	MDC
Course Level	200-299
Course Code	MG3MDCUEC201
Course Overview	Operations Research (OR) is a field dedicated to enhancing decision-making and system efficiency through the use of advanced analytical techniques. This discipline emerged from military planning efforts during World War II. OR integrates tools from various fields, including Mathematics, Statistics, Information Technology, Economics, and Engineering, making it a multidisciplinary area of study. Today, it stands as a professional discipline focused on applying scientific methods for informed decision-making, particularly in the context of resource allocation. This course starts with the basic ideas relating to Matrices and Determinants (Module 1). Linear Programming (graphical and simplex methods) is also included in module 1. Transportation and Assignment Problems forms the content of Module 2. Network Analysis, Sequencing and Queueing Theory is included in Module 3.

Semester	3	**Credit**	3
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	
	35	10	
Pre-requisite	Pass in plus two-level Programme		

COURSE OUTCOMES (CO)

CO No.	**Expected Course Outcome**	**Learning Domains**	**PSO No.**
	*Upon completion of this course, students will be able to**;***		
1	Identify and develop Operations Research models from the written description of the real system/situation**.**	U, A	
2	Formulate a given simplified description of a real-world problem as a linear programming model. Solve a 2-dimentional linear programming problem graphically and by Simplex method.	C	
3	Apply linear programming in the area of physical distribution of goods/services from several origins to several destinations in a way to minimize the total cost of transportation.	A	
4	Apply Hungarian method to assign a number of resources to an equal number of activities so as to minimize total cost of maximize total profit of allocation.	A	

5	Use CPM and PERT techniques, to plan, schedule and control project activities.	U, An, A	

*Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S)

COURSE CONTENT

Module 1 : FUNDAMENTALS OF MATRICES AND DETERMINANTS and LINEAR PROGRAMMING	**HOURS 14**	**CO. No.**
Concept, types of matrices, zero and identity matrix, transpose of a matrix, Operations on matrices: Addition and multiplication and multiplication with a scalar. Adjoint and inverse of a square matrix.	2	1
Inverse of a matrix. Cramer's rule in matrix.	1	2
Determinant of a square matrix (up to 3 x 3 matrices), minors, co-factors and applications of determinants in finding the area of a triangle.	2	2
Introduction to LP and formulation of Linear Programming Problems.	1	2
Graphical solution method, alternative or multiple optimal solutions, Unbounded solutions, Infeasible solutions	2	4
Simplex method, Canonical and Standard form of LP problem, slack, surplus and artificial variables, Solutions to LPP by Simplex method,	3	2
Big-M Method and Two Phase Simplex Method, Degeneracy in LPP. Concept of Duality, writing Dual of given LPP	2	2
Practice: 1) Formulation of an LP problem based on raw data and practice graphical solution 2) The estimation of shadow price based on duality	1 1	2 4

Module 2 : TRANSPORTATION PROBLEM AND ASSIGNMENT PROBLEM	**Hours 8**	**CO No**

Various methods of Transportation problem —North west corner rule, Least cost method, Vogel's Approximation method	2	4
Variations in Transportation problem—Unbalanced supply and demand.	1	4
Introduction to Assignment problems—Hungarian Method	2	4
Variations in Assignment problems –unbalanced assignment problem, Travelling salesman problem.	2	3
Practice: Two case studies based on transport and assignment problems	2	3

Module 3 : NETWORK ANALYSIS, SEQUENCING AND QUEUEING THEORY	Hrs. 13	Co. No.
Network definition and Network diagram	1	3
Probability in PERT analysis	2	4
Basic concept of Floats, Critical path method(CPM)	2	4
Basic assumptions, Johnson's algorithm, sequencing 'n' jobs on single machine using priority rules.	2	4
Sequencing using Johnson's rule-'n' jobs on 2 machines, 'n' jobs on 3 machines, 'n' jobs on 'm' machines.	2	3
Concepts relating to queuing systems, basic elements of queuing Model.	1	3
Role of Poisson & exponential distribution.	2	5
Practice: 1) Draw a network diagram based on an enterprise 2) Try to apply queuing theory in admission to an educational institution.	1 1	

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, Self-Assessment by students,** **Lab based activities:** Presentation and analysis of data
Mode of Assessment	Continuous Internal Assessment (CIA) · Seminar Presentation - Any topic which forms theoretical background is identified to prepare a paper and present in the seminar. · Assignments · Semester End examination

Learning Resources

1.Sydsaeter, Knut and Peter Hammond (2002) - Essential Mathematics for Economic

Analysis, Prentice Hall: Harlow, England.

2. Yamane, Taro (1962) - Mathematics for Economists, Prentice Hall,

3. Allen, R.G.D (2008). - Mathematical Analysis for Economists, Macmillan Press, New

Delhi.

4. Chiang, A.C (2005)- Fundamental Methods of Mathematical Economics, McGraw Hill,

New York.

5. Handry, A.T (1995). - Operations Research, PHI, New Delhi.

6. J K Sharma, Operations Research Theory and Applications, MacMillan India Ltd.

7. N D Vohra, Quantitative Techniques in management, Tata McGraw Hill.

Relevance of Learning the Course/ Employability of the Course
Courses in Operation Research provide a distinctive combination of traditional academic knowledge, practical skills, and hands-on problem-solving experiences, all aimed at preparing students for success in today's competitive environment.

	**MAHATMA GANDHI UNIVERSITY** **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics		
Programme			
Course Title	Training in Fundamentals of EViews and Python		
Course Type	VAC		
Course Level	200-299		
Course Code	MG3VACUEC201		
Course Overview	Introducing basics of Python and EViews to students are the objective of this course. This is a job-oriented course and the basics of python are provided in the first module. The next module deals with certain advanced version of Python along with the introduction to EViews. Descriptive and inference statistics relating to data analysis tools of EViews are offered in the last module.		
Semester	2	**Credit**	3

Total Student Learning Time	Instructional hours for theory	Instructional hours for practical/lab work/field work
	30	15
Pre-requisite	Pass in plus two-level Programme	

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome *Upon completion of this course, students will be able to;*	Learning Domains	PSO No.
1	Comprehend the basic concepts in Python and EViews	U	
2	Assess the practice of data manipulation.	An	
3	Analyse the data to obtain descriptive statistics.	A	
4	Compare different scenarios through graphs based on programmes and software.	E	
5	Create interest in critically assessing the forecasting techniques.	A, C	

*(Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S))

COURSE CONTENT

Module 1: Introduction to Python	Hours 16	CO No
Setting Up the Python-installing Python- Uses of Integrated Development Environments.	2	1
IDLE, Jupyter, PyCharm, Spyder and Visual Studio Code	2	1
Data types in Python Syntax	1	2
Conditional Statements-If , Elif and Else, Iteration statements-for and while	2	2
OOP in Python: Creating python objects-methods-building classes	2	3
Introduction to Libraries:	2	1

Basic calculations	2	2
Practicum: 1) Provide an introduction to Python based on data types	3	2
2) Conduct basic calculations based on a set of data in Python	3	3

Module 2 Data Visualisation & Modelling in Python, and Introduction to EViews	**Hours 15**	**CO No**
Introduction to visualisation libraries	1	1
Introduction to Database management systems	2	1
Inclusion and Exclusion of Columns	1	2
Descriptive statistics and Libraries for Regression	3	3
Work File & Object Basics	2	3
Data Analysis	2	3
Series Links	2	3
Practicum: Visualisation based on Python	2	2
Use data from Economic Survey to compute descriptive statistics and regresiion coefficients based on Python	2	4

Module 3 Data Analysis and Interpretation	Hrs. 14	Co. No.
Advanced Work Files	2	4
EViews Data Basics	2	1
Series	2	2
Regression Analysis	2	3
Groups	2	3
Graphs	2	4
Practicum: Interpret Regression analysis	2	5
Graphs based on categorical variables	2	5

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, dya Analysis, GraphingSelf-Assessment by students,**

	Field activities: Interactions with field experts **Lab based activities:** Computer Lab
Mode of Assessment	Continuous Internal Assessment (CIA) • Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar • Assignments • Numerical applications • Writing programmes • Semester End examination

Learning Resources

Matthes, E. (2019). Python crash course: A hands-on, project-based introduction to programming (2nd ed.). No Starch Press.

Sweigart, A. (2020). Automate the boring stuff with Python: Practical programming for total beginners (2nd ed.). No Starch Press.

Relevance of Learning the Course/ Employability of the Course
Data analysis can be done on the basis of programme and software, This course is a blend these two dimensions which are very important for getting employment as a business analyst and researcher.

	MAHATMA GANDHI UNIVERSITY **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics		
Programme			
Course Title	Economic Forecasting		
Course Type	VAC		
Course Level	200-299		
Course Code	MG3VACUEC202		
Course Overview	This is a job-oriented course with advanced topics in econometrics. Of the three modules, the basics of Time series econometrics are incorporated in the first module. The next one contains cointegration regression and basics of economic forecasting. The estimation procedures related to forecasting is present in the last module. Practical analysis is a core part of this course.		
Semester	2	**Credit**	3
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	
	30	15	

Pre-requisite	Pass in plus two-level Programme

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome *Upon completion of this course, students will be able to;*	Learning Domains	PSO No.
1	Comprehend the basic concepts in time series and economic forecasting	U	
2	Assess the cointegration phenomenon and approach to economic forecasting.	An	
3	Analyse the data to check endogeneity and Volatility clustering.	A	
4	Compare different scenarios through graphs based on programmes and software.	E	
5	Create interest in critically assessing the forecasting techniques.	A, C	

*(Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S))

COURSE CONTENT

Module 1: Introduction to Time Series Analysis	Hours 16	CO No
Introduction to types of data and unit of scale.	2	1
Introduction to EViews and R	2	2
Components of Time series	2	1
Graphical representation of economic time series data of India	1	4
Key Components of time series	2	1
Stochastic Process	2	1
Unit root stochastic process	1	1
Tests of Stationarity	2	2

Practicum: 1) Provide an introduction to data types based Economic Survey	2	1
2) Test of stationarity based on stock exchange data	2	3

Module 2 Cointegration Analysis and Introduction to Economic Forecasting	**Hours 14**	**CO No**
Transforming of Nonstationary Time Series	1	4
Cointegration Regression	2	2
Tests of Cointegration	1	2
Approaches to Economic Forecasting	1	2
AR MA and ARIMA Modelling	2	2
B-J Methodology	2	2
ARIMA Modelling	2	2
Practicum: 1) Dissection of the components of time series data	2	4
2)Economic Applications of cointegration	2	2
3) Write the steps BJ methodology based on time series data from Economic Survey or RBI data base.	2	2

Module 3 Economic Forecasting	Hrs. 14	Co. No.
VAR Model	2	4
ARCH Model	2	3
GARCH Model	2	2
Panel Data Analysis I	2	3
Panel Data Analysis II	2	3
Practicum: 1) Estimation of VAR model	2	3
Estimation of ARCH model	2	5
Estimation of GARCH model	2	5

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, Data Analysis, Graphing, Self-Assessment by students,**

	Field activities: Interactions with field experts **Lab based activities:** Computer Lab
Mode of Assessment	Continuous Internal Assessment (CIA) • Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar • Assignments • Numerical applications • Data Forecasting • Semester End examination

Learning Resources

Lutkepohl, Helmut and Markus Kratzig (2004): Applied Time Series Econometrics, Cambridge University Press.

Gujarati, Damodar N, Dawn C Porter, and Sangeetha Gunasekhar (2012) Basic Econometrics, McGraw-Hill, Fifth Edition.

Relevance of Learning the Course/ Employability of the Course
Economic forecasting is important for professionals in the areas of financial market, policy making, banking etc. This is an advanced area of data analysis and forecasting.

	**MAHATMA GANDHI UNIVERSITY** **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics
Programme	
Course Title	Intermediate Macroeconomics
Course Type	Minor
Course Level	200-299
Course Code	MG4DSCUEC241
Course Overview	The core theme of this course is the dynamic aspect of Macroeconomics. This has a balanced blend of theory and policy dimensions. Macroeconomy in the long run is the content in the first module while the very long run dimensions are handled in the next module. Aggregate demand and aggregate supply are incorporated in the third and fourth modules respectively.

Semester	2	**Credit**	4
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	
	50	10	
Pre-requisite	Pass in plus two-level Programme		

COURSE OUTCOMES (CO)

CO No.	**Expected Course Outcome** *Upon completion of this course, students will be able to**;***	**Learning Domains**	**PSO No.**
1	Comprehend the intermediate level of concepts of the theory Macroeconomy.	U	
2	Assess the influence of real and money markets in the long run.	A	
3	Analyse the impact of changes in economic growth and technology.	An	
4	Compare real market, money market, domestic economy and open economy in the long run.	E	

5	Create interest in critically assessing the policy implications in the fluctuations of the economy in the long run.	A	
6	Create interest in analysing policy impacts like monetary, fiscal and trade.	C	

*(Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S))

COURSE CONTENT

Module 1 Classical Theory: Long Run	**Hours 16**	**CO No**
National Income in a Macro Economy	1	1
National Income in the Long Run	2	2
Monetary System	2	1
Inflation	2	2
Inflation and Unemployment	2	1
Unemployment and Labour Market	2	3
Practicum: Assess Fluctuations in national income in India since 1950	3	5
Prepare a brief write up on the nature of inflation and labour market in India	3	3

Module 2 Growth Theory: The Very Long Run	**Hours 15**	**CO No**
Growth Theory: Solow	2	3
Economic Growth : Technology I	2	3
Economic Growth: technology II	2	3
Economic Fluctuations I	2	5
Economic Fluctuations II	2	5
Practicum: Growth in India in the context of technology	2	3
Fluctuations in India since 1950 in the light of Solow Model	2	5

Module 3 Aggregate Demand	Hrs. 14	Co. No.
Derivation of IS Curve: Graphical and Algebraic Methods	2	2
Derivation of LM Curve: Graphical and Algebraic Methods	2	2
Aggregate Demand: IS-LM	2	4
Aggregate Demand: Application of IS-LM	2	4
IS-LM and Open Economy	3	2
Practicum: 1) Demonetisation and monetary system in India	2	2
2) Construct full multiplier based on Indian Macroeconomy	2	5
3) Personal Income Tax cut and Its Impact on Consumption India in 2025-26	2	6

Module 4 Aggregate Supply (AS)	**Hours** **15**	**CO No**
AS and Labour Productivity	2	1
Inflation and Unemployment I	1	4
Inflation and Unemployment II	1	4
Monetary Policy and Macro Economy of India	2	6
Fiscal Policy and Macro Economy of India	2	6
Trade Policy and Macro Economy of India	2	6
Capital Mobility and Foreign Exchange Market in India	1	5
Practicum: 1) History Inflation in India	2	1
History of Unemployment in India	2	1
The Impact of 1991 BOP crisis, financial meltdown in 2007-08 and COVID – 19 and twin Deficits in India	2	6

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, Numerical Analysis, Self-Assessment by students,** **Field activities: Interactions with Chamber of Commerce, Industrialists, Service providers, Consumers' Associations** **Lab based activities:** Computer Lab
Mode of Assessment	Continuous Internal Assessment (CIA) • Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar • Assignments • Numerical applications • Policy discussion • Semester End examination

Learning Resources

1. Robert J Gordon: Macroeconomics, Harper Collins.
2. N George N Mankiw: Intermediate Macroeconomics, Cengage, 9th Edition.
3. Economic Survey (Various issues), Govt. of India.
4. State of Indian Economy (Various issues), RBI.

Relevance of Learning the Course/ Employability of the Course
The purpose of this course is to have a comprehensive understanding about a macroeconomy. This is required to develop capability in policy analysis. Such a capability is essential in getting employment in financial institutions and the related regulated bodies.

	MAHATMA GANDHI UNIVERSITY **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics		
Programme			
Course Title	Data Analysis and Visualisation		
Course Type	SEC		
Course Level	200-299		
Course Code	MG4SECUEC201		
Course Overview	This course is designed to develop skills in data analysis. There are three modules in this course whereas the first modules supply information on the basics of statistics. Testing of hypotheses and basics of algorithms are the focus of the second module while data visualisation is contained in the last module. This course is intended to enhance the employability of the learners.		
Semester	2	**Credit**	3
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	

	28	17
Pre-requisite	Pass in plus two-level Programme	

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome *Upon completion of this course, students will be able to;*	Learning Domains	PSO No.
1	Comprehend the basics Data Analysis and Visualisation	U	
2	Assess the data structure, nature of basic algorithms, and types of charts& graphs.	An	
3	Analyse the data to interpret outcome based on inference statistics.	E	
4	Critically examine the data system, the relevance of algorithm, and the use of visual aids in data analysis.	An	
5	Create interest in using visual aids to digestive to common man	A, C	

*(Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S))

COURSE CONTENT

Module 1: Introduction to Data Analysis	Hours 16	CO No
An Over View of data Analysis and Visualisation	2	1
Need for data analysis- Types of Data	2	2
Information of Visualisation	2	1
Data Cleaning and Transformation	1	2
Basics of Statistics	2	1
Qualitative and Quantitative Data Summaries	2	1
Statistical Attributes	1	1
Normal Distribution and Sampling	2	3

Practicum: 1) Provide an introduction to data types based Economic Survey	1	1
2) Take a sample data from Economic Review and compute descriptive statistics to familiarise basics of normal distribution	2	3

Module 2 Testing of Hypothesis and Basics of Algorithms	**Hours 14**	**CO No**
Testing of Hypothesis I	1	3
Testing of Hypothesis II – t and F tests	2	3
Tests of ANOVA and Chisquare	1	3
Over View of Machine Learning Algorithms	1	2
Three Basic Algorithms	2	2
Execution of Algorithms on Sample Data Sets	2	3
Cross Validation	2	3
Practicum: 1) Prepare a note on testing of hypothesis	1	1
2) Use of a sample data to conduct, t, F, ANOVA and Chisquare tests 3) Perform an application study based on algorithms on sample data sets.	3 2	3 3

Module 3 Data Visualisation	Hrs. 14	Co. No.
Exploratory data analysis	1	2
Types of Charts/ plots- Handling Outliers- Correlation	2	2
Linear regression- Scatter Plots	2	3
Spatial Data- Geospatial Data- Multivariate data Visualisation	1	4
Trees- Graphs- Cluster and Visualisation	2	4
Practicum: 1) Prepare a brief note on exploratory data analysis	1	2
2)Draw a scatter plot based on a regression estimation.	2	3
3) Practice different visualisation in the lab based on sample data set.	3	5

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, Data Analysis, Graphing, Self-Assessment by students,** **Field activities: Interactions with field experts** **Lab based activities:** Computer Lab
Mode of Assessment	Continuous Internal Assessment (CIA) • Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar • Assignments • Numerical applications • Data Visualisation • Semester End examination

Learning Resources

A.L. Nagar, V.N. Pandit & Balvir Singh (1979): *Elementary Statistics*, (Delhi: Oxford Univ. Press).

Vijayakumar, A, R Durga Meena, Supriya M and Chintala Shirisha (2024): Data Analytics and Data Visualisation

Relevance of Learning the Course/ Employability of the Course
This is a job-oriented course that offers opportunities to learners in areas of capital market, research, policy analysis etc.

	**MAHATMA GANDHI UNIVERSITY** **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics		
Programme			
Course Title	Academic Writing in Economics		
Course Type	SEC		
Course Level	200-299		
Course Code	MG4SEC UEC202		
Course Overview	Academic and research report writing is an essential activity for a researcher. Publication of research findings is an integral part of research. Therefore, it is necessary for a researcher to learn and apply principles and techniques of report writing for effective dissemination of the academic and research findings. This course intends to introduce the learner to the principles, techniques and tools of academic and research report writing and presentation. This course starts with the basics of writing process and introduces the learner to different types of letters to be written in a business environment (Module 1). Module 2 deals with writing research papers and proposals. Module 3 deals with writing short messages.		
Semester	4	**Credit**	3
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	
	35	10	

Pre-requisite	Pass in plus two-level Programme

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome	Learning Domains	PSO No.
	Upon completion of this course, students will be able to;		
1	Understand and apply different methods of writing appropriately in different personal as well as business situations with brevity and clarity.	U, A	
2	Analyse and demonstrate a good understanding of research approaches and information collection, developing and delivering effective presentations and reports while making optimum use of correct vocabulary and grammar.	An	
3	Apply critical thinking skills, demonstrate practical reasoning and clarity in all written work to produce letters, memos, notices etc and prepare reports as per requirement.	A	
4	To participate effectively in groups with emphasis on listening, critical and reflective thinking and responding.	U, A	

*Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S)

COURSE CONTENT

Module 1 : FUNDAMENTALS OF WRITING	**HOURS** **13**	**CO. No.**
Written communication- Writing Process, Formats and Styles of business letters	2	1
Types of business letters -Request, Enquiry, Placing Order, Instruction, Action, Complaint, Adjustment and Sales letter	4	1
Group discussion, how to prepare for an interview	4	4
Body Language, postures and gestures, handshakes, hand movements, voice modulation, Eye contact.	2	2
Practice: Preparation of resumes	2	4

Module 2 : ACADEMIC REPORT WRITING	**Hours** **13**	**CO No**
Importance of report writing in academics and research, Characteristics of academic and research reports / presentations.	2	1
Types of research papers, Structure of research papers, Research paper formats , Preliminary studies	2	2
Abstract writing, Literature review, Results and Discussions, Figures and Tables preparation, Conclusions and future works, Writing research proposals.	3	3
Methodology, Results and discussions, Different formats for referencing, Bibliography, Appendices	3	2
Making effective presentations using Power Point , Uses of plagiarism detection tools	2	3
Practice: 1) Abstract writing on a given article 2) Review of a given article	2	4

Module 3 : Writing Short messages/Paragraphs	**Hrs.** **9**	**Co.** **No.**
Different kinds of writing—writing paragraph, essays	2	2
Goodwill messages, Writing Negative messages	2	2
Writing Notices, Memos, Agenda and Minutes of a meeting	2	3

Summary and précis writing	2	4
Practice: 1) Comprehension based on selected paragraphs 2) Precis writing practice based on a selected article	2	4

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, Self-Assessment by students,** **Lab based activities:** Presentation and analysis of data
Mode of Assessment	Continuous Internal Assessment (CIA) · Seminar Presentation - Any topic which forms theoretical background is identified to prepare a paper and present in the seminar. · Assignments · Semester End examination

Learning Resources

1. A Step-by-Step Guide to Writing Academic Papers, by Anne Whitaker September 2009
2. On Writing a Thesis by C P Ravikumar, IETE Journal of Education, 2000
3. Boyee Courtland L and Thrill John V. Business Communication Today, Prentice Hall International.

4. Atkinson, Business Writing & Procedures, Reynolds American Book C
5. Mary Ellen Guffey, Business Communication: Process and Product, 5e, South-Western Thomson Publishing, Mason, OH, 2005
6. Namita Gopal, Business Communication, New Age International Publishers, New Delhi, 2009
7. Penrose and Rasberry, Business Communication for Managers: An advanced approach, 5e, South-Western College Pub, 2007
8. Asha Kaul, Business Communication, Prentice Hall of India, New Delhi, 2007
9. Harvard Business Essentials: Business Communication, Harvard Business School Publishing 2003

Relevance of Learning the Course/ Employability of the Course

After successful completion of this course the learner will be able to write reports on various academic activities including research effectively and efficiently.

	MAHATMA GANDHI UNIVERSITY **Graduate School**
	4 + 1 Integrated UG and PG Programme

School	KN Raj School of Economics		
Programme			
Course Title	Foreign Exchange Market and Procedure in Foreign Trade		
Course Type	VAC		
Course Level	200-299		
Course Code	MG4VACUEC201		
Course Objective	Less theory and more practice are the main motto of this course. The first module contains fundamentals of trade theories and foreign exchange market. The basics of management, export procedure and execution are the concern of the second chapter, The last chapter focuses on import procedure, customs clearance and logistics are considered,		
Semester	2	**Credit**	3
Total Student Learning Time	**Instructional hours for theory**	**Instructional hours for practical/lab work/field work**	
	28	17	
Pre-requisite	Pass in plus two-level Programme		

COURSE OUTCOMES (CO)

CO No.	Expected Course Outcome *Upon completion of this course, students will be able to;*	Learning Domains	PSO No.
1	Comprehend the basics concepts of trade theory, management principle, foreign trade procedure, logistics, and GST.	U	
2	Assess the characteristics of trade, practical aspects foreign trade, and barriers to trade in India.	A	
3	Analyse the data relating to foreign trade in the light of trade theories.	E	
4	Critically examine trade policy and procedures of exports and imports.	An	
5	Create interest in managing a foreign trade business, participating in foreign exchange market, negotiating with a custom s officer etc.	A, C	

*(Learning Domains: Remember (R), Understand (U), Apply (A), Analyse (An), Evaluate (E) , Create (C), Skill (S))

COURSE CONTENT

Module 1: Introduction to Foreign Trade, Policy, and Foreign Exchange Market	Hours 16	CO No
An Over View of Trade Theories	2	1
Types of Tariff and non-Tariff Barriers to Trade	2	2
Functions of International Organisations of Trade and Regional trade Blocks	2	1
Foreign Trade Policy in India since 1990	1	4
Trend in BOP since 1990	2	3
Composition and Direction of Foreign Trade of India since 1990	2	1
FEMA	1	1

Exchange Rate Management	2	3
Practicum: 1) Provide a report to commodity composition and direction of Trade of a few selected countries based on WTO Data.	2	1
2) Critically examine the impact of FEMA. 3) Sketch the nature of exchange rate market in India.	1 1	3 5

Module 2 Fundamentals of Management, Export Procedure, and Execution	**Hours 16**	**CO No**
Fundamentals of Management and Human resource Management	2	1
Fundamentals of International Marketing	2	1
Export Costing- Export Finance	1	3
Export Transaction- Starting a foreign trade business organisation	2	2
Banks as Facilitators of Foreign Trade Transaction- Foreign Exchange Flow and Transactions	2	2
Types of Exports and Procedure for IEC & RCMC.	2	3
Identifying, Sourcing, and Negotiation with Foreign Buyer.	2	3
Practicum: 1) Prepare a brief note on international marketing management	1	1
2) Trace a case study related to export order execution, methods of settlement and customs clearance. 3) Map foreign exchange flow and transactions.	2 2	5 3

Module 3 Foreign Trade Procedure and Logistics	Hrs. 14	Co. No.
Export order Execution, and Methods of Settlement	2	2
Customs Clearence of Cargo for Exports	2	2
Procedures of Imports	2	3
Role of Customs and regulations relating to Imports	2	4
Foreign Trade- GST and Logistics	3	4
Practicum: 1) Prepare a brief note on Export Execution and import procedures in India	2	2
2) Map the customs clearance procedure for exports and Customs Clearence imports.	2	3

3) Discuss on the nature of logistics and foreign trade in India.	2	5

Mode of Transaction	**Classroom activities: Lectures, Assignments, PPT, Data Analysis, Case studies, Graphing, Self-Assessment by students,** **Field activities: Interactions with field experts** **Lab based activities:** Computer Lab
Mode of Assessment	Continuous Internal Assessment (CIA) • Seminar Presentation – a theme is to be discussed and identified to prepare a paper and present in the seminar • Assignments • Risk analysis • Data Visualisation • Semester End examination

Learning Resources

Salvatore, Dominic (2013): Fundamentals of International Economics, Wiley.
Jain S C, Shweta Jain, and Abhishek Jain (2023): Foreign Trade Policy and Handbook with Incentives and Exemptions, Commercial Law House.

Relevance of Learning the Course/ Employability of the Course
This course has only less theoretical content and is dominated by policy and practical oriented contents. The learners of this course can find placement in export-oriented firms, foreign exchange market organisations, logistics field, trade policy analysis etc.