

TEMPLATE FOR COURSE SYLLABUS FOR NEP IMPLEMENTATION

Discipline: Science ☒ Arts, Humanities & Social Science ☒
Commerce ☐ BBA ☐ BCA ☐

Subject Name:

Subject Code: (Will be provided by the University)

Semester: Semester I ☐ Semester II ☐ Semester III ☐ Semester IV ☐
Semester V ☐ Semester VI ☐ Semester VII ☐ Semester VIII ☒

Course Name:

Course Code:

Course Credit: Theoretical Practical/Tutorial

Marks Allotted: Theoretical Practical/Tutorial

Continuing Evaluation Attendance

Course Type (tick the correct alternatives):

Major Core ☐ AEC ☐
Interdisciplinary/ DSE ☐ SEC ☐
Minor/~~DSC~~ ☒ VAC ☐
Research Project/Dissertation ☐ Vocational ☐

Is the course focused on employability/entrepreneurship? YES ☒ NO ☐
Is the course focused on imparting life skills? YES ☒ NO ☐
Is the course based on Activity? YES ☐ NO ☒

Remarks by Chairman, UG BOS, if any

UG BOS Meeting Reference Number: Date:

Course Code: UECOMIN40004

Course Name: Basic Statistics

Brief Course Description:

This paper consists of six modules consisting of topics on Basic Statistics. The paper deals with areas of descriptive statistics, like introduction to data, charts and diagrams, measures of central tendency and dispersion. However, the paper also covers the concepts of basic probability.

Prerequisite(s) and/or Note(s):

Prior knowledge of economics is optional for this course.

Course Objectives:

Knowledge acquired:

Upon completing the course, the students will understand the concepts related to basic statistics. They will learn the practical applications of basic statistics in dealing with economic problems.

Skills gained:

Upon completing the course, the students will be aware of the basic statistical applications and will be able to apply it in addressing economic problems.

Competency Developed:

The students will be able to apply the statistical tools in studying the performance of the manufacturing sector. They can work on generating study reports on Issues of the Indian economy. The course will encourage logical thinking and enhance analytical abilities.

Course Syllabus Overview:

Basic Statistics

Module I- Introduction to data (7.5 hrs)

Concepts of Population and Sample, Variable and Attribute, Primary data and Secondary data, Complete enumeration and Sample survey, Scales of Measurement, Classification of Data and Tabulation

Module II- Charts and Diagrams (7.5 hrs)

Objects of Diagrammatic Representation, Types of charts and diagrams, Line diagram, Bar diagram, Pie diagram, Pictogram

Module III- Frequency Distribution (7.5 hrs)

Concept of Observation and Frequency, Ungrouped Data and Grouped Data, Simple and Grouped Frequency Distribution, Concepts of class: class interval, total frequency, class frequency, class boundary, class mark; frequency density, Construction of Frequency Distribution, Cumulative Frequency Distribution, Diagrammatic Representation of Frequency Distribution, Histogram, Frequency Polygon, Ogive (more than and less than)

Module IV- Measures of Central Tendency (7.5 hrs)

Advantages and Disadvantages of Mean, Median and Mode, Important properties of Arithmetic Mean, Geometric Mean, Harmonic Mean, Calculation of: Simple AM, Weighted AM, GM, HM, Median and Mode

Module V- Measures of Dispersion (7.5 hrs)

Importance of Measures of Dispersion, Concept of Lorenz curve, Concept and Calculation of Absolute Measures of Dispersion- Mean Deviation, Standard Deviation and Quartile Deviation, Properties of Standard Deviation, Advantages and Disadvantages of Measures of Dispersion.

Module VI- Basics of Probability (7.5 hrs)

Introduction to Probability, Random Experiments, Event, Concept of -Mutually Exclusive, Exhaustive, Trial, Equally Likely, Classical Definition of Probability, Axiomatic Definition of Probability, Theorem of Total Probability, Theorem of Compound Probability, Independent Events, Concepts of- Conditional Probability, Bayes' Theorem

Suggested Readings

Das, N. G., Statistical Methods, McGraw-Hill Education, (CTB)

Goon, Gupta and Dasgupta, Fundamentals of Statistics, Vol. I., World Press (CTB)

Jay L. Devore, Probability and Statistics for Engineers, Cengage Learning, 2010.

John E. Freund, Mathematical Statistics, Prentice Hall, 1992.

Mathai & Rathie, Probability and Statistics, Macmillan.

William G. Cochran (2007): Sampling Techniques, John Wiley & Sons.

Tutorial Classes: [15 hrs]

Tutorial classes are meant to clarify the contents of the course. Such classes are meant to promote teacher-student academic interactions and help to build a student's confidence and self-esteem.

Continuing Evaluation:

The course instructor will finalise the modalities of the continuing evaluation. A few suggestions for continuing evaluation are (a) a written examination, (b) a take-home assignment, and (c) a presentation on the topic suggested by the course instructor.

TEMPLATE FOR COURSE SYLLABUS FOR NEP IMPLEMENTATION

Discipline: Science ☒ Arts, Humanities & Social Science ☒
Commerce ☐ BBA ☐ BCA ☐

Subject Name: ECONOMICS

Subject Code: (Will be provided by the University)

Semester: Semester I ☐ Semester II ☐ Semester III ☐ Semester IV ☐
Semester V ☐ Semester VI ☐ Semester VII ☒ Semester VIII ☐

Course Name: ENVIRONMENTAL ECONOMICS

Course Code: UECOMAJ47019

Course Credit: Theoretical 3 Practical/Tutorial 1

Marks Allotted: Theoretical 60 Practical/Tutorial

Continuing Evaluation 10 Attendance 5

Course Type (tick the correct alternatives):

Major Core ☒ AEC ☐
Interdisciplinary/ DSE ☐ SEC ☐
Minor / Generic Elective ☐ VAC ☐
Research Project/Dissertation ☐ Vocational ☐

Is the course focused on employability/entrepreneurship? YES ☒ NO ☐

Is the course focused on imparting life skills? YES ☐ NO ☒

Is the course based on Activity? YES ☐ NO ☒

Remarks by Chairman, UG BOS, if any

UG BOS Meeting Reference Number: 182/UG-26 Date: 15.06.2026

Course Code: UECOMAJ47019

Course Name: Environmental Economics

Brief Course Description:

The course provides an introduction to the fundamentals of environmental economics. It has six modules which include basic concepts related to environmental economics, key environmental problems and policies with special reference to the Indian economy, environmental valuation and green economy and sustainable development.

Prerequisite(s) and/or Note(s):

Prior knowledge of economics at the +2 level will be useful.

Course Objectives:

Knowledge acquired:

- (1) The students will be acquainted with the fundamental concepts of environmental economics and environment-economy linkages.
- (2) The students will gain knowledge regarding the key environmental problems with special reference to the Indian economy.
- (3) The students will be aware of key environmental legislation with special reference to India.
- (4) The students will gain insights into the intricacies of environmental valuation.
- (5) The students will be acquainted with the basic concepts of the green economy.

Skills gained:

- (1) The students will be able to apply economic concepts to understand environmental challenges.
- (2) The students will have the ability to comprehend key environmental regulations and analyse their effectiveness and efficiency.
- (3) The students will learn and be able to use the cost-benefit analysis and environmental valuation techniques.

Competency Developed:

- (1) Students can work on issues and develop study reports on major environmental problems and policies in India.
- (2) Students can develop new ideas and economics-based techniques for designing pollution control and management policies.
- (3) Students will acquire the knowledge required for researching issues related to the environment, green economy and sustainable development.

Course Syllabus Overview:

Environmental Economics

Module I- Introduction to Environmental Economics (7.5 hours)

Meaning and nature of environmental economics; Importance and scope; Economy-environment linkage-Material Balance Model; Resources of the environment-renewable and exhaustible; Environmental goods-main characteristics.

Module II- Externalities and Public Goods (7.5 hours)

Environmental quality as public goods- Externalities-meaning and types; Environmental damages as negative externalities; Allocative inefficiency; Relation between public goods and externalities; Market Failure-Causes of market failure for environmental goods; Environmental pollution as market failure; Property rights, externalities and market failure-Coase Theorem and its limitations, Tragedy of the Commons.

Module III – Environmental Problems (7.5 hours)

Overview of environmental problems in India; Pollution-Types of pollutants and sources of pollution-air pollution, water pollution, noise pollution, solid waste pollution; Climate Change-global warming and greenhouse effect; Deforestation and environmental degradation; land degradation; Functions of Central Pollution Control Board and State Pollution Control Board with reference to West Bengal.

Module IV- Environmental Policies (7.5 hours)

Solution to environmental problem-Market approach; Pigouvian taxes and effluent fees; tradable permits; Pigouvian subsidy; Key environment legislation in India-Environmental Protection Act, 1986; National Environment Policy, 2006; National Action Plan on Climate Change (NAPCC), 2008; Namami Gange Programme; Swachh Bharat Mission.

Module V – Environmental Valuation (7.5 hours)

Environmental valuation-meaning and importance; Use values; option values- existence value and non-use values; Cost-benefit analysis; Valuation methods- Market valuation method, Revealed Preference Approach- Hedonic Pricing method and Travel cost method, Stated Preference method- Contingent valuation methods; Limitations of environmental valuation; Natural resources accounting – concepts, methods and empirical evidence.

Module VI – Green Economy and Sustainable Development (7.5 hours)

Meaning and definition of green economy, evolution of the concept, principles of green economy, Concept of green growth, green jobs, carbon footprint, green technology, green finance, green marketing, circular economy, global and national initiatives for the green economy.

Tutorial Classes: [15 hrs] Tutorial classes are meant to clarify the contents of the course. Such classes are meant to promote teacher-student academic interactions and help to build a student's confidence and self-esteem.

Continuing Evaluation: The course instructor will finalise the modalities of the continuing evaluation. A few suggestions for continuing evaluation are (a) a written examination, (b) a take-home assignment, and (c) a presentation on the topic suggested by the course instructor.

Suggested Readings:

- Kolstad, C.D. (2000): Environmental Economics, Oxford University Press, New York
- Field, Barry C. (1997): Environmental Economics: An Introduction, McGraw-Hill
- Bhattacharya, Rabindra N. (2001): Environmental Economics: An Indian Perspective, OUP
- Tietenberg, Tom (2000): Environmental and Natural Resources, 5th edition, Wesley
- M. Karpagam (1993), Environmental Economics, Sterling Publishers, New Delhi.
- S. Sankaran(1994) Environmental Economics, Margham, Madras
- Singh G.N (Ed.) (1991) Environmental Economics, Mittal Publications, New Delhi.
- Garge, M.R. (Ed.) (1996), Environmental Pollution and Protection, Deep and Deep Publications, New Delhi.
- Lodha, S.L (Ed.) (1991), Economics of Environment, Publishers, New Delhi.
- The Hindu survey of Environment: Annual Reports

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Subject Name: ECONOMICS

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Semester V ☐ Semester VI ☐ Semester VII ☐ Semester VIII ☒

Course Name: DISSERTATION

Course Code: UECORES48001

Course Credit: Theoretical 12 Practical/Tutorial

Marks Allotted: Theoretical Practical/Tutorial

Continuing Evaluation Attendance

Course Type (tick the correct alternatives):

Major Core ☐ AEC ☐
Interdisciplinary/ DSE ☐ SEC ☐
Minor / Generic Elective ☐ VAC ☐
Research Project/Dissertation ☒ Vocational ☐

Is the course focused on employability/entrepreneurship? YES ☒ NO ☐

Is the course focused on imparting life skills? YES ☐ NO ☒

Is the course based on Activity? YES ☐ NO ☒

Remarks by Chairman, UG BOS, if any

UG BOS Meeting Reference Number: 182/UG-26

Date: 15.06.2026

Course Code: UECOMAJ48023

Course Name: Dissertation

Brief Course Description:

The dissertation is independent research on a topic agreed upon by the student and supervisor. It is preferable to select a topic related to the specialisation of the student. It must show evidence of wide reading and understanding. A dissertation must include a thematic literature review and a well-defined analytical framework for the study. Primary and/or secondary data may be analysed by applying an appropriate method of analysis. The final write-up should be a well-structured research output.

Course Objectives:

The objective is to develop the analytical ability of the student and equip them sufficiently so that they are able to independently make an analysis and prepare a well -structured report. The course will also develop a good understanding of the ethical issues in data collection and evaluation.

Course Learning Outcomes:

Upon successful completion of the course, the student will have the knowledge and skill to independently identify a research topic relevant to society. The student will be able to contextualise the research issue with relevant theory and concepts and apply an appropriate method of analysis to conclude.

Course Syllabus:

Structure of the dissertation:

(1) Title Page:

Title of the study, Name of the Student, University Registration Number, Supervisor's Name, the degree for which it is submitted, Department, and Date.

(2) Certificate and Declaration:

Statement of originality and verification of work by the supervisor.

(3) Similarity Report of the Dissertation

(4) A declaration by the student that the write-up has not been submitted elsewhere for any award of degree or diploma.

(5) Acknowledgement:

(6) Table of Contents:

The next page(s) should include a table of contents for each chapter and sections along with their page number. Followed by table of appendices, tables, graphs, and figures with page numbers.

(7) Abstract of the Study:

A summary of the study, not more than 2 pages (within 1000 words), should include the problem, methodology used, key findings and conclusion.

(8) Chapters

(9) References

(10) Appendices

Questionnaires, interview transcripts, or supporting documents (if applicable)

Guideline for submission:

Total length of the dissertation should not exceed 40000 (forty thousand only) words and must be submitted in hard bounded for evaluation.

Size of the paper: A4.

Font: Calibri or Times New Roman

Font size: 12

Line spacing: 1.25

Referencing style: APA (American Psychological Association) 7th edition.

Avoid footnotes and instead use endnotes for chapters

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Subject Code:

Semester: Semester I ☐ Semester II ☐ Semester III ☐ Semester IV ☐

Semester V ☐ Semester VI ☐ Semester VII ☐ Semester VIII ☒

Course Name: DISSERTATION

Course Code: UECORES48001

Course Credit: Theoretical 12

Practical/Tutorial

Marks Allotted: Theoretical

Practical/Tutorial

Continuing Evaluation

Attendance

Course Type (tick the correct alternatives):

Major Core

AEC

Interdisciplinary/ DSE

SEC

Minor / Generic Elective

VAC

Research Project/Dissertation

Vocational

Is the course focused on employability/entrepreneurship?

YES ☒

NO ☐

Is the course focused on imparting life skills?

YES ☐

NO ☒

Is the course based on Activity?

YES ☐

NO ☒

Remarks by Chairman, UG BOS, if any

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182/UG-26

Date:

15.06.2026

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Subject Name: ECONOMICS

Subject Code:

Semester: Semester I ☐ Semester II ☐ Semester III ☐ Semester IV ☐
Semester V ☐ Semester VI ☐ Semester VII ☐ Semester VIII ☒

Course Name: Knowledge System and History of Economic Thought (India and the World)

Course Code: UECOMAJ48023

Course Credit: Theoretical Practical/Tutorial

Marks Allotted: Theoretical Practical/Tutorial

Continuing Evaluation Attendance

Course Type (tick the correct alternatives):

Major Core ☒ AEC ☐
Interdisciplinary/ DSE ☐ SEC ☐
Minor / Generic Elective ☐ VAC ☐
Research Project/Dissertation ☐ Vocational ☐

Is the course focused on employability/entrepreneurship? YES ☒ NO ☐

Is the course focused on imparting life skills? YES ☐ NO ☒

Is the course based on Activity? YES ☐ NO ☒

Remarks by Chairman, UG BOS, if any

UG BOS Meeting Reference Number:

Date:

Course Code: UECOMAJ48023

Course Name: Knowledge System and History of Economic Thought (India and the World)

Brief Course Description:

This course has five modules and encompasses knowledge of economics originating from India and the world. This course explores the core economic ideas that have evolved in India and the world.

Prerequisite(s) and/or Note(s):

- (1) Familiarity with the historical development of Indian civilisation, major dynasties, cultural traditions, etc.

Course Objectives:

Knowledge acquired:

- (1) The first two modules, in brief, introduce the students to the history of economic ideas in India and get them conversant with different economic problems, issues and events of economic importance, at different periods of time
- (2) The students will develop an understanding of the economic ideas of important economic thinkers from different schools and at different time periods.

Skills gained:

- (1) The course will develop students' ability to examine and analyse various economic ideas of the past and make critical distinctions between the views of one school of thought and another.
- (2) This course will help to develop a wide range of valuable skills, including critical thinking, as it encourages analysing and evaluating various theories, models, and policies to understand their strengths and limitations.

Competency Developed:

The course develops an understanding of how economic ideas have evolved and enables critical thinking that links history, philosophy, and economic policy. It will give a powerful decolonising perspective by introducing students to an ethics-driven economic tradition that has prevailed in India.

Course Syllabus:

Module I: Introduction to Indian Knowledge Systems [IKS] (9 hrs)

Defining Knowledge System: Types of Knowledge Systems – traditional and modern; Defining Indian Knowledge System [IKS]; importance of studying IKS; characteristics of IKS – oral tradition, religious versus material dimension; spiritual versus material dimensions; ‘Buddhist Paradigm’ of altruism and economic behaviour; Buddhism and the Economic Enterprise, Prices and taxation, Kautilya’s Arthashastra - economic functions of the state, taxation and pricing policy and land system.

Module II: Nationalist Economic Thought (12 hrs)

Dadabhai Naoroji –his idea of poverty and Drain Theory; Ranade’s thoughts on poverty, industrialisation; Gokhale and the economics of education; V.K.R.V. Rao’s contribution to National Income estimation; Mahatma Gandhi – his idea of villages as self-sufficient units, Sarvodaya, industrialisation, doctrine of trusteeship. Economic ideas of B.R. Ambedkar - land reform, currency problem, decentralisation of finance, labour and economics of caste.

Module III: Mercantilism and Physiocracy (6 hrs)

Mercantilism: Power Versus Plenty in Mercantilism; Mercantilist as Protectionist and Monetary System; Theory of Growth and Employment; Mercantilism and Underdeveloped Nations; Physiocracy; Social Philosophy; Economic Analysis; Quesnay’s Tableau Economiques.

Module IV: Classical Economic Thought (9 hrs)

Adam Smith - the doctrine of laissez-faire, distribution of labour, labour theory of value, value-in-use and value-in-exchange; David Ricardo – theory of rent, labour theory of value; Malthus – population trap, the debate on ‘General Gluts’ (underconsumption); Political Economy of Marx – labour theory of value, surplus value and exploitation, law of falling rate of profit.

Module V: Neo- Classical Economic Thought (9hrs)

Marginal Revolution and value theory – Jevons, Menger and Walras; Methodological individualism and rationality – homo economicus; Marginalism – law of diminishing marginal utility, equi-marginal principle, optimisation rule $MC=MR$; Alfred Marshall’s Partial Equilibrium based on ceteris paribus; Leon Walras General Equilibrium; Welfare optimisation – Marshallian scissors and Pareto efficiency

Suggested Readings:

- Khandelwala, N.M. and Chauhan, P. (2023). *Indian Knowledge System*, Himalaya Publishing House
- Mahadevan, B., Bhat Vinayak Rajat, Nagendra Pavan RN. (2022). *Introduction to Indian Knowledge System: Concepts and Applications*. PHI Learning Private Ltd.
- Kapur, K. and Singh, A.K (2005). *Indian Knowledge Systems*, Vol. 1. Indian Institute of Advanced Study, Shimla.
- Dassgupta A. K. (1993). *A History of Indian Economic Thought*, Routledge, London and New York.
- Kurz, H. (2016). *Economic Thought: A Brief History*. Columbia University Press

Backhaus, J. G. (2011). *Handbook of the History of Economic Thought*. Springer.

Roll, E. (1954). *A History of Economic Thought: Rev. and Enl.* Faber & Faber.

Schumpeter, J. A. (2006). *History of economic analysis*. Routledge.

Tutorial Classes [15 hrs]

Tutorial classes are meant to clarify the course content. Such classes are meant to promote teacher-student academic interactions and help to build a student's confidence and self-esteem.

Continuing Evaluation:

The course instructor will finalise the modalities of the continuing evaluation. A few suggestions for continuing evaluation are (a) a written examination, (b) a take-home assignment, and (c) a presentation on the topic suggested by the course instructor.

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Course Name: OPTIMISATION METHODS FOR ECONOMIC ANALYSIS

Course Code: UECOMAJ48022

Course Credit: Theoretical 3 Practical/Tutorial 1

Marks Allotted: Theoretical 60 Practical/Tutorial

Continuing Evaluation 10 Attendance 5

Course Type (tick the correct alternatives):

Major Core ☒ AEC ☐
Interdisciplinary/ DSE ☐ SEC ☐
Minor / Generic Elective ☐ VAC ☐
Research Project/Dissertation ☐ Vocational ☐

Is the course focused on employability/entrepreneurship? YES ☒ NO ☐

Is the course focused on imparting life skills? YES ☐ NO ☒

Is the course based on Activity? YES ☐ NO ☒

Remarks by Chairman, UG BOS, if any

UG BOS Meeting Reference Number: 182/UG-26

Date: 15/06/2026

Course Code: UECOMAJ48022

Course Name: Optimisation Methods for Economic Analysis

Brief Course Description:

The course has five modules which cover optimisation methods, post-optimality analysis and the analysis of game theory. It has introduced the Envelope Theorem, which serves as an elegant technique of comparative static analysis in modern times. Besides, the course has a focus on the elementary dynamic optimisation methods.

Prerequisite(s) and/or Note(s):

- (1) Knowledge of high school-level mathematics is required.
- (2) Prior knowledge of economics at the +2 level will be useful.

Course Objectives:

Knowledge acquired:

1. The core objective of the course is to train students on basic mathematical tools that enable the study of economic theory to be more rigorous and analytical, specifically the courses on microeconomics, macroeconomics, statistics and econometrics set out in this syllabus.
2. This course covers mathematical techniques used for optimisation problems and comparative-static analysis under various circumstances.
3. Game theory analysis introduced in this course will enable the students to analyse market power, commitment problem, coordination problem and various modern market design tools like contract and auction.

Skills gained:

Students learn the techniques of optimisation and their application in economic theory..

Competency Developed:

- (1) The course equips the students with an exposition of economic problems as optimisation problems and offers solution techniques to find optimal solutions. These tools are necessary for anyone seeking employment as an analyst in the corporate and policy framing world.
- (2) This course offers the mathematical foundations necessary for further study of a variety of disciplines, including postgraduate economics, statistics, computer science, finance and data analytics.
- (3) The game theory concepts and tools developed in this course will enable the students to analyse various strategic relations seen in various disciplines, like economics, management and other social sciences.
- (4) The analytical tools introduced in this course will help them to apply optimisation techniques used in business decision-making for managers, entrepreneurs and policy makers alike.

Course Syllabus Overview:

Module 1. Introductory Concepts (9 hrs)

Mathematical logic and Set Theory; Vectors, matrices, inverse, simultaneous linear equations; quadratic equation, characteristic (Eigen) roots and vectors, introduction to quadratic forms (QFs); unconstrained and constrained forms, Signing a quadratic form: The Principal Axes Theorem.

Module 2. Static Optimisation (9 hrs)

Single variable optimisation: Continuum Property: The continuum property; Supremum and infimum; Maximum and minimum; Intervals; Existence of a solution: The Weierstrass Theorem. Optimisation: Local vs. global optimum; Conditions for optimisation: Rolle's Theorem, Maclaurin series, Taylor series, Lagrange form of remainder, necessary and sufficient conditions. Economic applications; Optimisation of several variable functions: Differentiation between maxima and minima: the second derivative test, the intervening matrix in the QF, Hessian and Bordered Hessian matrix, the Eigen value test and the Leading Principal Minor (LPM) test.

Module 3. Comparative Static Analysis (9 hrs)

Comparative statics in the optimisation context, Implicit function theorem, and its application to comparative statics problems; Economic applications, Maximum value function and envelope theorem for constrained and unconstrained optimisation, Duality and optimisation, Economic applications.

Module 4. Game Theory (9 hrs)

Game Representations: Normal form vs. Extensive form representation; Zero-sum and non-zero sum game, Static games with complete information: Strictly Dominant strategy, Prisoner's dilemma, IESDS, Pure vs. Mixed strategy, Nash equilibrium, Applications; Dynamic games with Complete information: Games of perfect and imperfect information; Solution concepts: backward induction outcome, Sub-game Perfect Nash Equilibrium; Repeated games and Folk Theorem; Oligopoly theories: Cournot and Bertrand models as games of quantity and price competition; Quantity and price leadership models; Repeated games and collusion.

Module 5. Dynamic Optimisation (9 hrs)

Static optimisation vs. Dynamic optimisation; the notion of Net Present Value (NPV) and discounting, Two-period inter-temporal Optimisation problems: Derivation of optimality conditions, Euler equation, Economic applications, inter-temporal consumption, production and pricing,

Suggested Readings:

Allen, R.G.D., Mathematical Analysis for Economists, Macmillan and Co. Limited.

Aliprantis, D.C. and Chakrabarti, S. K., Games and Decision-Making, Oxford University Press.

Chiang & K. Wainwright: Fundamental Methods of Mathematical Economics, McGraw-Hill.

Dixit, A. K., Optimization in Economic Theory, Oxford University Press.

E. Silberberg & Suen: The Structure of Economics, McGraw-Hill.

Gibbons, R., Game Theory for Applied Economists, Princeton University Press

Intrilligator, Michael D., Mathematical Optimization and Economic Theory, PHI Learning Private Limited.

K. Binmore: Mathematical Analysis, Cambridge

K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Education Asia Delhi.

Renshaw, G., Maths for Economics, Oxford University Press.

Martin J. Osborne, An Introduction to Game Theory, Oxford University Press, New Delhi, 2004.

M. Hoy, J. Livernois, C. McKenna, R. Rees & T. Stengos, Mathematics for Economics. MIT Press.

Simon & Blume, Mathematics for Economists, Viva Books.

Tutorial Classes [15 hrs]

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Continuing Evaluation:

The course instructor will finalise the modalities of the continuing evaluation. A few suggestions for continuing evaluation are (a) a written examination, (b) a take-home assignment, and (c) a presentation on the topic suggested by the course instructor.

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Subject Name: ECONOMICS

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Semester: Semester I ☐ Semester II ☐ Semester III ☐ Semester IV ☐
Semester V ☐ Semester VI ☐ Semester VII ☒ Semester VIII ☐

Course Name: RESEARCH METHODOLOGY

Course Code: UECOMAJ47017

Course Credit: Theoretical 3 Practical/Tutorial 1

Marks Allotted: Theoretical 60 Practical/Tutorial

Continuing Evaluation 10 Attendance 5

Course Type (tick the correct alternatives):

Major Core ☒ AEC ☐
Interdisciplinary/ DSE ☐ SEC ☐
Minor / Generic Elective ☐ VAC ☐
Research Project/Dissertation ☐ Vocational ☐

Is the course focused on employability/entrepreneurship? YES ☒ NO ☐

Is the course focused on imparting life skills? YES ☐ NO ☒

Is the course based on Activity? YES ☐ NO ☒

Remarks by Chairman, UG BOS, if any

UG BOS Meeting Reference Number: 182/UG-26

Date: 15/06/2026

Course Code: UECOMAJ47017

Course Name: Research Methodology

Brief Course Description:

The course introduces the students to survey and secondary data and analytical methods to study various economic issues. This course also introduces to Large-scale surveys and Big Data

Prerequisite(s) and/or Note(s):

- (1) Knowledge of high school-level mathematics is required.
- (2) Prior knowledge of economics at the +2 level will be useful.

Course Objectives:

Knowledge acquired:

- (1) It will enable students to understand large-scale surveys and Big Data and their sources.
- (2) It will train students to collect primary data and also inform them about sources of secondary data.

Skills gained:

Students will be able to analyse primary, secondary data including large-scale surveys and Big Data.

Competency Developed:

- (1) Students will be able to analyse data using techniques and methods in this module.

Course Syllabus Overview:

Module 1: Type and source of data (7.5hrs)

Nature of data – cross-section, time series, pooled and panel; major sources of secondary data in India, questionnaire to collect data – structured and non-structured, closed form and open form; essentials of a good questionnaire; Types of interview in research – structured direct and unstructured direct, structured indirect and unstructured indirect, Focus Group Interview, Depth Interview

Module 2: Data processing and editing (7.5hrs)

Types of data – nominal, ordinal and interval scale; Coding of data – numeric, alphabetic, and zero; Advantages of coding data; Classification of data – qualitative, quantitative, geographical and chronological; Characteristics of good classification of data; Objectives of data classification

Module 3: Data collection and sample design (7.5hrs)

Method of data collection – census and survey method, observation and experimental method; Sampling technique – probability versus non-probability sampling; Biases in survey data – selection bias, non-response bias

Module 4: Large-scale surveys and big data (7.5hrs)

Introduction to large-scale survey – survey design, sampling frame and sampling methodologies; ethical consideration in large-scale data collection – privacy and data security; Big data – concept, characteristics, veracity/accuracy, data error, missing data or non-response, dealing with missing data;

Module 5: Analysis and interpretation of data (7.5hrs)

Purpose of data analysis; Types of data analysis – descriptive and inferential; Interpretation versus presentation of data;

Module 6: Research report writing (7.5hrs)

Principles of research writing; Characteristics of research reports; Structure of research writing – title, keywords, JEL, abstract, introduction, literature review, objectives, methodology, results, discussion, conclusion & recommendations, and references; Types of research report writing - technical and popular.

Suggested Readings

Bhandarkar, P.L. and Wilkinson, T.S. (2016). *Methodology and Techniques of Social Research*. Himalaya Publishing House: New Delhi.

Bhome, S.M., Mishra, R.S., Desai, S.S. and Pradhan, S. (2019). *Research Methodology*. Himalaya Publishing House: New Delhi.

Fowler, F. J. (2009). *Survey research methods* (4th ed.) (4th ed.). SAGE.

Glasow, Priscilla A. (2005). *Fundamentals of Survey Research Methodology*, Virginia, McLean.

Groves, Robert M. et. al. (2004). *Survey Methodology*. Hoboken, NJ, John Wiley & Sons.

Kothari, C.R. (2004). *Research Methodology: Methods & Techniques*. New Age International (P) Limited, New Delhi.

Mukherjee, S.P. (2020). *A Guide to Research Methodology: An Overview of Research Problems, Tasks and Methods*. CRC Press, New York.

Tutorial Classes [15 hrs]

Tutorial classes are meant to clarify the course content. Such classes are meant to promote teacher-student academic interactions and help to build a student's confidence and self-esteem.

Continuing Evaluation:

The course instructor will finalise the modalities of the continuing evaluation. A few suggestions for continuing evaluation are (a) a written examination, (b) a take-home assignment, and (c) a presentation on the topic suggested by the course instructor.

TEMPLATE FOR COURSE SYLLABUS FOR NEP IMPLEMENTATION

Discipline: Science ☒ Arts, Humanities & Social Science ☒
Commerce ☐ BBA ☐ BCA ☐

Subject Name: ECONOMICS

Subject Code: (Will be provided by the University)

Semester: Semester I ☐ Semester II ☐ Semester III ☐ Semester IV ☐
Semester V ☐ Semester VI ☐ Semester VII ☒ Semester VIII ☐

Course Name: Basic Statistics

Course Code: UECOMIN40004

Course Credit: Theoretical 3 Practical/Tutorial 1

Marks Allotted: Theoretical 60 Practical/Tutorial

Continuing Evaluation 10 Attendance 5

Course Type (tick the correct alternatives):

Major Core ☐ AEC ☐
Interdisciplinary/ DSE ☐ SEC ☐
Minor/~~DSC~~ ☒ VAC ☐
Research Project/Dissertation ☐ Vocational ☐

Is the course focused on employability/entrepreneurship? YES ☒ NO ☐

Is the course focused on imparting life skills? YES ☒ NO ☐

Is the course based on Activity? YES ☐ NO ☒

Remarks by Chairman, UG BOS, if any

UG BOS Meeting Reference Number: 182/UG-26 Date: 15.06.2026

Course Code: UECOMIN40004

Course Name: Basic Statistics

Brief Course Description:

This paper consists of six modules consisting of topics on Basic Statistics. The paper deals with areas of descriptive statistics, like introduction to data, charts and diagrams, measures of central tendency and dispersion. However, the paper also covers the concepts of basic probability.

Prerequisite(s) and/or Note(s):

Prior knowledge of economics is optional for this course.

Course Objectives:

Knowledge acquired:

Upon completing the course, the students will understand the concepts related to basic statistics. They will learn the practical applications of basic statistics in dealing with economic problems.

Skills gained:

Upon completing the course, the students will be aware of the basic statistical applications and will be able to apply it in addressing economic problems.

Competency Developed:

The students will be able to apply the statistical tools in studying the performance of the manufacturing sector. They can work on generating study reports on Issues of the Indian economy. The course will encourage logical thinking and enhance analytical abilities.

Course Syllabus Overview:

Basic Statistics

Module I- Introduction to data (7.5 hrs)

Concepts of Population and Sample, Variable and Attribute, Primary data and Secondary data, Complete enumeration and Sample survey, Scales of Measurement, Classification of Data and Tabulation

Module II- Charts and Diagrams (7.5 hrs)

Objects of Diagrammatic Representation, Types of charts and diagrams, Line diagram, Bar diagram, Pie diagram, Pictogram

Module III- Frequency Distribution (7.5 hrs)

Concept of Observation and Frequency, Ungrouped Data and Grouped Data, Simple and Grouped Frequency Distribution, Concepts of class: class interval, total frequency, class frequency, class boundary, class mark; frequency density, Construction of Frequency Distribution, Cumulative Frequency Distribution, Diagrammatic Representation of Frequency Distribution, Histogram, Frequency Polygon, Ogive (more than and less than)

Module IV- Measures of Central Tendency (7.5 hrs)

Advantages and Disadvantages of Mean, Median and Mode, Important properties of Arithmetic Mean, Geometric Mean, Harmonic Mean, Calculation of: Simple AM, Weighted AM, GM, HM, Median and Mode

Module V- Measures of Dispersion (7.5 hrs)

Importance of Measures of Dispersion, Concept of Lorenz curve, Concept and Calculation of Absolute Measures of Dispersion- Mean Deviation, Standard Deviation and Quartile Deviation, Properties of Standard Deviation, Advantages and Disadvantages of Measures of Dispersion.

Module VI- Basics of Probability (7.5 hrs)

Introduction to Probability, Random Experiments, Event, Concept of -Mutually Exclusive, Exhaustive, Trial, Equally Likely, Classical Definition of Probability, Axiomatic Definition of Probability, Theorem of Total Probability, Theorem of Compound Probability, Independent Events, Concepts of- Conditional Probability, Bayes' Theorem

Suggested Readings

Das, N. G., Statistical Methods, McGraw-Hill Education, (CTB)

Goon, Gupta and Dasgupta, Fundamentals of Statistics, Vol. I., World Press (CTB)

Jay L. Devore, Probability and Statistics for Engineers, Cengage Learning, 2010.

John E. Freund, Mathematical Statistics, Prentice Hall, 1992.

Mathai & Rathie, Probability and Statistics, Macmillan.

William G. Cochran (2007): Sampling Techniques, John Wiley & Sons.

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Subject Name: ECONOMICS

Subject Code: (Will be provided by the University)

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