

**DEPARTMENT OF ECONOMICS,**  
**BHAVANS COLLEGE, ANDHERI (WEST)**  
**B.A. HONOURS SEMESTER VII & VIII SYLLABUS (NEP)**

**SEMESTER VII**

**Name of the Programme: B.A. HONOURS**  
**Course Code: BH.PAAME.MAJ 101**  
**Name of the Course: Advanced Microeconomics**

| SUBJECT                 | COURSE CREDIT | CLASS        | SEMESTER |
|-------------------------|---------------|--------------|----------|
| Advanced Microeconomics | 04            | B.A. HONOURS | VII      |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**Note: All lecture would be for one hour.**

**COURSE OBJECTIVE:**

To familiarize the students with the basic concepts of Microeconomics. To develop an advanced theoretical understanding of consumer behaviour and decision making. To develop theoretical understanding of strategic behaviour of economic agents. To develop an understanding of inter-relationships among the various microeconomic behaviour.

**Course Outcomes: On successful completion of the course, the Students will be able to**

On successful completion of the course, students will be able to develop a sound understanding of the core microeconomic concepts that the economists use to understand the process of decision making by economic agents. The students should be able to apply mathematical tools and techniques to study behavior of economic agents. With this course study, students will be able to identify strategic behavior of economic agents and formulate them in a theoretical framework.

**Note: All lecture would be for one hour.**

**Syllabus**

**Unit I: Introduction to Microeconomics (15 hrs)**

Importance and Uses of Microeconomics and Macroeconomics-Distinction between Microeconomic and Macroeconomics- Demand: Meaning, Law of Demand, Exceptions of Law of Demand, Determinants of Demand- Supply: Meaning, Law of Supply, Determinants of Supply, Production Possibility curve (PPC), Endogenous & Exogenous variables, Price, income and cross elasticity of demand with numerical exercises and classification of goods into substitutes and complementary.

**Unit II Consumer Behaviour: (15 hrs)**

Optimization problem based on Hick's-Allen ordinal utility approach: Budget constraint, consumer equilibrium, Price effect split into income and substitution effect based on Slutsky and Hicks methods, Derivation of demand curve from PCC in case of normal, inferior and Giffen goods. Behavioristic ordinalistic approach to demand, Strong and weak ordering hypotheses, Derivation of demand law based on Samuelson's Revealed Preference theory. Demand theorem based on Hicks Revision of demand theory and direct consistency test. Marshall's and Hick's concepts of consumer's surplus.

**Unit III Theory of production and cost: (15 hrs)**

Concept of production function: short-run, long-run, Cobb-Douglass production functions with characteristics, Concepts of iso-quants and iso-cost, Stages in the law of variable proportions and laws of returns to scale, Least cost combination of inputs: constrained cost minimization and output maximization rules, Short run and long-run cost concepts, with explanation U-shaped and L-shaped LAC Curves.

**Unit IV: Market Structure (15 hrs)**

Perfect Competition: Meaning, Features- Monopoly: Meaning, Features-Oligopoly: Meaning, Features, Kinked Demand Curve, Criticisms-Monopolistic Competition- Meaning, Features- Equilibrium under

Perfect Competition-Equilibrium under Imperfect Competition: Normal Profit, Excess or Supernormal Profit, Loss, Shut-Down Point

**Reference Books:**

- Arrow, K.J. and M.D. Intrilligator (Eds) (1981), Handbook of Mathematical Economics, Vol, I North Holland, Amsterdam.
- Braodway, R.W. and N. Bruce (1984), Welfare Economics, Basil Blackwell, London.
- Da Costa, G.C. (1980), Production, Prices and Distribution, Tata McGraw Hill, New Delhi.
- Hall of India, New Delhi.
- Hansen, B. (1970), A Survey of General Equilibrium Systems, McGraw Hill New York.
- Henderson, J.M.and R.E. Quandt (1980), Microeconomic Theory:A Mathematical Approach, McGraw Hill, New Delhi.
- Hirshleifer, J. and A. Glazer (1997), Price Theory and Applications, Prentice
- Koutsoyiannis, A. (1979), Modern Microeconomics, (2nd Edition), Macmillan Press, London.
- Kreps, David M. (1990), A Course in Microeconomic Theory, Princeton University Press, Princeton.
- Layard, P.R.G. and A.W. Walters (1978), Microeconomic Theory, McGraw Hill, New York.
- Pindyck Robert S. and Rubinfeld (), Microeconomics
- Salvatore D., Microeconomics
- Sen, A. (1999), Microeconomics: Theory and Applications, Oxford University Press, New Delhi.
- Stigler, G. (1996), Theory of Price, (4th Edition), Prentice Hall of India, New Delhi.
- Varian, H. (2000), Microeconomic Analysis, W.W. Norton, New York.

**Name of the Programme: B.A. HONOURS**

**Course Code: BH.PAIEC.MAJ 102**

**Name of the Course: Indian Economy**

| SUBJECT        | COURSE CREDIT | CLASS        | SEMESTER |
|----------------|---------------|--------------|----------|
| Indian Economy | 04            | B.A. HONOURS | VII      |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**COURSE OBJECTIVE:**

The objective of this Paper at the postgraduate level would be to sharpen the analytical faculty of the student, by highlighting an integrated approach to the functioning aspects of the Indian economy, keeping in view the scope for alternative approaches. Such an analysis is essential because the Indian economy is a unique amalgam of alternative competing and often conflicting theories and a proper understanding of its working is imperative if the student is to comprehend the ramifications that underlie most of the observed phenomena in the Indian economic set-up.

**Course Outcomes: On successful completion of the course, the Students will be able to**

The students get familiarized with the sectoral issues to be tackled with Indian perspective. It generates awareness on the solutions to deal with the developmental challenges of the Indian economy in 21st century globalized world. Students gain knowledge about the allocation and analysis of the budget.

**Syllabus**

**Unit I: Historical Perspective and Macro-Economic Indicators: (15 hours)**

Review of Five-Year plans and policies. National Income– GDP – SDP – NNP - Sectoral Composition– Regional Variations. Analysis of price behavior – Review of monetary policy in post reform period – reforms in banking sector – SEBI.

**Unit II: Agricultural and Industrial Sector: (15 Lectures)**

Land holding pattern – Land Reforms – Crop Pattern – Agricultural Labour – Technological change in agriculture – Agricultural cost and prices commission – impact of reforms. Industrial Policy – Private and public sector – Small scale industries – Disinvestment – Industrial growth.

**Unit III: Services Sector (15 hours)**

Role of Service Sector in the development of Indian Economy-Contribution of IT Sector in Indian Economy-Contribution of Entertainment & Media Industry in the financial & cultural development of Indian Economy- E-Commerce and Indian Economy.

**Unit IV: Government Budgeting with reference to India (15 hours)**

Concept of Budget-Classification of Budget-Zero Base Budgeting-Recent Budgetary Analysis-GST-Concept of Fiscal Federalism-FRBM-Current Finance Commission of India- Current disinvestment policy.

**References**

- 1)Mishra S.K. and V.K.Puri, Indian Economy, Himalaya Publishing House, Mumbai
- 2)Dutt R. and K.P.M Sundaram, Indian Economy, S.Chand, New Delhi
- 3)Agrawal A.N., Indian Economy-Problems of Development and Planning, A division of New Age International Ltd, New Delhi
- 4)Uma Kapila, Indian Economy-Since Independence, Academic Foundation

**Name of the Programme: B.A. HONOURS**  
**Course Code: BH.PAECT.MAJ 103**  
**Name of the Course: Economics of tourism**

| Subject              | Course credit | Credit distribution of the course |            |         |
|----------------------|---------------|-----------------------------------|------------|---------|
|                      |               | Lecture                           | Field work | Project |
| Economics of tourism | 6             | 4                                 | 1          | 1       |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**Course Objectives:** To introduce the various concepts of tourism. To study the functions and role of various tourism organizations. To study the various elements and factors affecting tourism. To provide information regarding the procedure of ticketing and documentation. To study the dimension of sustainable tourism.

**Course Outcome:** Students gain knowledge about various forms of tours and the threats therein. Understands the functions and role of various tourism organizations. To gain knowledge about various procedures involved in tourism. To understand the importance of sustainable tourism development.

**Syllabus**

**Module I: Introduction to Tourism (15 hours)**

Definition of Tourism-History of Tourism-Tourism Demand: Definition, Characteristics, Trends, Forecasting Global Trends- Tourism Supply:Definition, Characteristics, Trends, Forecasting Global Trends- Role of Tourism in the Development of Indian Economy-Tourism Organisations- IATA, MTDC, PATA, WTO, ITDC.

**Module II: Elements of Tourism (15 hours)**

Types of Tourism: Educational, Cultural, Health, Sports, Recreational, Environmental, Religious, Historical, Ethnic, Adventure, Music, Village, Wildlife, Ecotourism- Risk in Tourism-Factors affecting Tourism-Motives for Tourism

**Unit III: Documentation and Services of Tourism (15 hours)**

Definition and Functions of Tour Operators and Travel Agencies-Types of Accommodation -Visa: Procedure and Types-Passport: Procedure and Types- Travel Portals-Trip Advisor, MakeMyTrip, Cleartrip, Yatra, Airbnb, Goibibo.

**Unit IV: Sustainable Tourism Development (15 hours)**

History, Concept and Definition- Dimensions of Sustainability: Social, Economic, Environmental-Benefits and Issues of Sustainable Tourism Development-Global Warming and Sustainable Development-World Conference on Sustainable Tourism

**REFERENCES:**

- 1)Tourism-Concepts, Theory and Practice, M.R. Dileep, Wiley Publication
- 2)Sustainable Tourism: A Marketing Perspective, Victor T.C.Middleton, Rebecca Hawkins Butterworth-Heinemann
- 3)Tourism Operations and Management, Sunetra Roday, Archana Biwal,Vandana Joshi, Oxford Higher Education
- 4)Travel and Tourism Management, Dr.Sachin Pendse, Dr.Sunita G. Maral, Dr.Chandani Bhattacharjee, Sheth Publication

**Name of the Programme: B.A. HONOURS**  
**Course Code: BH.PACST.CS 101**  
**Name of the Course: CIRCULAR ECONOMY**

| SUBJECT          | COURSE CREDIT CLASS | SEMESTER |
|------------------|---------------------|----------|
| CIRCULAR ECONOMY | 02 B.A. HONOURS     | VII      |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**COURSE OBJECTIVE:**

To develop graduates who have the necessary knowledge, skill and aptitude in circularity and can get job opportunities by the industry in various sectors both public and private at national and international level.To contrive skilled manpower and entrepreneurship in the field of Circular Economy.

**Course Outcomes: On successful completion of the course, the Students will be able to**

On successful completion of the course, students will be able to develop a sound understanding of the core Acquire comprehensive knowledge and understanding the methodologies associated with Circular Economy. Apply knowledge to identify, formulate and analyze new circular business models.Having ability to apply knowledge of 3R's, principles of circularity for development of circular business models

**Syllabus****Unit I: Introduction to Circular Economy (10 hrs)**

Linear Economy and its emergence, Economic and Ecological disadvantages of linear economy, Replacing Linear economy by Circular Economy, Development of Concept of Circular Economy, A differential - Linear Vs Circular Economy.

**Unit II Characteristics of Circular Economy: (10 hrs)**

Material recovery, Waste Reduction, reducing negative externalities, Explaining Butterfly diagram, Concept of Loops

**Unit III Case Studies (10 hrs)**

Business models, Solid Waste Management / Wastewater, Plastics: A case study,  
EPR: polluters pay principle, Industrial symbiosis/ Eco-parks

**Reference Books:**

- Towards Zero Waste: Circular Economy Boost, Waste to Resources María-Laura Franco-García, Jorge Carlos Carpio-Aguilar, Hans Bressers. Springer International Publishing 2019
- Strategic Management and the Circular Economy Marcello Tonelli, Nicolo Cristoni, Routledge 2018.
- The Circular Economy: A User's Guide Stahel, Walter R. Routledge 2019
- Circular Economy: Global Perspective Sadhan Kumar Ghosh, Springer, 2020.
- An Introduction to Circular Economy Lerwen Liu, Seeram Ramakrishna, Springer Singapore 2021.

**Name of the Programme: B.A. HONOURS**

**Course Code: BH.PARMK.EC 101**

**Name of the Course: Rural Marketing**

| SUBJECT         | COURSE CREDIT | CLASS        | SEMESTER |
|-----------------|---------------|--------------|----------|
| Rural Marketing | 04            | B.A. HONOURS | VII      |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**COURSE OBJECTIVE:**

The course aims to familiarize the students with the basic concepts of Rural Marketing, the nature of the Rural Consumer, and marketing of agricultural inputs and produce.

**Course Outcomes: On successful completion of the course, the Students will be able to**

To enable students to analyze the functioning of Rural Marketing.

To help students to study Product and Price in Rural Marketing and other features of the marketing.

Students would learn about the Promotion and Distribution in Rural Marketing.

### Syllabus

**Module I : Rural Marketing (15 hours)**

Rural Marketing-Concept, Nature, Scope, Significance of Rural Marketing. Factors contributing to Growth of rural markets, e-rural marketing, growing importance of rural marketing, challenges in rural marketing. Components and classification of Rural markets, Rural Marketing Information System

**Module 2 : Rural Consumer Behaviour (15 hours)**

Rural Consumer behaviour-features, Rural Market VS Urban Market, Lifestyle of rural

consumer, Classification of rural consumers, factors influencing consumer behavior. Rural Marketing Research- Significance, Tools of marketing research for rural marketing. FMCG sector in Rural India-concept and classification of consumer goods.

**Module 3 : Marketing Mix – Product and Price in Rural Marketing (15 hours)**

Potential and size of the Rural Markets, Marketing mix for rural marketing. Product Strategy - Product mix Decisions - Competitive product strategies for rural markets, importance of Branding, Packaging and Labeling in rural marketing. Pricing strategy – pricing objectives, pricing policies, innovative pricing methods for rural markets

**Module 4 : Marketing Mix– Promotion and Distribution in Rural Marketing (15 hours)**

Promotion strategy - appropriate media - Designing right promotion mix – promotional campaigns. Distribution - Logistics Management - Problems encountered, Channels for rural markets, selection of appropriate channels- Factors. New approaches and strategies to reach out rural markets.

**Reference Books:**

1. Badi R.V. Badi N.V. Rural Marketing Himalaya Publishing House – 2010 Page Nos. for Module
2. Acharya S.S. Agarwal N.L. Agriculture Marketing in India Oxford & IBH Publishing Company Pvt. Ltd. 113-B, ShahpurJat, Asian village side Now Delhi India 110 049 India Fax – 011 41517559 – 2004
3. Understanding Rural Buyer Behaviour, Jham, IIM – B Management Review Vol. 15 No. 3 2003
4. Kashyp Pradeep, Rant Siddhartha The Rural Marketing, Biztantra, Mumbai. 2005
5. Rural MarketingGopaldaswamy Vikas Publishing House New Delhi.

**Name of the Programme: B.A. HONOURS**

**Course Code: BH.PAIND.EC 102**

**Name of the Course: Industrial Economics**

| SUBJECT              | COURSE CREDIT | CLASS        | SEMESTER |
|----------------------|---------------|--------------|----------|
| Industrial Economics | 04            | B.A. HONOURS | VII      |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**COURSE OBJECTIVE:**

The objective is to provide a thorough knowledge about the economics of industry.

The papers deal with the industrial policy framework in a cogent and analytical manner, particularly in the Indian context.

**Course Outcomes: On successful completion of the course, the Students will be able to**

To enable students to analyze the functioning of Industrial organisation

To understand the basic issues such as productivity, efficiency, capacity utilization and a contemporary world with globalization and liberalization

To provide knowledge to the students on the debates involved in the industrial development of India.

**Syllabus**

**Module 1: Industrial Organisation (15 hours)**

Market – Structure – Conduct – Performance – Theories of Product Pricing – Administered prices - Theories of Location – Theories of Growth of firms – Financial Ratios – Methods of Investment Appraisal

**Module 2: Industrial Policy, Industrial Finance and Development: (15 hours)**

Overview of industrial policy prior to 1991 - Industrial Policy Resolution of 1991 and changes thereafter - Trends and pattern in national and regional industrial development - Problems of industrial sector - industrial sickness- imbalance in regional development - industrial pollution - Remedial measures Types and Sources of industrial finance, sources and trends of institutional finance (IFCI, SFCs, IDBI, SIDBI) Commercial Banks. Problems of Industrial finance - Remedial measures

**Module 3: Private, Public and Small Scale and External Sectors (15 hours)**

Role, Performance and Problems of Private, Public and small-scale Sectors – Privatization and Disinvestment. Trends and pattern of FDI in India-Trends and pattern of Indian industry abroad- M&A- Export and import component of Indian industrial sector

**Module 4: Some Selected Industries: (15 hours)**

Performance, problems and remedial measures of selected industries Iron and Steel - Cement - Coal - Engineering Goods - Textiles - Information and Technology

**Reference Books:**

- Bagchi, A. and M. Banerjee (Eds.) (1979), *Change and Choice in Indian Industry*, Bagchi publications, Calcutta.
- Bain, J.S. (1996), *Industrial Organization*, Cheltenham, U.K. o Barthwal, R.R. (1985), *Industrial Economics*, Wiley Eastern Ltd. , New Delhi
- Brahmananda, P.R. and V.R. Panchamukhi (Eds.) (1987), *The Development Process of the Indian Economy*, Himalaya Publishing House, Bombay.
- Chakravarty, S. (1987), *Development Planning : The Indian Experience*, Oxford University Press, New Delhi.
- Cherunilam, F. (1994), *Industrial Economics : Indian Perspective*, Himalaya Publishing House, Mumbai
- Das, N. (1969), *The Public Sector in India*, Vora and Company, Bombay. · Dasgupta,
- Datta, B. (1992), *Indian Planning at the Crossroads*, Oxford University Press, New Delhi.
- Dhameeja, N. and K.S. Sastry (1998), *Privatization : Theory and Praticce*, A.H. Wheeler, New Delhi.

**Name of the Programme: B.A. HONOURS**

**Course Code: BH.PASTS.EC 103**

**Name of the Course: Statistical Economics**

| SUBJECT              | COURSE CREDIT | CLASS        | SEMESTER |
|----------------------|---------------|--------------|----------|
| Industrial Economics | 04            | B.A. HONOURS | VII      |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**COURSE OBJECTIVE:**

- The objective of this paper is to train students to use statistical methods which can be applied to understand and analyse economic problems. They can understand economics with the help of quantitative techniques.
- To familiarize students with statistical theory and its application as the foundations for data analysis.
- To develop a reasonable understanding of economics relationships and relevant statistical methods.
- To strengthen the skill of students to make a statistical analysis of numerical facts and data.

**Course Outcomes: On successful completion of the course, the Students will be able to**

- Apply statistical tools in economic analysis.
- Appreciate statistical techniques used for understanding and analysing economic problems and variables.
- Get a broad outlook on analysing and interpreting vast amount of economic data for getting a practical exposure to the world through research initiatives.

**Syllabus**

**Unit I: Descriptive Statistics: (15 hours)**

Measures of central tendency: Computation of Mean, Median, Mode, Harmonic Mean and Geometric Mean in discrete and continuous series, Measures of dispersion: Absolute and relative measures of dispersion, Properties of a good measure of dispersion, Quartile Deviation, Mean Deviation, Standard Deviation and coefficient of quartile and mean deviations, coefficient of variation, combined mean and standard deviation.

**Unit II: Correlation and Regression Analysis: (15 hours)**

Correlation: concept of simple, partial and multiple Correlation, Scatter diagram, Karl Pearson's coefficient of correlation and Spearman's rank coefficient of correlation and Concurrent Deviation Method, Regression: Least square method of estimating regression,

**Unit III: Test of Hypothesis: (15 hours)**

Test of Hypothesis: Meaning and Procedure, Type 1 and Type 2 errors, the goodness of fit; Confidence intervals and level of significance, Tests of Significance for Large Samples and Small Samples- Student's „t“-test, Null and alternative hypothesis, One tailed and two tailed test, The standard normal distribution and its application, The chi square distribution and its application, The Central limit theorem.

**Unit IV: Theoretical probability distribution and hypothesis testing: (15 hours)**

Concept of probability distribution, the binomial distribution with properties and illustrative problems, normal distribution with properties and area under the normal curve, illustrative problems on normal distribution.

**Reference Books:**

- Gupta, S. C. (1993), Fundamentals of Applied Statistics, S. Chand & Sons., New Delhi.

- Gupta, S.P. (2016) Statistical Methods, Sultan Chand & Sons, New Delhi 9. Handry, A. T. (1999), Operations Research, Prentice Hall of India, New Delhi.
- Millar, J. (1996), Statistics for Advanced Level, Cambridge University Press, Cambridge.
- Monga, G. S. (1972), Mathematics and Statistics for Economists, Vikas Publishing House, New Delhi.
- Levin I Richard & Rubin S David, Statistics for Management, Pearson Prentice Hall, 2006
- Gupta & Kapoor, Applied Statistics, Sultan Chand & Sons, New Delhi
- Arora P N & Summet Arora, Comprehensive Statistical Methods, S. Chand & Company Ltd, New Delhi, 2007.
- Goon, A. M., M. K. Gupta and B. Dasgupta (1993), Fundamentals of Statistics, Vol. 1, The World Press Ltd., Calcutta.

**Name of the Programme: B.A. HONOURS**

**Course Code: BH.PARSM.MIN 101**

**Name of the Course: Research Methodology**

| SUBJECT              | COURSE CREDIT | CLASS        | SEMESTER |
|----------------------|---------------|--------------|----------|
| Research Methodology | 04            | B.A. HONOURS | VII      |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**COURSE OBJECTIVE:**

**Course Outcomes: On successful completion of the course, the Students will be able to**

### Syllabus

#### **Unit- I Basics of research methodology 15 Lectures**

a Objectives of research 03 - Short term goals and long term goals - Research design- - Repeatability, reproducibility and reliability - Experimental protocols How to formulate query and perform literature search and use filters 01 Guidelines for writing scientific proposal, scientific reports, scientific paper, identification of good journal, Guidelines for writing good thesis.

#### **Research ethics**

Ethics of animal research -CPCSEA, institutional ethics committee, OECD guidelines Basic principles of human research ethics- International regulation.

#### **Biostatistics in Research**

Measures of central tendency -mean, median, mode, geometric mean Measures of dispersion- Range, Q.D., M.D., variance, standard deviation Correlation and Regression analysis: Correlations and regressions:- Relation between two variables, scatter diagram, definition of correlations & their equations, interpretation of regression coefficients, principles of least squares, Two regression lines, curve fitting Karl Pearson's coefficient of correlation, Spearman's coefficient of correlation.

#### **Unit-2 Theory of probability**

**15 Lectures**

#### **Parametric tests**

- Large sample Tests i. Testing significance of single population mean ii. Testing significance of single population proportion iii. Testing significance of two population mean iv. Testing significance of two population proportion
- Small sample Tests i. Testing significance of single population mean ii. Testing difference between two independent normal population mean iii. Testing difference between two correlated normal population mean iv. Testing significance of correlation coefficient
- $\chi^2$  test i. Testing single population variance ii. Testing Goodness of fit iii. Testing

association between two attributes Clear explanation of assumptions is necessary • F-test- Testing equality of variance ANOVA- one-way classification, two-way classification.

### **Introduction to non -parametric tests**

• The Wilcoxon signed-Rank test for location i. Testing single population mean ii. Testing difference between correlated (match pair) population means iii. Testing difference between two independent population means • The Mann-Whitney Test (Mann-Whitney-Wilcoxon test -for equality of medians) • The Kolmogorov-Smirnov Goodness- of -Fit Test • The Kruskal-Wallis One-Way Analysis of Variance by Ranks • The Friedman Two-Way Analysis of Variance by ranks

### **Unit 3 Research & publication Ethics**

**15 Lectures**

Ethics : definition , moral philosophy , nature of moral judgements & reactions , ethics wrt to science & research • Intellectual honesty and research integrity • Scientific misconducts : falsification, fabrication & Plagiarism • Redundant Publication : duplicate and overlapping publication, salami slicing • Publication ethics - Definition - Best practices/Standards /guidelines(COPE, WAME etc) - Conflict of interest : Violation of publication ethics , authorship - Identification of publication misconduct , complaint's and appeals examples and frauds from india & abroad - Predatory publishers and journals.

### **Unit 4 Open access publishing**

**15 Lectures**

#### **Open access publication**

- SHERPA/ROMEIO online resources to check publishers copyright and self-archiving policies - Software tools to identify predatory publications developed by SPPU - Journal finder/journal suggestions tools viz JANE , ELSEVIER journal finder , springer journal suggester etc B Data bases and research metrics 08 - Indexing databases - Citation databases : web of Science , Scopus etc - Impact factor of journal as per journal citation report , SNIP, SJR, IIP, cite Score - Metrics : - h- index , g index , i10 index , altmetrics

#### **Reference Books:**

- 1) Research Methodology in medical and Biological sciences -edited by Petter Laake, Haakon Benestad and Bjorn Reino Olsen, Academic Press
- 2) Research Methodology: A guide for Researchers in Agricultural Science, Social Science and other related fields. Pradip kumar Sahu. Springer 2006
- 3) Ranjit Kumar, 2005 Research Methodology- A step-by-step Guide for beginners, 3rd edition, Sage publications
- 4) Fundamentals of Research methodology and statistics- Yogesh Kumar Singh, New Age International Publishers
- 5) Biostatistics: A foundation for analysis in health sciences. Daniel WW, Cross CL. 10thEdn, Wiley.2013
- 6) Fundamentals of Biostatistics. Rosner B. 7thEdn. Duxbury Thomson 2011
- 7) Introductory Applied Biostatistics D'Agostino RB., Sullivan LM., Beiser AS., Thomson Brooks/Cole 2006
- 8) BIRD A (2006) Philosophy of science, Routledge
- 9) Macintyre, Alasdair 1967 A short history of ethics London
- 10) P Chaddah (2018) Ethics in Competitive Research: Do not get scooped
- 11) Resnik D. B. 2011 What is ethics in research and why is its important National Institute of Environmental Health Sciences
- 12) Beall J 2012 Predatory Publishers are corrupting Open Access Nature 489(7415) pg 179

## SEMESTER VIII

**Name of the Programme: B.A. HONOURS**  
**Course Code: BH.PAAMA.MAJ 201**  
**Name of the Course: Principles of Macroeconomics**

| SUBJECT                      | COURSE CREDIT | CLASS        | SEMESTER |
|------------------------------|---------------|--------------|----------|
| Principles of Macroeconomics | 04            | B.A. HONOURS | VIII     |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

### **COURSE OBJECTIVE:**

Macroeconomics or aggregative economics analyses and establishes the functional relationship between the large aggregates. The aggregate analysis has assumed great significance in recent times. It is necessary to have a prior understanding of macroeconomic theoretical structure for the proper comprehension of different issues and policies.

### **Course Outcomes: On successful completion of the course, the Students will be able to**

- Understand various macroeconomics issues
- Understand the determinants of national income
- Understand the role of monetary and fiscal policy
- Understand the role of money in an economy

### **Syllabus**

#### **Unit I: Introduction to Macroeconomics (15 hours)**

Meaning, Nature, and Scope of Macroeconomics, Importance and Limitation of Macro Economics, Basic variable of Macroeconomics, Business Cycle: meaning, types, phases, theory of business cycle, Circular flow of national income: meaning, significance, injection and leakages, two, three, four sector model.

#### **Unit II: National Income Accounting (15 hours)**

National Income: meaning, basic concept, concept of national income, Input and output method of measurement of national income, Expenditure method of national income, Problems in measurement of national income and its significance, nominal GDP, real GDP, national product and economic welfare.

#### **Unit III: Keynesian Economics Thought: (15 hours)**

Aggregate demand and Aggregate supply, Short run equilibrium through AD & AS, Consumption function: Psychological law of consumption, various determinant of consumption, Absolute and Relative income hypothesis, Permanent income hypothesis, Saving and Investment function, Autonomous expenditure, Multiplier: Features, limitation, leakages and significance of multiplier.

#### **Unit IV: Fiscal Policy and Monetary Policy (15 hours)**

Fiscal Policy: Instrument, objective and achievements, Fiscal policy in developing economy, Limitation and types of fiscal policy, Impact of fiscal policy on demand and supply side.

Monetary Policy: objective, Methods of credit control, The monetary transmission mechanism

### **Reference Books:**

- Ackley, G. (1978); Macroeconomics: Theory and Policy, Macmillan, New York.
- Blackhouse, R. and A. Salansi (Eds.) (2000), Macroeconomics and the Real World (2Vols.), Oxford University Press, London.

- Branson, W.A. (1989), Macroeconomics Theory and Policy, (3rd Edition), Harper and Row, New York.
- Chakravarty, S.C. (1985), Report of the Committee to Review the Working of the Monetary System, Reserve Bank of India, Bombay.
- Culberston, J.M. (1958), Macroeconomic Theory and Stabilization Policy, McGraw Hill, Kogenkosh, Tokyo.
- D’Souza, Errol: (2008); Macroeconomics; Pearson Education; Delhi.
- Dornbusch, R. and F. Stanley (1997), Macroeconomics, McGraw Hill. Inc., New York.
- Dornbusch, Rudiger. and Stanley Fischer and Startz Richard (2004)

**Name of the Programme: B.A. HONOURS**  
**Course Code: BH.PALBE.MAJ 202**  
**Name of the Course: Labour Economics**

| SUBJECT          | COURSE CREDIT | CLASS        | SEMESTER |
|------------------|---------------|--------------|----------|
| Labour Economics | 04            | B.A. HONOURS | VIII     |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**COURSE OBJECTIVE:**

- The objective of this course is to introduce student to the economic analysis of the labour market.
- This involve understanding what are the determinants of observed structure of wages and employment.

**Course Outcomes: On successful completion of the course, the Students will be able to**

- Understand various labour related issues
- Understand the determinants of labour supply
- Understand the role of government policy
- Understand the role of human capital in economy

**Syllabus**

**Unit-I: Conceptual Issues (15 hours)**

Definition, Basic Issues of Labour Force: Determinants of Labour Force Participation –Male, Female and Child Work Participation India. Employment: Concept Measurement, Unemployment: Types, Rates and Composition, Causes and Effects, Employment Generation Policies. Concept of Human Capital Human Capital Theory, Investment in Education and Health with special reference to Skilled and Unskilled Labour. Migration: Internal and International Migration.

**Unit-II: Demand for Labour (15 hours)**

Demand for Labour in Short and Long Run. The Determinants of Labour Demand, Impact of Technological Change on Labour: Mechanisation, Automation, New Technology. Impact of Globalisation on Labour, International Division of Labour, Methods of restructuring Labour, Outsourcing of Labour as a Global Phenomenon, impact of Outsourcing on Developing Countries.

**Unit-III: Theories of Labour Market (15 hours)**

Definition of Labour Market. Demand and Supply aspects of Labour. Search in the Labour Market. Economics of Unions. Impact of Unions and Productivity and Wages, Employment Security and Efficiency. Labour Legislation: Deregulation and Labour Market Dynamics. Insider – Outsider Theory. Implicit Contract Theory. Efficiency Wage/Effort Regulation Models.

**Unit-IV: Wage Issues in Labour Market (15 hours)**

The Determination of Wages, Wage Structure, and Components of Wages, Share of Wages Distribution and Inequality of Wage Income. Wage Differentials with Reference to Gender. Inter-sectoral Wage Differentials. Labour Market Rigidities and Flexibilities, Minimum Wages, Wages and Income Policy in India. Wage Determination and Collective Bargaining, Theories of Wages.

**References:**

- Amin, Ash (Ed.) (1994) 'Post-Fordism-A Reader' Blackwell, Oxford  
 Bhagoliwal T.N. (1985) Economics of Labour and Industrial Relations, Sahitya Bhawanm Agra.  
 Cahuc Pierre and Andre Zylberberg (2004) Labour Economics, MIT Press, Massachusetts  
 Government of India (2002) Ministry of Human Resource Development, Report of Second National Commission of Labour.  
 Hicks J.R. (1932) 'The Theory of Wages' Clarendon Press, Oxford.  
 Monappa, Arun (1985) (28th Reprint, 2005) 'Industrial Relations' Tata McGraw Hill, New Delhi.  
 Pencavel, John (1991) 'Labour Markets under Trade Unionism: Employment, Wages and Hours' Basil Blackwell, Cambridge, Massachusetts  
 Rees, Albert (1973) 'The Economics of Trade Unions' (3rd Ed.) University of Chicago Press, Chicago  
 Sapsford David and Zafiris Tzannatos (1993) The Economics of Labour Mrket, Macmillan, London.  
 Singh Jwitesh Kumar (1998) Labour Economics, Deep and Deep Publishers, Delhi

**Name of the Programme: B.A. HONOURS**

**Course Code: BH.PAENV.MAJ 203**

**Name of the Course: Environmental Economics**

| Subject                 | Course credit | Credit distribution of the course |            |         |
|-------------------------|---------------|-----------------------------------|------------|---------|
|                         |               | Lecture                           | Field work | Project |
| Environmental Economics | 6             | 4                                 | 1          | 1       |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**Course Objectives:**

- Identify and analyze the key issues related to economic growth with environmental and ecological constraints.
- Demonstrate the use of economic theory in analyzing contemporary environmental issues and to identify valuation techniques to measure environmental problems

**Course Outcome:**

- Understanding of various roles, the environment plays in the economic process with merits and demerits of market based and control mechanism.
- Recognize and apply valuation techniques and undertake a basic environmental cost benefit analysis.
- Analyze the issues involved in meeting the challenges of climate change.

## Syllabus

### Unit I: Basic Environmental Issues: (15 hours)

Environment and Ecology; Linkages between Ecology, Environment and Ecosystems; Material Balance Approach; Principles of Uncertainty, Irreversibility, Inter-Temporal Efficiency, Inter-Generational Equity; Environment-Development Trade-Offs; Environmental Costs of Economic Growth, Limits to Growth; Sustainable Development □ Concepts and Indicators; Environmental Kuznets Curve.

### Unit II: Welfare Economics: (15 hours)

Social Sectors and Environment Pareto optimality and competitive equilibrium: Market failures; Theories of Externality and Public Goods, Solutions to Externality, Coase's Theorem, Property Rights and Transaction Costs; Free Rider's Problem, Optimal Provision of Public Goods □ Lindahl's Equilibrium; Common Property Resources – Tragedy of Commons. Land use: Deforestation, Urbanization and their Impact on Environment; Air and Water Pollution; Pigovian Tax and Subsidy on Pollution Control.

### Unit III: Environmental Valuation: (15 hours)

Environmental damages/Benefits, Social Cost Benefit Analysis; Definitions: Use Value, Option Value and Non-Use Values □ Total Economic Value. Valuation Techniques – Market and Non-Market: - Scientific, Behavioural and Technological - Production Based, Contingent Valuation, Hedonic-Pricing, Travel Cost Method, Risk Assessment, Environmental Impact Assessment; Valuation of Land, Forest and Mineral resources

### Unit IV: Economics of Resource Management: (15 hours)

Theories of Optional Use of Exhaustible and Renewable Resources; Integrated Environmental and Economic Accounting and the Measurement Environmentally Corrected GDP; Ecological Footprint Analysis; Comprehensive Wealth and Genuine savings; Global Environmental Governance.

### Selected Readings:

Baumol, W.J. and W.E. Oates (1988): The Theory of Environmental Policy (2e), CUP, Cambridge.

□ Fisher, A.C. (1981): Resource and Environmental Economics, CUP, Cambridge

□ Hanley, Shogren and White (1997): Environmental Economics in Theory and Practice, Macmillan.

□ Kolstad, C.D. (1999): Environmental Economics, OUP, ND.

□ Pearce, D.W. and R. Turner (1991): Economics of Natural Resource Use and Environment, John Hopkins Press, Baltimore.

□ Tietenberg, T. (1994): Environmental Economics and Policy, Harper Collins, NY.

□ Arrow, K.J., P. Dasgupta, I.H. Goulder, K.J. Mumford and K. Oleson (2012): "Sustainability and Measurement of Wealth", Environment and Development Economics, 17(3):317-53.

**Name of the Programme: B.A. HONOURS**

**Course Code: BH.PACST.CS 201**

**Name of the Course: Energy Economics**

| SUBJECT          | COURSE CREDIT CLASS | SEMESTER |
|------------------|---------------------|----------|
| ENERGY ECONOMICS | 02 B.A. HONOURS     | VIII     |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**COURSE OBJECTIVE:**

Efficiency and sustainability of energy system are pre-requisites for Sustainable Development and the challenges to achieve this lie at the interface of technology innovation and human behavior.

**Course Outcomes: On successful completion of the course, the Students will be able to**

This course covers the economic principles that guide energy related behavior of both the producers and the consumers of energy. It begins with an orientation through recapitulation of building blocks that are extensively used in studying energy behavior. It then deals with various aspects of energy demand and supply and ponders over the contemporary issues related to energy access and energy security.

**Unit I: Introduction to Energy Economics (8 Hours)**

Define Energy Economics; Energy Resources and Energy Commodities; Properties of Energy Resources and Energy Commodities; Law of Thermodynamics; Energy Conversion Processes; Energy Conservation and Energy Efficiency

**Unit II: Energy Crisis (8 Hours)**

Understanding the Energy Crisis– Past to Present; The International Energy Crisis of the 1970s–Causes, Effects and Solutions to the Global Energy Crisis; Energy Crisis and Solution in India.

**Unit III: Economics of Energy Supply and Demand (14 Hours)**

Classify energy on the basis of sources – renewable or non-renewable; worldwide energy supply – by country; sources of energy supply –Fossil fuels (coal, oil, natural gas), Renewable energy (Hydro, Marine, wind, solar, Geothermal, bio), Nuclear power; Trend and patterns of energy production; Social, Economic and Environmental Effects of Energy Production; Demand for Energy as a Derived Demand; Demand Substitution among Energy Commodities; The Increasing Global Demand for Energy– Causes and Impact of increase in Demand for Energy; World Energy Consumption – Economic Growth and World Energy Consumption by Source

**Reference Books:**

Stevens, P. (2000). An Introduction to Energy Economics. In Stevens, P. (ed.) The Economics of Energy, Vol. 1, Edward Elgar, Cheltenham, UK. Bhattacharyya, Subhes. C. (2011). Energy Economics: Concepts, Issues, Markets and Governance. Springer. London, UK. (Selected chapters) Hartwick, J. M, and Olewiler, N. D.(1986). The Economics of Natural Resource Use. Harper and Row Publishers, New York, USA. GEA, 2012: Global Energy Assessment - Toward a Sustainable Future, Cambridge University Press, Cambridge, UK and New York, NY, USA and the International Institute for Applied Systems Analysis, Laxenburg, Austria

**Name of the Programme: B.A. HONOURS****Course Code: BH.PAGEN.EC 201****Name of the Course: Gender Economics**

| SUBJECT          | COURSE CREDIT | CLASS | SEMESTER |
|------------------|---------------|-------|----------|
| Gender Economics | 04            | MA    | VIII     |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**Course Objectives:**

Evaluate sources of socio-economic and demographic information for analysing the impact of the gender factor on demographic processes and economic development;

Become familiar with theoretical concepts in the area of gender economics— become familiar with the methodology of gender analysis in economic sciences and research gender analysis indicators.

**Course Outcomes: On successful completion of the course, the Students will be able to**

Acquire the skills to conduct gender review of socio-economic and demographic development policies, programmes and strategies.

Analysis systematic perception of how the gender factor can impact on economic and demographic development.

**Syllabus****Module I: Introduction to gender studies: (15 hrs)**

Importance of Women's Studies, Concepts- 'Sex' Versus 'Gender', Oppression and Exploitation

Socialisation, Social Construction, Deconstruction, Patriarchy, Trends in, Feminism, Gender Based Division of labour, Economic Basis and Functioning of Patriarchy and Matrilineal, societies, Structures and systems, Gender and the Process of Economic Development: Feminist, Human Development Approach, Gender and Development, Indices- Mainstreaming Gender into-Development Policies, Gender Planning Techniques and Gender Sensitive Governance, Paradigm Shifts from 'women's Wellbeing' to 'Women's Empowerment'- Addressing Practical Gender Needs and Strategic, Gender Needs of Women

**Module 2: Women: Demographic Aspects: (15 hrs)**

Age structure, Mortality rates and Sex ratio, Cause of Declining Sex Ratios and Fertility Rates in LDCs with, Special Reference to India, Theories and Measurement of Fertility and Its Control, Gender and Population Control Policy with Special Reference to India, Reproductive Rights Women, Health and Nutrition, Economic Status of Women- Work Participation Rate of Women

**Module 3: Women in Decision Making: (15 hrs)**

Factors Affecting Decision-making by Women, Role of Voluntary Organizations, Self-help Group- Women's, Leadership in Micro Finance, Review of Legislation for Women's Entitlements, Protection of Property Rights and social Security, Schemes for Safety-net for women, Social structure and Social Security of Women-Entitlements, Access to Control over Economic Resources, Ensuring Economic, Independence and Risk Coverage, Power of Decision-Making at Household Levels, Class and Community Levels- Role of Kinship in Allocation of Domestic and Social Resources, Economic Status of women and its Effect on work Participation Rate, Income Level, Health and Education in Developing Countries and India, Democratic decentralization and Women's Empowerment in India

**Module 4: Conceptualization of Women's Work: (15 hrs)**

Concept and Analysis of Women's Work-Paid and Unpaid Work-valuation of Productive and Unproductive Work Visible and Invisible, Works: Visibility of Women in Statistic and Indicators- Economically, Productive and Socially Productive Work, Economics Status, Private Property and Participation of Women in Pre-industrial and Industrial societies, Women's Contribution to

National Income, Women and Labour Market-Factors Affecting Women's Entry in Labour Market-Supply and Demand of Women's Labour in the Developed and Developing Countries, Work participation of women in agriculture and non-agriculture activities (with reference to India) – Work Efficiency and Women, Women in the Informal Sector, Small Scale and Cottage Industries, Women in the Organised and Service Sector Wage Differentials in Female Activities-Determinants of Wage, Differentials: Gender. Education, Skill, Productivity, Efficiency, Opportunities. Structures of Wages Across Regions and Economic Sectors.

**Reference Books:**

Carolyn Moser Gender Planning and Development, Routledge, London, 1993.

Vibhuti Patel Women's Challenges of the New Millennium, Gyan Publications, Delhi, 2002.

UNDP, Decentralisation in India-Challenges and Opportunities, United Nations Development Programme, 2001.

Agarwal, B. (1994), A Field of One's Own: Gender and Land Rights in South Asia, Cambridge University Press, Cambridge

Agarwal, B. (1986), Cold Hearths and Barren Slopes; The Wood Fule Crisis in the Third World, Allied Publishers, Delhi.

Agnihotri, S.B.(2000), Sex ratio in Indian population; A Fresh exploration, saga publications, New Delhi

**Name of the Programme: B.A. HONOURS**

**Course Code: BH.PACRF.EC 202**

**Name of the Course: Corporate Finance**

| SUBJECT           | COURSE CREDIT | CLASS | SEMESTER |
|-------------------|---------------|-------|----------|
| Corporate Finance | 04            | MA    | 02       |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**Course Objectives:** To enhance the abilities of learners to develop the objectives of Financial Management and to enable the learners to understand, develop and apply the techniques of investment in the financial decision making in the business corporates also to enhance the abilities of learners to analyse the financial statements

**Course Outcomes: On successful completion of the course, the Students will be able to**

- understand the significance of corporate finance.
- evaluate different options for short-term financing.

- evaluate the leasing versus buying alternatives.
- evaluate different options for long-term financing.
- evaluate warrants and convertibles as options of financing.

### **Module 1: Dividend Policy (15 hours)**

Meaning of Dividend and Dividend Policy Reasons for Paying Dividends- Constraints on Dividend Policy Payout Controversy (Relevance/ Inelevance of Dividends) - Alternatives to Cash Dividends: Scrip Dividends (Bonus Shares), Stock Repurchases and Stock Splits

### **Module 2: Financial Statements and Short-term Corporate Financing (15 hours)**

Financial Statement: Basic Concepts, Composition of Balance Sheet, Income Statement and Cash Flow Statement Need for short-term financing: short-term versus long-term financing: unsecured short-term financing; accruals and deferred income, trade credit, short-term bank loan, commercial paper, secured short-term financing: inventory financing. and accounts receivable financing.

### **Module 3: Ratio Analysis (15 hours)**

Ratio Analysis: Meaning, Significance and Limitations of Ratio Analysis-Types of Ratios: Liquidity Ratios (Current, and Quick Acid Test) - Turnover or Asset Management Ratios (Inventory Turnover. Fixed-Asset Turnover and Total Assets Turnover) -Debt Management or Financial Leverage Ratios (Debt and Debt-Equity) and Profitability Ratios (Gross Profit Margin, Net Profit Margin, Return on Total Assets and Return on Equity)

### **Module 4: Convertibles, Exchangeable and warrants (15 hours)**

Convertible securities: conversion price and conversion ratio, conversion value and premium over conversion value, other features, financing with convertibles, forcing conversion; value of convertible securities: debt-plus-option characteristic, straight bond value, premiums, relationship among premiums; exchangeable bonds: features, use in financing, valuation of an exchangeable; warrants: features, valuation of a warrant, premium over theoretical value and relationship between values.

### **Reference Books:**

1. Bodie, Z. et al. (2009), Financial Economics, Pearson Education, New Delhi. 2 Bhattacharya, D. (2011), Management Accounting, Pearson Education, New Delhi
2. Brealy, Meyer, Principles of Corporate Finance, 8 edition, Tata-McGraw-Hill Publishing Co. Ltd. New Delhi 4 Chandra, Prasanna (2008) Fundamentals of Financial Management.
3. Ehrhardt, M. C. and E. F. Brigham (2003), Corporate Finance Focused App. Learning (India Edition), New Delhi 49/64
4. Megginson, W. LS B. Smart and 1, G. Gitman (2007), Principles of Corporate Finance Cengage Learning, New Delhi. 8. Pathak Bharati (2008) The Indian Emansial System-Markets, Institutions, and Services (2nd Edition), Pearson Education, New Delhi
5. Brigham, E. F. & Houston, J. F. Fundamentals of financial management. New Delhi: Cenage Learning India Pvt. Ltd.  
& Rana, s. B. Financial management.
6. Paudel, R. B., Baral, K.J. Gautam, R.R. and Rana, S.B. Financial management Kathmandu: Asmita Book Publishers and Distributors (P)Ltd.
7. Pradhan, R. S. Capital structure management. Kathmandu: Landmark Publications.

**Name of the Programme: B.A. HONOURS**  
**Course Code: BH.PAMAT.EC 203**  
**Name of the Course: Mathematical Economics**

| SUBJECT                | COURSE CREDIT | CLASS | SEMESTER |
|------------------------|---------------|-------|----------|
| Mathematical Economics | 04            | MA    | 02       |

**Pedagogy:** Classrooms lecture, tutorials, Group discussion, Seminar, Case studies, field work etc.,

**Course Objectives:**

- To equip students with economic concepts and theories interpreted with the help of mathematical tools and techniques to refine verbal logic.
- To introduce various mathematical techniques/methods/models related to economic theory like consumer theory, theory of production, product pricing in the decision making by firms in different market structures.
- To make use of calculus and integration in economic analysis relating consumers and producer's surplus, optimization behaviour of firms and consumers and so on.

**Course Outcomes: On successful completion of the course, the Students will be able to**

- Determine the optimal quantity combination of goods by consumers and constrained output maximization and cost minimization behaviour of firms while producing goods.
- Learners can compute equilibrium prices, outputs and profits under different market structures.
- Evaluate effect of taxation and subsidies on firm's equilibrium price, output and profits.
- Use mathematical tools in economic analysis.

**Module 1: set and its elements (15 hours)**

basic set theoretic operations, De Morgan's Laws, slope and intercept of a straight line, higher order functions, logarithmic and exponential functions, rules of logarithms and exponentiation, limits of sequences

**Module 2: Derivative (15 hours)**

function, addition, multiplication and Chain rule, application of derivatives in Economics, Unconstrained optimisation, in Economics, partial derivatives and their applications in Economics, introduction to integration and its applications in Economics

**Module 3: Constrained optimisation in Economics: (15 hours)**

Lagrange multipliers and equality constraints, constrained optimisation with inequality constraints applications in Economics

**Module 4: Matrix Algebra and input-output model: (15 hours)**

Rules for addition, subtraction and multiplication of matrices, types of matrices, Transpose of a matrix and its properties. Determinants: properties, inverse of matrix and solution of linear equations with examples, Cramer's rule and its uses to solve equations

**References:**

- Chiang, Alpha C., Fundamental Methods of Mathematical Economics, McGraw Hill
- Rosser, Mike, Basic Mathematics for Economists, Routledge, Taylor & Francis Group
- Monga, G. S. (1972), Mathematics and Statistics for Economists, Vikas Publishing
- House, New Delhi.
- R G D Allen, Mathematical Economics

- A C Chiang, Mathematical Economics
- Henderson & Quandt, A Mathematical Treatment to Microeconomics
- A Koutsoyiannis, Modern Microeconomics
- MeheS C Patra, Mathematical Techniques for Economic Analysis
- ta & Mednani, Mathematics for Economists
- Apostol, T. (1991): Calculus, Volumes 1 and 2, Wiley.
- Simmons, G. and Krantz, S. (2006): Differential Equations, McGraw Hill.

- **MAJOR /MINOR/ ELECTIVE SUBJECT EVALUATION SCHEME:**

- **CIA (CONTINUOUS INTERNAL ASSESSMENT)- 40 MARKS**

- **ESE (EXTERNAL EXAM)- 60 MARKS**

- **Components of CIA**

**CIA 1- Internal Exam- 20 marks**

**CIA 2- Any one of the following- 20 marks**

**a) Assignment and Presentation**

**b) Field Work and Report**

**c) Study Tour and Report**

**d) Group Discussion**

**e) PPT Presentations**

- **ESE EXTERNAL EXAM PAPER PATTERN (60 MARKS)**

**Q.1. Any 2 questions out of 3 on Module 1 (12 marks)**

**Q.2. Any 2 questions out of 3 on Module 2 (12 marks)**

**Q.3. Any 2 questions out of 3 on Module 3 (12 marks)**

**Q.4. Any 2 questions out of 3 on Module 4 (12 marks)**

**Q.5. Any 2 questions out of 3 on all modules (12 marks)**

- **ON JOB TRAINING (BH.PAOJT.OJT 201) CERTIFICATE (4 CREDIT ALLOCATED)**