

COURSES OF STUDIES

M.A. (ECONOMICS), 2024-26

Autonomous

Choice Based Credit System

(Passed in the BoS meeting 9th August, 2024)



**P.G. DEPARTMENT OF ECONOMICS
&
AFFILIATED COLLEGES
OF
SAMBALPUR UNIVERSITY
JYOTI VIHAR, SAMBALPUR
ODISHA
768019**

MISSION

M1	Educate society for generations by providing transformative education with deep disciplinary knowledge and concern for environment
M2	Develop problem solving, leadership and communication skill in student participants to serve the organisation of today and tomorrow
M3	Aim for the holistic development of the students by giving them value based ethical education with concern for society
M4	Foster entrepreneurial skills and mindset in the students by giving life-long learning to make them responsible citizens

Programme Education Objectives

PEO1	Understand the nature and basic concepts of Economics .
PEO2	Analyse the relationships among different concepts
PEO3	Perform procedures as laid down in the areas of study
PEO4	Apply the Basic Concepts learned to execute them

Programme Outcomes

PO-1	Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions
PO-2	Effective Communication: Will be able to speak, read, write and listen clearly in person and through electronic media in English and in one Indian Language
PO-3	Social Interaction (Interpersonal Relation): Elicit views of others, mediate disagreements and prepared to work in team
PO-4	Entrepreneurship Capability: Demonstrate qualities to be prepared to become an entrepreneur
PO-5	Ethics: Recognize different value systems including your own, understand the moral dimensions and accept responsibility for them
PO-6	Environment and Sustainability: Understand the issues of environmental contexts and sustainable development
PO-7	Life-Long Learning: Acquire the ability to engage in independent and life-long learning in the context of socio-technological changes

**SEMESTER-WISE SKELETON OF THE TWO YEARS P.G. PROGRAMME IN UNIVERSITY P.G.
DEPARTMENTS AND COLLEGES UNDER SAMBALPUR UNIVERSITY**

For P.G. ECONOMICS			
	From the Dept	From Other Departments/ SWAYAM	
Semester	credit		credit
First	20	Env. Studies & Disaster Management (ESDM)	2
Second	20	Inter Dept. course (IDC) or Open Elective	3
Third	20	Entrepreneurship Development (ED)	2
Fourth (including Project of 4 credit)	20		
Total	80	MOOCs one paper (in 2 nd or 3 rd Sem)	3
Total credit for 2 year course = 90 credits			
Furthermore, the following non-credit course will be taken by the student			
1. Yuva Sanskar	2. N.C.C./ N.S.S./ Performing Arts/Yoga (of which one has to be opted)		

- In each Semester, the Department to offer 5 papers of 4 credits(i.e.,5x4=20credits)
- The results of fourth and final semester results will incorporate taking into consideration the MOOCs of 3 credit.
- The students will take one MOOCs Course according to his/her preference in consultation with HOD and submit the document in support of undertaking the MOOCs course to the respective Department.
- Students will apply in prescribed form their preference for NCC/NSS/ Performing Art/Yoga at the beginning of the session. The consolidated list of the same will be forwarded by the HODs to the office of the Chairman, PG Council. Depending upon the number of application, maximum capacity and preference, the students will be allotted one of the above non-credit courses.

1. Distribution of Marks in % for the theory Papers

Theory Papers offered by the own Department		Theory Paper offered by other Department	
End Term	Mid Term	End Term	Mid Term
80%	20%	60%	40%
Mid- term will consist of (10% for 2 class tests, 5% for assignment, 5% for case study in case of mid-term of 20%; 20% for 2 class tests, 10% for assignment, 10% for case study in case of mid-term of 40%)			

2. Project work of 4th Semester will be assigned to the students (jointly or individually) at the beginning of the III Semester and will be completed in the IV semester. The distribution of the work/marks will be as follows:

Semester wise work and distribution of marks in % for Project			
III Semester (20%) Evaluation of Interim Report of the Project Work			
Background of the Problem (5%)	Review of Literature (5%)	Objectives (5%)	Methodology (5%)
IV Semester (80%) Evaluation of Final Report of the Project Work			
Project work (50%)		Viva (30%)	

3. Question Pattern and Mark Distribution of the Theory Paper

a. For End-Term Examination of Total Marks 80 (Four Units Course)

Q.1 Twenty Questions of 1 mark each (Questions patterns should be of MCQ, Fill in the Blanks, True/False, Definition etc.) (20 x 1 = 20)

For Unit-I, Unit-II, Unit-III and Unit-IV

Each question will be of 15 marks, and it should have alternative in each unit. The distribution of 15 marks will be decided by the paper setter.

[Suggested patterns distribution of 15 marks are 15; 8+7; 7.5+7.5; 5+10, 2+3+10, 5+5+5 etc.]

b. For End-Term Examination of Total Marks 60 (Four Units Course)

Q.1 Twelve Questions of 1 mark each (Questions patterns should be of MCQ, Fill in the Blanks, True/False, Definition etc.) (12 x 1 = 12)

For Unit-I, Unit-II, Unit-III and Unit-IV

Each question will be of 12 marks and there should have alternative in each unit. The distribution of 12 marks will be decided by the paper setter.

[Suggested patterns distribution of 12 marks are 12; 8+4; 6+6; 2+3+7, 4+4+4 etc.]

4. Pass percentage

For each paper pass percentage is 30% (Credit 4). For clearing the semester Overall Grade Point should be 4.5 (40%).

For IDC, Environmental Studies and Disaster Management and Entrepreneurship Development Programme the pass percentage is 30% (Credit 4).

For MOOC course the pass percentage is as per the programme guideline

COURSE STRUCTURE FOR M.A. ECONOMICS (AUTONOMOUS)				
COURSE NO.	TITLE of the COURSE	End Term Marks	Internal Marks	Credit Hour
First Semester				
ECO-411	MICRO ECONOMIC THEORY-I	80	20	4
ECO-412	MACRO ECONOMIC THEORY-I	80	20	4
ECO-413	STATISTICAL METHODS	80	20	4
ECO-414	ENVIRONMENTAL ECONOMICS	80	20	4
ECO-415	INTERNATIONAL TRADE & FINANCE-I	80	20	4
Env. Studies & Disaster Management (ESDM)		60	40	2
Total Credit Hours for First Semester		460	140	22
Second Semester				
ECO-421	MICRO ECONOMIC THEORY-II	80	20	4
ECO-422	MACRO ECONOMIC THEORY-II	80	20	4
ECO-423	QUANTITATIVE METHODS	80	20	4
ECO-424	INDIAN ECONOMY	80	20	4
ECO-425	INTERNATIONAL TRADE & FINANCE-II	80	20	4
Inter Dept. course (IDC)		60	40	3
Total Credit Hours for Second Semester		460	140	23
Third Semester				
ECO-511	PUBLIC ECONOMICS-I	80	20	4
ECO-512	GROWTH & DEVELOPMENT THEORY-I	80	20	4
ECO-513	MATHEMATICAL ECONOMICS-I/AGRICULTURAL ECONOMICS-I	80	20	4
ECO-514	ELEMENTARY ECONOMETRICS	80	20	4
ECO-515	FINANCIAL INSTITUTIONS & MARKET /HISTORY OF MODERN ECONOMIC ANALYSIS (CONTRIBUTIONS OF NOBEL LAUREATES)	80	20	4
Entrepreneurship Development (ED)		60	40	2
Total Credit Hours for Third Semester		460	140	22
Fourth Semester				
ECO-521	PUBLIC ECONOMICS-II	80	20	4
ECO-522	GROWTH & DEVELOPMENT THEORY-II	80	20	4
ECO-523	MATHEMATICAL ECONOMICS-II/AGRICULTURAL ECONOMICS-II	80	20	4
ECO-524	ADVANCED ECONOMETRICS/ CLIMATE CHANGE ECONOMICS	80	20	4
ECO-525	PROJECT AND VIVA	20+50	30	4
Total Credit Hours for Fourth Semester		400	100	20
MOOCs one paper (to be taken either in 2 nd or 3 rd Sem)				3
TOTAL CREDIT HOURS OF THE COURSE				90

Distribution of Marks

AP	Assignment and Presentation	5 Marks
CT-1	Class test-1	5 Marks
CT-2	Class test-2	5 Marks
PF	Project/Field Work	5 marks
IA	INTERNAL ASSESSMENT	20 Marks
EE	External Evaluation	80 Marks

SEMESTER-I

ECO-411: MICROECONOMIC THEORY-I

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Micro Economics-I
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: This paper analyses the economic behaviour of individuals, firms and markets. It is mainly concerned with the objective of equipping the students in a rigorous and comprehensive manner with the various aspects of consumer behaviour and demand analysis, production theory and behaviour of costs, the theory of traditional markets and equilibrium of firm in modern non-profit maximizing framework.

Expected outcome: Students will know the application of Economic Theory in to practice.

1. Theories of demand

- 1.1 Utility, indifference curve
- 1.2 Income and Substitution effects: Slutsky theorem, compensated demand curve and their applications
- 1.3 Revealed Preference Theory: Revision of demand theory by Hicks: Characteristics of goods approach, Consumers' choice involving risk.

2. Theory of Production and Cost

- 2.1 Production function- short period and long period
- 2.2 law of variable proportions and returns to scale, Isoquants, Least Cost combination of inputs : Returns to factors ; Economies of scale
- 2.3 Elasticity of substitution
- 2.4 Euler's Theorem
- 2.5 Traditional and modern theories of Costs- Empirical evidence, Derivation of Cost functions from production functions.

3. Price and Output Determination-I

- 3.1 Perfect competition- short run and long run equilibrium of the firm and industry, price and output determination, supply curve
- 3.2 Monopoly- short run and long run equilibrium, price determination, welfare aspects, monopoly control and regulation
- 3.3 Monopolistic competition- general and Chamberlin approaches to equilibrium, equilibrium of the firm and the group with product differentiation and selling costs, excess capacity under monopolistic and imperfect competition, criticism of monopolistic competition.

4. Price and Output Determination-II

- 4.1 Oligopoly- Non –collusive (Cournot, Bertrand, Edgeworth, Chamberlin, Kinked demand curve and Stackelberg's solution)
- 4.2 collusive (Cartels and mergers, Price leadership and basing point price system) models
- 4.3 Price and output determination under monopsony and bilateral monopoly.

Reading List:

1. Kreps, David M. (1990) A Course in Microeconomic Theory, Princeton University Press, Princeton.
2. Koutsoyiannis, A (1979), Modern Micro Economics, Mac Millan Press, London
3. Layard, P.R.G. and A.W. Walters (1978), Microeconomic Theory, Mc Graw Hill, New York.
4. Varian, H (2000) Microeconomic Analysis, W.W. Norton, New York.
5. Baumol, W.J. (1982) Economic theory and Operation analysis, Prentice Hall of India, New Delhi.
6. Gree, H.A.G (1971) Consumer Theory, Penguin, Harmondsworth.
7. Hirshleifer J. and A. Glazer, (1997) Price Theory and Applications, Prentice Hall of India, New Delhi.
8. Da Costa, G.C (1980) Production, Prices and Distribution, Tata Mc Graw Hill, New Delhi.

ECO-412: MACRO ECONOMIC THEORY-I

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Macro Economics-I
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: Macroeconomics analyses and establishes the functional relationship among the large aggregates. This paper is designed to make the students aware of the basic theoretical framework underlying in the field of macroeconomics. It also gives emphasis on the impact of different macroeconomic policies on the economy.

Expected outcome: After completing this course the students will be able to know the basic theoretical framework of the aggregate economy. As emphasis has been given in the theories relating to the supply of money, demand for money, inflation, business cycle, neo- classical and Keynesian synthesis, role of fiscal policy and monetary policy; the students can analyse and relate these theories to the real world situation

UNIT-1 NATIONAL INCOME AND ACCOUNTS CONSUMPTION FUNCTION

- 1.1 Circular flow of income in two, three and four sector economy
- 1.2 Different forms of national income accounting- social accounting, input output accounting, flow of funds accounting and balance of payments accounting, Green Accounting.
- 1.3 Keynes's psychological law of consumption- implications of the law
- 1.4 Short run and long run consumption function, Empirical evidence on consumption function
- 1.5 Income-consumption relationship- absolute income, relative income, life cycle and permanent income hypotheses

UNIT-2 SUPPLY OF MONEY

- 2.1 Financial intermediation- a mechanistic model of bank deposit determination
- 2.2 A behavioural model of money supply determination, a demand determined money supply process

- 2.3 RBI approach to money supply; High powered money and money multiplier; control of money supply

UNIT-3 NEO-CLASSICAL AND KEYNESIAN SYNTHESIS

- 3.1 One sector Neo-classical and Keynesian models
- 3.2 The IS-LM models
- 3.3 Extension of IS-LM model with Government sector
- 3.4 Relative effectiveness of monetary and fiscal policies

UNIT-4 EXTENSION OF IS-LM MODELS

- 4.1 Extension of IS-LM models with labour market and flexible prices
- 4.2 The three sector Macro Model: Neo-classical and Keynesian
- 4.3 Policy implications of the neo-classical and Keynesian synthesis

Reading List:

1. Branson W.A. (1989), Macroeconomic Theory and Policy, Harper and Row, New York.
2. Dornbusch, R and F. Stanley (1997), Macroeconomics, McGraw Hill, Inc. New York.
3. Hall, R.E and J.B Taylor (1986), Macroeconomics, W.W. Norton, New York.
4. Jha, R. (1991), Contemporary Macroeconomic Theory and Policy, Wiley Eastern Ltd. New Delhi.
5. Levacic, R. and Rebmann, A. (1982), Macro Economics- An introduction to Keynesian –Neo-classical controversies, Macmillan, London.
6. Mankiw, N. G. (2010), Macroeconomics, Worth Publishers, 7th edition.
7. Romer, D.L. (1996), Advanced Macroeconomics, McGraw Hill Company Ltd. New York.
8. Shapiro E. (1996), Macroeconomic Analysis, Galgotia Publications, New Delhi.

ECO-413 STATISTICAL METHODS

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Statistical Method-I
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: The objective of the paper “**STATISTICAL METHODS**” is to teach the students about various types of secondary and primary data related to economic problems and enable the students for data analysis through computer software.

Expected outcome: After the completion of the paper, the students are expected to know applications of statistics in economics and use of statistics through computer.

1. AN INTRODUCTION TO STATISTICAL METHOD:

- 1.1 Measures of Central tendency,
- 1.2 Measures of dispersion,
- 1.3 Skewness, Moments and Kurtosis.
- 1.4 Index Numbers

2. CORRELATION AND REGRESSION ANALYSIS

- 2.1 Meaning, assumptions and limitations of simple correlation and regression analysis
- 2.2 Spearman's rank correlation coefficients and their properties
- 2.3 Method of least squares and the Gauss Markov Theorem; estimated variance in two variable linear model
- 2.4 partial and multiple correlation and regression

3 THEORY OF PROBABILITY

- 3.1 Classical and empirical definitions of probability; Laws of addition and multiplication; Conditional probability and concept of interdependence
- 3.2 Mathematical Expectation

4 THEORETICAL DISTRIBUTION, THEORY OF ESTIMATION AND TEST OF HYPOTHESES

- 4.1 Properties of Binomial, Poisson, and Normal distributions
- 4.2 Concept of an estimator and its sampling distribution
- 4.3 Desirable properties of an estimator
- 4.4 Formulation of statistical hypotheses- Null and Alternative
- 4.5 Type I and Type II error, Goodness of fit; Confidence intervals and levels of significance
- 4.6 Hypothesis testing based on Z, t, Chi-square, F

Reading List:

1. Chiang A.C (1986) Fundamental methods of Mathematical Economics, Mc Graw Hill, New York.
2. Allen, R.G.D (1974) Mathematical Analysis for Economists, Macmillan Press and ELBS London.
3. Yamane, Taro (1975) Mathematics for Economists, Prentice Hall of India, New Delhi.
4. Handry A.T (1999) Operations Research, Prentice Hall of India, New Delhi
5. Baumol, W.J (1984) Economic Theory and Operational Analysis, Englewood Cliffs, New Jersey.
6. Monga, G.S (1972) Mathematics and Statistics for Economists, Vikas Publishing House, New Delhi.

ECO-414

ENVIRONMENTAL ECONOMICS

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Environmental Economics
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objectives: The objective of this course is to acquaint the students of economics the various environmental issues and to provide some insights into the application of economic theory in the design and implementation of public policy related to the management of environment.

Expected outcomes: The students will learn the valuation of environment, the importance of institutions for the management of environment, and issues relating to sustainable development.

I. An introduction to Environmental Economics

- 1.1 Concepts: Natural resources (renewable and non-renewable), Pollutants (biodegradable and non-biodegradable), Threshold level value of pollution, Environmental Economics and Natural Resource Economics.
- 1.2 Environment Economy inter-linkage,
- 1.3 Economics of non-renewable resources and Hotelling model,
- 1.4 Carrying capacity of renewable resource, Efficiency and sustainability issues in the management of renewable resources.
- 1.5 Common pool resources and their management

II. Market Failure and Solutions

- 2.1 Environmental quality as a public good, Pollution as a public bad
- 2.2 The problems of environmental externalities (local, trans-boundary and global)
- 2.3 Policies for Optimal Pollution: (i) Pigovian measures, (ii) Coase' bargaining solution (iii) Tradable Pollution Rights, (iv) Command and Control measures (v) International treaties and Conventions

III. Valuation of Environment

- 3.1 Meaning and the need for environmental valuation, Direct and Indirect method of valuation, Willingness to pay and willingness to accept,
- 3.2 Revealed Preference method: Hedonic Price theory, Averting expenditure method, and Travel cost method
- 3.3 Contingent valuation method.

IV. Sustainable Development

- 4.1 Limits to growth hypothesis
- 4.2 Irreversibility and uncertainty issues relating to environment
- 4.3 Environment and development trade-off and the concept of sustainable development
- 4.4 Sustainability Rules and Indicators of sustainable development,
- 4.5 Integrated environmental and economic accounting.

Reading List:

- 1. Kolstad, C. D (1999) *Environmental economics*, Oxford University Press, New Delhi
- 2. Sankar, U (Ed.) (2001) *Environmental Economics*, Oxford University Press, New Delhi
- 3. Hanley N (1997) *Environmental Economics in Theory and Practice*, Macmillan, London.
- 4. Tietenberg T. (1994) *Environmental Economics & Policy*, Harper Collins, New York.
- 5. Bromley D W, (ed.) (1995) *Handbook of Environmental Economics*, Blackwell, London
- 6. Bhattacharya, R.N. (2001) *Environmental Economics an Indian Perspective*, Oxford University Press, New Delhi
- 7. Hussen, AM (1999) *Principles of Environmental Economics*, Routledge, London

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of International Trade & Finance-I
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: *This course has become relatively more relevant from the policy point of view under the present waves of globalization and liberalization both in the North and in the South. It aims to provide a deep understanding about the broad principles and theories, which tend to govern the free flow of trade in goods, services and capital at the global level.*

Expected outcome: *The students will not only be acquainted with the trade theories and policies but also will be able to analyse the impact of the relevant policies on the economy.*

1. Theories of International Trade

- 1.1 Classical Theories of trade, Opportunity costs and trade theories
- 1.2 Empirical testing of theory of comparative cost.
- 1.3 Heckscher-Ohlin theory, Leontieff's paradox
- 1.4 Theorem of factor price equalization Gains from trade and their distribution.

2. Trade Theories with Economies of Scale and Imperfect Competition

- 2.1 Imitation gap theory, Technological gap and Product cycle theory.
- 2.2 Economies of scale and International trade
- 2.3 Linder –Kraus model
- 2.4 Product differentiation and intra-industry trade Krugman model and Lancaster model.

3. Theory of interventions and Welfare implications:

- 3.1 Trade protection measures- Tariffs, Quotas and voluntary export restraints
- 3.2 Tariff and rewards to the factors of production in the short, medium and long run
- 3.3 Stolper-Samuelson theorem on welfare implications of tariff,
- 3.4 Metzler's paradox, nominal, effective and optimum tariff
- 3.5 The political economy of non-tariff barriers and their implications.

4. The Theory of Regional Blocs

- 4.1 Forms of economic cooperation
- 4.2 Reforms for the emergence of trading blocs at the global level
- 4.3 Static and dynamic effects of a customs union, EU, NAFTA
- 4.4 Rationale and economic progress of SAARC/SAPTA and ASEAN regions.

Reading List:

1. Salvatore, D (2014) *International Economics: Trade and Finance*, Wiley Students' Edition, 11th Edition.
2. Soderstein, Bo. And G. Reed,(1994) *International Economics*, The Palgrave Macmillan, London, 3rd (revised) edition.
3. Cherunilam, Francis (2017), Mc Graw Hill, Education
4. Carbough, R.J. (1999) *International Economics*, International Thomson Publishing, New York.

5. Chacoliades, M. (1990) *International Trade : Theory and Policy*, Mc Graw Hill, Kogakusha, Japan
6. Acharya, Rajat (2013) *International Economics An Introduction to Theory and Policy*, Oxford University Press, New Delhi

COURSE NAME: ENVIRONMENTAL STUDIES & DISASTER MANAGEMENT(ESDM)

Note: To be offered by a Science Department (in case of PG Departments of SU, it is offered by the Department of Environmental Science)

Section A: Environment

Unit – I Concept of Environment, Ecosystem, Biogeochemical Cycling and Pollution (5 periods x 1 hr)

The Environment: The Atmosphere, Lithosphere, Hydrosphere, Biosphere, Anthroposphere (01 period)

Ecosystem: Structure of Ecosystem, Function of Ecosystem, Energy flow in ecosystem. (01 period)

Biogeochemical cycle: The concept of Elemental Cycling; Carbon, Hydrogen, Nitrogen, Oxygen, Phosphorous, Sulphur cycles (01 period)

Pollution: Pollution, Pollutant and Thresholds; Ambient State and Polluted State; Water, Air, Soil, Radiation, Industrial, Noise, Social Pollution(02Period)

Unit – II Climate Change & Sustainable Development (02 periods) (5 periods x 1 hr)

Drivers of Climate Change: Natural, Human Population Growth, Urbanization, Industrialisation (01 period)

Planetary Scale Changes: Causes, effects, Global Warming, Ozone Depletion, Carbon footprint and Environmental Protection (01 period)

Sustainable Development: Sustainable development concept, sustainable Development Goal (SDGs), Agenda 21 of Rio Earth Summit, Sustainable Montréal 2016-2020, COP 26 (01 Period)

Measures for sustainable Development: Recycle, Reuse, Efficiency enhancement, Policy Development, Performance and Management. (02 periods)

Section B: Disaster management

Unit- III Disaster Management Concept of Disaster: Definition, Types of disasters, Classification of Disasters (5 periods x 1 hr) (01 periods)

Vulnerability Assessment and Risk Analysis: Risk assessment and analysis with respect to various disasters (Flood, Cyclone, Earthquake, Tsunami, Heat waves and Lightning) (01 periods)

Institutional Framework: National Disaster Management Authority (NDMA), State Disaster Management Authority (SDMA), District Disaster Management Authority (DDMA), National Disaster Response Force (NDRF) and Odisha Disaster Rapid Action Force (ODRAF) (01 periods)

Preparedness Measures: Disaster Management Models; Warning System, Management strategies, Corporate Social Responsibility (CSR) (02 periods)

Unit-IV Public Health Management Brief idea on Epidemics and Pandemics (5 periods x 1 hr)

Non-communicable diseases with special reference to cardiovascular diseases, Cancer, Diabetes, Hypertension and Obesity and their prevention (01 period)

Communicable diseases with special reference to Covid-19, Dengue, Hepatitis and AIDS, their transmission 1 (01 period)

Prevention of Epidemic/Pandemic Diseases: Prevention Measures (Quarantine, Sanitization, Personal Protective measures such as Hand washing and use of protective devices, Vaccination); Control Measures (Surveillance, Isolation, Contact Tracing)

Life Style management: Diet, Physical Exercise, Yoga and sleeping habit (01 period)

Role of different Sectors in Managing Health Disaster: Role of Government and Non Government agencies in health management. (01 period)

Suggested Books

1. Botkin, D. B. and E. A. Keller. Environmental Studies: The Earth as a Living Planet. Charles E. Merrill Publishing Co., Columbus, Ohio, 506 p.
2. Cunningham, W. and Cumnnningham, M. (2017). Principles of Environmental Science: Inquiry and Applications. McGraw Hill Education; 4th edition., 410 p.
3. Dash, M.C. and Dash, S.P. (2009). Fundamentals of Ecology. (2009). McGraw-Hill Education (India) Pvt Limited. 370 p.
4. Miller G.T. (1992). Living in the Environment: An Introduction to Environmental Science. International Thomson Publishing; 7th Ed edition, 768 p.
5. NIDM (2022). Handbook of Disaster Management for Nodal officers, Ministry of Home Affairs, Government of India, New Delhi, 176 p.
6. Smith, K. and Petley, D.N. (2013). Environmental Hazards: Assessing risk and reducing hazards. Routledge (Taylor and Francis Group). London. 478 p.
7. Strahler, A.N. and Strahler, A.H. (1973). Environmental Geoscience: interaction between Natural Systems and Man. Hamilton Publishing Company, California. 511 p.
8. Sunder Lal Vikash (2022). Public Health Management Principles and Practice, CBS Publishers & Distributors, New Delhi, 348 p.

SEMESTER-II

ECO-421: MICROECONOMIC THEORY-II

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Micro Economic Theory-II
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: This paper is mainly concerned with the objective of equipping the students in a rigorous and comprehensive manner with the various aspects of production theory and behaviour of costs, the theory of traditional markets and equilibrium of firm in modern non-profit maximizing framework. The paper also deals with the micro and macro theories of distribution, welfare economics, general equilibrium in closed and open systems and analysis of economic behaviour under uncertainty.

Expected outcome: Students will know the application of Economic Theory in to practice.

1. Alternative Theories of the Firm I

- 1.1 Critical evaluation of marginal analysis
- 1.2 Baumol's sales revenue maximization model
- 1.3 Williamson's model of managerial discretion,
- 1.4 Full cost pricing rule.

2. Alternative Theories of the Firm II

- 2.1 Marris model of managerial enterprises
- 2.2 Bain's limit pricing theory and its recent developments including Sylos-Labinis model
- 2.3 Behavioural model of the firm ; game theoretic models.

3. Distribution

- 3.1 Neo-classical approach- Marginal productivity theory
- 3.2 Product exhaustion theorem
- 3.3 Theory of distribution in imperfect product and factor markets
- 3.4 Determination of rent, wages, interest and profit, Ricradian, Marxian, Kalecki and Kaldor's.

4. Welfare Economics and Economics of information

- 4.1 Pigovian welfare economics, Pareto optimal conditions, Value judgment; Social welfare function.
- 4.2 Theory of Second Best and General Equilibrium- Compensation principle; Inability to obtain optimum welfare- Imperfections, market failure, decreasing costs
- 4.3 Walrasian excess demand. The Economics of information.

Reading List:

1. Kreps, David M. (1990) A Course in Microeconomic Theory, Princeton University Press, Princeton.
2. Koutsoyiannis, A (1979), Modern Micro Economics, Mac Millan Press, London
3. Layard, P.R.G. and A.W. Walters (1978), Microeconomic Theory, Mc Graw Hill, New York.
4. Varian, H (2000) Microeconomic Analysis, W.W. Norton, New York.
5. Baumol, W.J. (1982) Economic theory and Operation analysis, Prentice Hall of India, New Delhi.
6. Gree, H.A.G (1971) Consumer Theory, Penguin, Harmondsworth.
7. Hirshleifer J. and A. Glazer, (1997) Price Theory and Applications, Prentice Hall of India, New Delhi.
8. Da Costa, G.C (1980) Production, Prices and Distribution, Tata Mc Graw Hill, New Delhi.

ECO-422: MACROECONOMIC THEORY-II

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Macro Economic Theory-II
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: Macroeconomics analyses and establishes the functional relationship among the large aggregates. This paper is designed to make the students aware of the basic theoretical framework underlying in the field of macroeconomics. It also gives emphasis on the impact of different macroeconomic policies on the economy.

Expected outcome: After completing this course the students will be able to know the basic theoretical framework of the aggregate economy. As emphasis has been given in the theories relating to the supply of money, demand for money, inflation, business cycle, neo- classical and Keynesian synthesis, role of fiscal policy and monetary policy; the students can analyse and relate these theories to the real world situation

1. POST KEYNESIAN APPROACHES TO DEMAND FOR MONEY

- 1.1 Regressive expectation model
- 1.2 Portfolio balance approach
- 1.3 Patinkin and the real balance effect
- 1.4 Friedman and the modern quantity theory
- 1.5 Crisis in Keynesian economics and the revival of monetarism.

2. MACROECONOMICS IN AN OPEN ECONOMY

- 2.1 Income determination in an open economy
- 2.2 Internal and external equilibrium-The Mundell-Fleming Keynesian model
- 2.3 Foreign trade multiplier

3. THEORY OF INFLATION

- 3.1 Keynesian and Monetarist approaches to inflation

- 3.2 Structuralists' theory of inflation
- 3.3 Phillips curve analysis- Short run and long run Phillips curve
- 3.4 Samuelson and Solow- the Natural rate of unemployment hypothesis
- 3.5 Tobin's modified Phillip's curve
- 3.6 Adaptive expectations and rational expectations

4. BUSINESS CYCLES AND THE NEW CLASSICAL CRITIQUE OF KEYNESIAN MICRO FOUNDATIONS

- 4.1 Meaning and features of Business Cycle
- 4.2 Theories of Business cycle: Schumpeter, Kaldor, Samuelson and Hicks, Goodwin
- 4.3 Control of business cycles- relative efficiency of monetary and fiscal policies
- 4.5 The new classical approach
- 4.6 Policy implications of new classical approach
- 4.7 New Keynesian Counter critics

Reading List:

1. Branson W.A. (1989), Macroeconomic Theory and Policy, Harper and Row, New York.
2. Dornbusch, R and F. Stanley (1997), Macroeconomics, McGraw Hill, Inc. New York.
3. Hall, R.E and J.B Taylor (1986), Macroeconomics, W.W. Norton, New York.
4. Jha, R. (1991), Contemporary Macroeconomic Theory and Policy, Wiley Eastern Ltd. New Delhi.
5. Levacic, R. and Rebmann, A. (1982), Macro Economics- An introduction to Keynesian –Neo-classical controversies, Macmillan, London.
6. Mankiw, N. G. (2010), Macroeconomics, Worth Publishers, 7th edition.
7. Romer, D.L. (1996), Advanced Macroeconomics, McGraw Hill Company Ltd. New York.
8. Shapiro E. (1996), Macroeconomic Analysis, Galgotia Publications, New Delhi.

ECO-423: QUANTITATIVE METHODS

Objective: The main objective of this paper is to train the students to use the techniques of mathematical and statistical analysis which are commonly applied to understand and analyse economic concepts. Economics being an empirical science, computers have emerged as the pivotal instruments of economic analysis, research and forecasting.

Expected outcome: This paper can develop the mathematical, statistical and computer skills of the students which they can apply to economics for better understanding of the subject matter.

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of quantitative methods for Economics
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

1. CALCULUS

- 1.1 Concepts of function, Limit and Continuity

- 1.2 Differentiation: rules of differentiation
- 1.3 Functions of several variables: partial derivatives, differentials, total differentials, second and higher order differentials, total derivative, implicit functions, Euler's theorem

2. MAXIMA AND MINIMA OF FUNCTIONS, CONCEPT OF INTEGRATION

- 2.1 Maxima and minima in single and multivariable functions
- 2.2 Simple rules of integration.
- 2.3 Application of derivatives and integration in Economics

3. DIFFERENCE EQUATIONS, DIFFERENTIAL EQUATIONS

- 3.1 Solution of non-linear differential equation and linear differential equation
- 3.2 Solution of first order and second order difference equations
- 3.3 Economic applications of Difference and Differential equations

4. MATRIX ALGEBRA

- 4.1 Concept of Matrix- their types, simple operations on matrices
- 4.2 Determinants and their basic properties
- 4.3 Solution of Simultaneous equations through Cramm's rule
- 4.4 Matrix inversion and rank of a matrix, Concept of vector- its properties; Matrices and vectors, Concept of Quadratic forms- Eigen roots and Eigen vectors

Reading List:

1. Chiang A.C. (1986), Fundamental methods of Mathematical Economics, McGraw Hill, New York.
2. Allen, R.G.D. (1974), Mathematical Analysis for Economists, Macmillan Press and ELBS London.
3. Yamane, Taro (1975), Mathematics for Economists, Prentice Hall of India, New Delhi.
4. K. Sydsaeter and P. Hammond (2002), *Mathematics for Economic Analysis*, Pearson Educational Asia: Delhi.

ECO-424:

INDIAN ECONOMY

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Indian Economy
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

The objective of the paper “Indian Economy” is to teach the students about different economic issues such as agriculture, industry, privatisation and parallel economy etc empirically.

Expected outcome: After completions of the course, the students are expected to important economic issues of Indian economy.

Unit 1 Basic feature of Indian Economy:

- 1.1 India's move from an underdeveloped economy to an emerging market economy
- 1.2 Basic issues of development; Poverty Estimation (Dandekar committee, Lakadwala Committee, Tendulkar Committee, Rangarajan Committee)
- 1.3 Multi dimensional aspect of Development; HDI, HPI, NITI Aayog and MPI

Unit 2. Economic policies and performance in the Pre-Liberalization Era:

- 2.1 Agriculture: Land Reforms and land tenure system, Green Revolution and capital formation in agriculture,
- 2.2 Industry Trends in composition and growth, Role of the public and private sector, Small scale and Cottage industries
- 2.3 National and Per capita income: patterns, trends, aggregate and Sectoral composition and changes There in.

Unit 3. Economic policies and performance in the Post-Liberalization Era

- 3.1 New Economic Reform and Agriculture: Agriculture and WTO, Impact of public expenditure on agricultural growth.
- 3.2 New Economic Policy and Industry: Strategy of industrialization, Privatization, Disinvestments, Role of foreign direct investment and multinationals.
- 3.3 New Economic Policy and Trade: Intellectual property rights: Implications of TRIPS, TRIMS, GATS and new EXIM policy

Unit 4. State of the Economy (Ref: last three years Economic Survey)

- 4.1 India's GDP and its growth in a global scenario
- 4.2 Current issues as highlighted in latest Economic Survey: Agriculture, Industry, Service sector,
- 4.3 Climate change adaptation and mitigation

Book list:

- 1. Panagariya, Arvind (2008): India: The Emerging Giant, Oxford University Press, New York
- 2. Acharya, S. and Mohan, R. (Eds.) (2010): India's Economy: Performance and Challenges, Oxford University Press, New Delhi.
- 3. Ahluwalia, I. J. and Little, I. M. D. (Eds.) (1998): India's Economic Reforms and Development: Essays for Manmohan Singh, Oxford University Press, New Delhi.

4. Bardhan, P.K. (1999) The Political Economy of Development in India, Oxford University Press, New Delhi
5. Rakshit, M. (2009): Macroeconomics of Post-reform India, Oxford University Press, New Delhi
6. VK Puri and SK Misra, Indian Economy, Himalaya Publishing House, 31st Revised Edition
7. Datta and Sundharam, Gaurav Datt and Ashwani Mahajan, Indian Economy S Chand Publications, 7th Revised Edition
8. Indian Economy Since Independence, ed by Uma Kapila, Academic Foundation, Revised Nineteenth Edition 2008-09
9. Economic Survey of India, Ministry of Finance, GoI NITI Ayog document
10. Sanjiv Verma and Pavneet Singh (2022) Indian Economy, Unique Publishers
11. Uma kapila (32 Ed .) 2021-22 Indian Economy Since Independence Publisher: Academic Foundation
12. Uma kapila (22 ed.) 2021-22 Indian economy : Performance and policies Publisher: Academic Foundation

ECO-425

INTERNATIONAL TRADE & FINANCE-II

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of International Trade & Finance-II
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: *This course has become relatively more relevant from the policy point of view under the present waves of globalization and liberalization both in the North and in the South. It aims to provide a deep understanding about the foreign exchange market, Balance of Payments, regionalism and multilateralism in trade and finance and trade policies of India.*

Expected outcome: *The students will not only be acquainted with the concepts, theories and policy interventions relating to exchange rate, BOP, regionalism but also will be able to analyse the impact of the relevant policies and external shocks on the economy.*

1. Foreign exchange Market

1.1 Demand and supply of foreign exchange

1.2 Marshall-Lerner Stability condition, Spot and forward rate, Fixed vs Flexible exchange rate

- 1.3 Mint parity theory, Purchasing power parity Theory
- 1.4 Monetary approach to balance of payments and exchange rate
- 1.5 Asset market model and exchange rate, exchange rate over shooting.

2. Balance of payments

- 2.1 Meaning and components of balance of payments ; Equilibrium and dis-equilibrium in the balance of payments ; The process of adjustment in BOP under systems of gold standard
- 2.2 Devaluation and its effectiveness- Elasticity and Absorption approach
- 2.3 Expenditure-reducing and expenditure switching policies and direct controls of adjustment; policies for achieving internal and external equilibrium simultaneously under alternative exchange rate regimes
- 2.4 Foreign trade multiplier with and without foreign repercussions.

3. International Monetary Systems

- 3.1 Gold Standard; Rules and operation, failure of the gold standard
- 3.2 The Bretton Woods System; Evolution and collapse of the Bretton Woods System the Rise and fall of Bretton-woods system
- 3.3 International reserves; meaning, need, determinants and adequacy and international reserves;
- 3.4 International crises; East Asian crisis, Global financial crisis, Euro zone crisis, Current Operation of IMF, International trade and GATT/WTO and UNCTAD.

4. Trade policies in India

- 4.1 Trade problems and trade policies in India during the last five decade; Recent changes in the direction and composition of trade and their implications; rationale and impact of trade reforms since 1991 on balance of payments
- 4.2 Problems of India's international debt
- 4.3 Working and regulations of MNC in India
- 4.4 Instruments of export promotion and recent import and export policies and the agenda for future.

Reading List:

1. Salvatore, D (2014) *International Economics: Trade and Finance*, Wiley Students' Edition, 11th Edition.
2. Soderstein, Bo. And G. Reed,(1994) *International Economics*, The Palgrave Macmillan, London, 3rd (revised) edition.
3. Cherunilam, Francis (2017), Mc Graw Hill, Education
4. Carbough, R.J. (1999) *International Economics*, International Thomson Publishing, New York.
5. Chacoliades, M. (1990) *International Trade : Theory and Policy*, Mc Graw Hill, Kogakusha, Japan
6. Acharya, Rajat (2013) *International Economics An Introduction to Theory and Policy*, Oxford University Press, New Delhi

INTER-DISCIPLINARY COURSE (IDC) OF 3 CREDIT TO BE TAKEN BY EACH STUDENTS FROM THE COURSES OFFERED BY OTHER DEPARTMENTS

SEMESTER-III

ECO-511: PUBLIC ECONOMICS-I

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Public Economics-I
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

***Objective:** Role and functions of the Government in an economy have been changing with the passage of time. This paper covers the theoretical aspects of Public Economics and Public Finance.*

***Expected outcome:** Students will know the application of Public Economics and its application to facts.*

1. Functions of Government

- 1.1 Role and Functions of Govt.: Allocation, Distribution and Stabilisation
- 1.2 Functions of Govt. Private goods, Public goods, Club good.
- 1.3 Externalities and Merit Goods. Allocation of resources, provision of public goods.

2. Public expenditure

- 2.1 Wagner's law of increasing state activities ; Wiseman-Peacock hypothesis
- 2.2 Voluntary Exchange models, Pure theory of public expenditure
- 2.3 Reforms in expenditure budgeting : Programme budgeting and zero base budgeting.

3. Taxation

- 3.1 Benefit and ability to pay approaches, Theory of optimal taxation
- 3.2 Theory of incidence ; Alternative concepts of incidence- Allocative and equity aspects of individual taxes
- 3.3 Excess burden of taxes, Trade-off between equity and efficiency
- 3.4 Theory of measurement of dead weight losses ; The problem of double taxation.

4. Public choice and Budget Determination

- 4.1 Voting systems: majority rule, plurality rule, point voting,
- 4.2 Median Voter model, Arrow Impossibility theorem. Down's Theory of Democracy.
- 4.3 Politico-eco-bureaucracy; rent seeking and directly unproductive profit seeking (DUP) activities.

Reading List:

1. Atkinson, A.B. and J.E. Siglitz (1980) Lectures on Public Economics, Tata McGraw Hill, New York
2. Auerbach, A.J. and M. Feldstern (Eds) (1985) Handbook of Public Economics, Vol.I, North Holland, Amsterdam.
3. Jha, R (1998) Modern Public Economics, Routledge, London
4. Musgrave, R.A. (1959) The Theory of Public Finance, McGraw Hill, Kogakhusa, Tokyo
5. Shoup, C.S (1970) Public Finance, Aldine, Chicago
6. Peacock . A and G.K. shaw (1976) The Economic Theory of Fiscal Policy, George Allen and Unwin, London.
7. American Economic Association (1955) Readings in Fiscal Policy, George Allen and Unwin, London.

ECO-512

GROWTH & DEVELOPMENT-I

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Growth & Development-I
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: *The study of economic development has gained importance because of sustained interest of the developing countries in uplifting their economic conditions by restructuring their economies to acquire greater diversity, efficiency and equity in consonance with their priorities. There have been many approaches to economic development and the objective of the paper is to make the students understand the various approaches to economic development and growth.*

Expected outcome: *Modules incorporated in this paper are devoted to the theories of growth and development, institutional aspects of development, role of international trade, investment criteria, social cost benefit analysis, relevance of planning in the context of development. After completing this course the students will be able to know the different aspects of economic develop00ment and can use these things in their future research as well as in qualifying the various national level tests.*

1. Theories of development:

- 1.1 Classical theory of development, contributions of Adam Smith, Ricardo, Malthus, Karl Marx
- 1.2 Capitalist crisis- Schumpeter and capitalistic development; Innovation- role of credit, profit and degeneration of capitalism, Structural analysis of development.
- 1.3 Rostow's stages of Economic growth.

2. Approaches to development:

- 1.1 Partial theories of growth and development, vicious circle of poverty, circular causation, unlimited supply of labour,
- 1.2 Big push, balanced growth, unbalanced growth
- 1.3 Critical minimum effort thesis, low income equilibrium trap.

3. Economic Growth-I:

- 1.1 Growth models- Harrod and Domar, instability of equilibrium
- 1.2 Neo-classical growth models- Solow model,
- 1.3 Technological progress- embodied and disembodied technical progress, Exogenous and endogenous technical progress,

2 Economic Growth-II:

- 1.1 A-K Model of Growth
- 1.2 Cambridge criticism of Neo-classical analysis of growth, The Capital controversy-general ideas,
- 1.3 Kaldor's growth model,

Reading List:

1. H.G. Jones (1976), "An Introduction to Modern Theories of Economic Growth"
2. Charles I Jones (2013), "Introduction to Economic Growth"
3. Ghatak, S (1986) An Introduction to development Economics, Allen and Unwin, London
4. Higgins, B. (1959) Economic Development, WW Norton, New York.
5. Meier G.M. (1986) Leading Issues in Economic Development, Oxford University Press, New York
6. Basu, Kaushik (2000) Analytical Development Economics: The less developed Economy Revisited, Oxford University Press, India.
7. Ray Debraj (2000) Development Economics, Oxford University Press, India.
8. Chenery H and T.N. Srinivasan (Eds) (1989) Handbook of Development Economics, Vols. 1&2, Elsevier, Amsterdam.
9. Todaro, M.P (1996) Economic Development, Longman, London
10. Thirlwall, A.P (1999) Growth and Development, Macmillan, UK.
11. Hayami, Y. (1997) Development Economics, Oxford University Press, New York
12. Sen, A.K. (Ed) (1990) Growth Economics, Penguin, Harmondsworth

ECO-513

MATHEMATICAL ECONOMICS-I

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Mathematical Economics-I
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: A student of economics can make much headway in understanding the subject with basic mathematical logic. Mathematical economics has been accordingly designed to include various mathematical techniques/ methods/ models related to the different parts of economic theory. This course is designed to equip students to understand the micro economic concepts and theories which use mathematical tools and techniques to refine the verbal logic.

Expected outcome: Students will know the integration of Mathematics and Economic Theory.

1. Theory of Consumer Behaviour

- 1.1 Cardinal and ordinal utility maximization; Slutsky equation, compensated demand functions, income, substitution and price effects

- 1.2 Concept of elasticities- generalizations to n variable case. Separate and additive utility functions; homogeneous and homothetic utility functions
- 1.3 constant elasticity of substitution (CES) and transcendental logarithmic utility functions ; duality theorem
- 1.4 consumers surplus ; Theory of revealed preference and index numbers ; Linear expenditure systems.

2. Theory of production

- 2.1 Production function- homogeneous and non-homogeneous, Properties of production function; CES, VEX and trans-log production function.
- 2.2 Simple derivation of short run and long run cost functions ; Modern approach to theory of costs; Cost function, constrained optimization of a producer ; Generalisation to n variable case ;
- 2.3 Input demand functions ;
- 2.4 Adding up theorem, Technical progress through production function.

3. Price determination in various markets

- 3.1 Price determination in perfect competition,
- 3.2 monopoly, monopolistic competition, duopoly,
- 3.3 oligopoly, and monopsony
- 3.4 Pricing of factors of production; Bilateral monopoly.

4. Market equilibrium

- 4.1 Marshallian and Walrasian equilibrium conditions, lagged market equilibrium
- 4.2 Multi-market equilibrium- general equilibrium
- 4.3 systems of Walras and Debreau ; Conditions of stability for equilibrium.

Reading List:

1. Allen RGD (1974) Mathematical Analysis for Economists, Macmillan Press and ELBS, London.
2. Chiang, A.C (1986), Fundamental Methods of Mathematical Economics, Mac Graw Hill, New York.
3. Henderson & Quandt, Micro Economic Theory, A mathematical approach, Mac Graw Hill, New Delhi.
4. Allen, RHD, (1976) Mathematical Economics, Macmillan, London
5. Arrow K.J., and M. Intrilligator, (Eds) (1982), handbook of Mathematical Economics, Volumes, I, II, III, North Holland, Amsterdam.
6. Hadley, G (1962) Linear Programming, Addison Wesley Publishing Co., Massachusetts.

OR

ECO-513
Course Outcomes

AGRICULTURAL ECONOMICS-I

CO-1	Remember and understand the basic concepts/Principles of Agricultural Economics-I
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: The objective of this course is to provide a detailed treatment of issues in agricultural economics to those intending to specialise in this area.

Expected outcome: It will familiarise students with the policy issues that are relevant to Indian agricultural economics and enable them to analyse these issues.

1. Agriculture and Economic Development

- 1.1 Nature and scope of agricultural and rural economics; Traditional agriculture and its modernization; Role of agriculture in economic development;
- 1.2 Models of interaction between agriculture and the rest of the economy (Schultz Model, Lewis Model, Fei- Ranis Model, Jorgenson's Model, Mellor's Theory);

2. Agricultural production and productivity

- 1.1 Agricultural production- Resource use and efficiency; production function analysis in agriculture, factor combination and resource substitution
- 1.2 Cost and supply curves; Size of firm and laws of returns. Theoretical and empirical findings
- 1.3 Farm budgeting and cost concepts; Supply response of individual crops and aggregate supply, Resource use efficiency in traditional agriculture; Technical change.

3. Land reforms and land policy

- 1.1 principles of land utilization: Land distribution- Structure and trends: land values and rent
- 1.2 Land tenures and farming systems- Peasant, capitalist, collective and state farming, Tenancy and crop sharing- Forms, incidence and effects
- 1.3 Land reforms measures and performance.

4. Rural labour market

- 1.1 Rural labour supply, interlocking of factor markets; Mobility of labour and segmentation in labour market;
- 1.2 Marginalization of rural labour; nature, extent and trends in rural unemployment; labour absorption and gender issues in agricultural services.
- 1.3 Agricultural wages in India; male-female wage differences, Non-agricultural rural employment- Trends and determinants.

Reading List:

- 1. Bhaduri A. (1984) The Economic Structure of Backward Agriculture, Macmillan, Delhi
- 2. Bilgrami SAR, (1996) Agricultural economics, Himalaya Publishing House, Delhi
- 3. Gulati , A & T. Kelly (1999), Trade Liberalisation and Indian Agriculture, Oxford University Press, New Delhi.
- 4. Rudra A. (1982), Indian Agricultural Economics: Myths and Reality, Allied Publishers, New Delhi.
- 5. Bardhan P. (1984) Land, Labour and Rural Poverty, Oxford University Press, New Delhi.
- 6. Soni, R.N (1995) Leading issues in Agricultural Economics, Arihant Press, Jalandhar.
- 7. Dantwala M.L, (1996) Dilemmas of Growth: the Indian Experience, sage Publications, New Delhi.
- 8. Vaidyanathan, A (1995) The Indian economy : Crisis, response and Prospects, Orient Longmans, New Delhi
- 9. Bhalla G. S (1994) Economic Liberalisation and Indian Agriculture, Institute for Studies in Industrial development, New Delhi.

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Econometrics
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: *Econometrics is mainly concerned with the empirical verification of economic theory. It requires a reasonable understanding of economic relationships and relevant statistical methods. Thus, the econometric theory becomes a powerful tool for understanding of applied economic relationships and for meaningful research in economics. This paper is devoted to equip the students with basic as well as advanced theory of econometrics and relevant applications of the methods.*

Expected outcome: *The topics covered in the course include various problems faced in estimation of both single equations and simultaneous equations models. The course also covers various econometric methods applicable to different topics in economics and those needed for applied economic research. Students are expected to know the basic concepts and applications of econometrics, adding rigour to the understanding of economic problems*

1. BASIC ECONOMETRICS

- 1.1 Nature, meaning and scope of econometrics
- 1.2 Simple and general linear regression model- Assumptions, Estimation (through OLS approach) and properties of estimators
- 1.3 Gauss Markov theorem
- 1.4 Concepts and derivation of R^2 and Adjusted R^2

2. GENERALISED LEAST SQUARES (GLS)

- 2.1 Generalised Least Square estimation (GLS)
- 2.2 Functional Forms of Regression models: The log-linear model, Semi-log model, Reciprocal model and the logarithmic reciprocal model

3. PROBLEMS OF REGRESSION ANALYSIS

- 3.1 Heteroscedasticity: nature, test, consequences and remedial steps of problems of heteroscedasticity
- 3.2 Multicollinearity: problem, types, causes, consequences, detection and remedial measures
- 3.3 Autocorrelation: problem, causes, AR scheme, consequences, detection and remedies

4. REGRESSIONS WITH QUALITATIVE INDEPENDENT VARIABLES AND DUMMY DEPENDENT VARIABLES

- 4.1 Dummy variable technique

- 4.2 Testing structural stability of regression models comparing to regressions,
- 4.3 Interaction effects, seasonal analysis
- 4.4 Piece-wise linear regression
- 4.5 The LPM Model
- 4.6 The Logit Model
- 4.6 The Probit Model

Reading List:

1. Jhonston J. (1991), Econometric Methods , McGraw Hill Book Co. London
2. Asteriou Dimitriou, (2006), Applied Econometrics, Palgrave Macmillan, New York
3. Gujarati D.N. (1995), Basic Econometrics, (2nd edition) McGraw Hill, New Delhi
4. Kmenta, J. (1977), Elements of Econometrics, (reprint edition) University of Michigan Press, New York.
5. Koutsoyiannis A. (1977), Theory of Econometrics (2nd ed.) The Macmillan Press Ltd. London.
6. Madalla G.S. (1997), Econometrics, McGraw Hill, New York.
7. Intrilligator, M.D. (1978), Econometric Methods, Techniques and Applications, Prentice Hall, Englewood Cliffs, New Jersey.
8. Pindyck, Robert S. and Daniel L. Rubinfeld, (1976), Econometric Models and Economic Forecasts, International Student edition, McGraw-Hill

ECO-515

FINANCIAL INSTITUTIONS & MARKETS

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Financial Institutions and Market
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: *The present course is designed to acquaint the students the theory and practice of different financial institutions, financial assets, and markets. It is also aimed at to acquaint them with the Government policies and, the role of financial sector over time.*

Expected outcome: *After completing this course the students will be well conversant with the important concepts relating to finance, will understand and be able to analyse the interconnection between the monetary forces and real forces, their developmental role and limitations in shaping and influencing the monetary and related policies both at the national and international levels.*

1. Introduction to Financial system

- 1.1 Meaning and structure of the financial system
- 1.2 Important Concepts: Money and Finance; Money and near money; Equities and debt; Annuity and Perpetuity, Money market and capital market; Primary and secondary market; Primary and secondary securities.
- 1.3 Financial system and Economic development.
- 1.4 Returns in Financial market: Expected rate of return, required rate of return, current return and yield to maturity
- 1.5 Risks : Types; Portfolio risk; risk-return trade-off
- 1.6: Valuation of Securities

1.7 Indicators of financial development

2. Banks, and Non-bank Financial Intermediaries

2.1 Role of commercial banks, Need for the regulation of the banking sector, efficiency of banks, NPA, Risk management in Banks

2.2 Development banks- role and functions,

2.3 Important Non-banking financial Institutions: Mutual Funds, Insurance Companies, Credit rating institutions, Merchant Banks, Venture Capital Fund

3. Financial Markets in India

3.1 Money market: Call money market, Treasury bill market, Commercial bill market including commercial paper and certificate of deposits

3.2 Bond Market: Bond features, Government security market and corporate bond market

3.3 Stock Market in India: IPO, Stock Exchanges, Stock market indices

3.4 Derivative market: Types of derivatives, Pricing of Future, Options and Swaps

3.5 Foreign exchange market: Structure and type

4. Regulatory Financial Institutions

4.1 Need for Financial Regulation: Maintaining Systemic Stability, Protecting the interest of the retail customers

4.2 Sources of Financial instability: Credit market (Banking and Non-Banking Sector), Financial market, External Sector and Payment System; RBI's policy responses; RBI's Supervision and prudential measures for financial stability.

4.2 SEBI- Objectives and roles in capital market development and regulation,

4.3 IRDA- Objectives and Functions.

Reading List:

1. L. M. Bhole and J. Mahukud, *Financial Institutions and Markets*, Tata McGraw Hill, 5th edition, 2011.
2. Prasanna Chandra, *Financial Management, Theory and Practice*, Tata McGraw Hill, 6th edition, 2006.
3. John C., Hull, *Options, Futures and Other Derivatives*, Pearson Education, 6th edition, 2005.
4. Dominick Salvatore, *International Economics: Trade and Finance*, John Wiley International Student Edition, 10th edition, 2011
5. Edminister, R.O, *Financial Institutions, markets and Management*, Mc Graw Hill, New York.1986.
6. R.I Robonson, and D. Wrightman, *Financial Markets*, Mc Graw Hill, London.1981.
7. Speeches and Memorial Lectures from RBI websites

OR

ECO-515 HISTORY OF MODERN ECONOMIC ANALYSIS (Contribution of Nobel laureates in Economics)-I

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of History of Modern Economic Analysis(Contribution of Nobel laureates in Economics)
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems

Objective : *The present course is designed to teach the students about the Theory of value, General Equilibrium, games theory; Macroeconomics, Monetary Economics and Financial Economics; Economic Development and Economic Growth based on the contributions of different Nobel Laureates.*

Expected outcome: *After completing this course the students expected to know the recent development on theory of value, welfare economics, macro economics and economic development..*

UNIT-I: Growth and Development

- 1.1 **G. Myrdal**, “Circular cumulative causation and problem of development
- 1.2 **Simon Kuznets** : Economic Growth and inequality
- 1.3 **Robert. M. Solow**: A contribution to the theory of Economic Growth
- 1.4 **Paul Romer**: integration of technological innovations into long-run macroeconomic analysis”

UNIT-II: welfare Economics

- 1.1 **K.J Arrow**, The choice of a Social welfare function and the Impossibility Theorem
- 1.2 **Amartya Sen**: The impossibility of a Paretian Liberal and capability approach
- 1.3 **A. Deaton**: Analysis of consumption, poverty and welfare
- 1.4 **A. Banerjee**: Experimental approach to alleviating global poverty

UNIT-III: Markets with asymmetric information

- 1.1 **G. Akerlof**: the market for Lemons
- 1.2 **J.E. Stiglitz**: The theory of Moral hazard
- 1.3 **M. Spence**: Job market signalling
- 1.4 **P. Diamond & D Mortensen**: Markets with search costs

UNIT-IV: Public Choice and New Institutional Economics

- 1.1 **J.M. Buchanan**, public-choice theory
- 1.2 **D.C. North**,: Institutions, institutional change and economic performance
- 1.3 **M. Olson**: The logic of collective action and the theory of groups
- 1.4 **E. Ostrom**: Governing the commons

Reading List

- 1- “An American Dilemma: The Negro Problem and Modern Democracy”. Gunnar Myrdal (1944) New York harper and brother
- 2- Gunnar Myrdal’s theory of cumulative causation revisited by Nanako Fujita (2004) economic research center
- 3- Kuznets, S, (1955) Economic Growth and Income Inequality. The American Economic Review,45, pp. 1 -28
- 4- Aadil Ahmad Gannie (1956) Kuznets Inverted U Hypothesis of Income Inequality: Looking Inside the Available Economic Literature. Journal of Poverty, Investment and Development, vol. 9, (2015)
- 5- A Contribution to the Theory of Economic Growth. Robert M. Solow The Quarterly Journal of Economics, Vol. 70, No. 1, pp. 65-94
- 6- Romar P.M. (1986), “Increasing Returns & Long run growth”, Journal of Political economy, vol. 94, No.5, pp. 1002 -1037.

- 7- Romar P.M. (1990) “Endogenous Technical Change”, *Journal of Political Economy*, vol. 98, No. 5, pp. s71-s102.
 - 8- K.J. Arrow 1951 (1963), “Social Choice and Individual Values”, New York Wiley, 2nd Ed, 1963.
 - 9- Arrow’s Theorem, Standford Encyclopaedia of Philosophy, Palto Standford Education.
 - 10- Sen. A (1970) “The Impossibility of a Paretian Liberal” *Journal of Political Economy*, Vol-78, No-1 pp.152 -157, University of Chicago.
 - 11- Sen. A (1985) “Commodities and Capabilities” North Holland.
 - 12- A. Sen (1989) “Development as Capability Expansion”, *Journal of development Planning* Vol-19, pp. 41 -58.
 - 13- The Capability Approach, Vol-14, 2011 Dec-2020 Plato Standford Education.
 - 14- A. Deaton (2003), “Health, Inequality and Economic Development”, *Journal of Economic Literature*, Vol-41 No-1, pp.-113-158.
 - 15- Price Index, Inequality and Measurement of World Poverty, *American Economic Research*, Vol-100, No-1, pp. 5-34, 2010.
 - 16- Deaton. A and J. Muellbauer (1986) “On measuring Child Cost with application to poor countries” *Journal of Political Economy*, Vol-94, No-4, pp. 720-744.
 - 17- Banerjee. A and Esther Duflo (2007) “The Economic Life of Poors”, *Journal of Economic Prospectus*, Vol-21, No-1, pp. 141-167.
 - 18- Banerjee. A and Esther Duflo (2009) “The Experimental Approach to Development Economy”, *Annual Review of Economics*, Vol-1, pp.151-178.
 - 19- Banerjee. A and Esther Duflo (2011) “Poor Economics-A Critical Rethinking of the way to fight global poverty” New York Publication.
 - 20- G.A. Akerlof (1970) “ The Market for Lemmon” *Quality Uncertainty and the Market Mechanism* , *The Quarterly Journal of Economy*, Vol.84, No.3,pp.488-500, Oxford University Press.
 - 21- R.J. Arnatt and J.E. Stiglitz(1988) The basis analysis of moral Hazard ,*The Scandinavian journal of Economy* vol.90, no.3, pp.383-413
 - 22- Spence M (1973) “Job Market Signalling” *Quarterly Journal of Economy*
 - 23- Diamond P(1981) *Mobility cost Frictional Unemployment and efficiency* *Journal of Political Economy*,vol.89, pp.798-813
 - 24- Mortensen. D (1970 b) *Job Search the Duration of Unemployment and The Phillips curve* *American Economic Research*, vol.60,pp.847-862
 - 25- What is Public Choice theory (2003) *economic educational bulletin* , vol. XLIII,No.5
 - 26- Douglas C North (1991) *The Journal of Economic Perspective*, vol.5, No.1, pp.97-112.
 - 27- *Institutional and Economic Growth and Historical Introduction World Development* (1989), vol.17, No.9, pp.1319-1332.
 - 28- M Olson (1965) *The Logic of Collective Action*, Harvard University press.
 - 29- E Ostrom (1990) *Governing the Commons*, Cambridge University Press.
- General References to the entire chapter – <https://www.nobelprize.org>

COURSE NAME: ENTREPRENEURSHIP DEVELOPMENT(ED)

Note: To be offered by the Commerce/Management/Any other Department (in case of PG Departments of SU, it is offered by the Department of Business Administration)

Syllabus

Unit I

Introduction: Meaning, definition and concept of entrepreneur, entrepreneurship and entrepreneurship development. The entrepreneurial mind-set, Entrepreneurship categories, Myths concerning entrepreneurship, Entrepreneurships challenges, Corporate Entrepreneurship, Social Responsibility in Entrepreneurship, Entrepreneurship Ethics and Entrepreneurship Ecosystem

Unit II

From Idea to opportunity: Idea generation- sources and methods, identification and classification of ideas. Individual creativity: idea to business opportunity. Opportunity assessment, challenges of new venture start-up, Venture capital, Angel investing, Crowd funding

Unit III

Developing a Business Plan: Environmental Scanning and SWOT analysis, and. The business plan as an entrepreneurial tool, Business Planning Process: elements of business planning, preparation of project plan, components of an ideal business plan - market plan, financial plan, operational plan, and, Feasibility Analysis aspects and methods: Economic Analysis, financial analysis, market-, and technological feasibility

Unit IV:

The practice of sustaining and growing: Evolution of a start up, Collaboration, Networking, Intellectual Property, Innovation for business Growth, Entrepreneurial growth strategies, Franchising, Stalling, Sickness, and Revival, Exiting the Entrepreneurship, Rural Entrepreneurship, Women and Entrepreneurship venture, Social

Suggested Readings:

1. Roy : Entrepreneurship, OUP
2. Entrepreneurship 10th Ed (Indian Edition) 2016 by Robert Hisrich Michael Shepherd, McGraw Hill Peters Dean
3. Khanka, S.S.; Entrepreneurial Development; S. Chand and Co.
4. Kumar, Arya; Entrepreneurship; Pearson Education.
5. Desai, Vasant; Dynamics of Entrepreneurial Development and Management; Himalaya Publishing
6. Blundel, R. and Lockett, N.; Exploring Entrepreneurship Practices and Perspectives; Oxford Publications.
7. Dollinger, M. J.; Entrepreneurship: New Venture Creation; PHI Learning. Skills CP

SEMESTER-IV

ECO-521

PUBLIC ECONOMICS-II

Objective: Role and functions of the Government in an economy have been changing with the passage of time. There are vast array of fiscal institutions — tax systems, expenditure programmes, budgetary procedures, stabilization instruments, debt issues, levels of government, etc., which raise a spectrum of issues arising from the operation of these institutions. This paper combines a thorough understanding of fiscal institutions with a careful analysis of the issues which underline budgetary policies in general and Indian experience in particular.

Expected outcome: Students will know the application of Public Economics and its application to facts.

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Public Economics-II
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

1. Public debt

- 1.1 Classical view of public debt ; Compensatory aspect of debt policy ; Burden of public debt ; Sources of public debt ; Debt through created money
- 1.2 Public borrowings and price level ; Crowding out of private investment and activity ; Principles of debt management and repayment.

2. Fiscal policy

- 2.1 Budgetary deficits (Primary deficit, Revenue deficit and fiscal deficit) and their implications,
- 2.2 Fiscal multipliers (tax multiplier, expenditure multiplier, Budget multiplier).
- 2.3 Fiscal policy for stabilization- automatic vs. discretionary stabilization, Fiscal policy for economic growth, and equity.

3. Fiscal federalism

- 3.1 Principles of multi-unit finance; Vertical and horizontal imbalances ; Assignment of function and sources of revenue
- 3.2 Fiscal federalism in India: Constitutional provisions ; Finance commission and Planning commission/NITI Aayog
- 3.3 Devolution of resources and grants: Resource transfer from union to states- Criteria for transfer of resources ; Centre- state financial relations in India
- 3.4 Problems state's resources and indebtedness ; Transfer of resources from Union and States to local bodies.

4. Indian Public Finances

- 4.1 Revenues of the Union, States and local bodies ; Major taxes in India, base of taxes
- 4.2 Direct and Indirect taxes, taxation of agriculture, reforms in direct and indirect taxes, Goods and Service Tax (GST), Non-tax revenue of centre, States and local bodies,
- 4.3 Reports of Finance commissions in India, analysis of central government budgets for the last two years.
- 4.4 Trends in public expenditure and public debt of India.

Reading List:

1. Atkinson, A.B. and J.E. Siglitz (1980) Lectures on Public Economics, Tata McGraw Hill, New York
2. Auerbach, A.J. and M. Feldstern (Eds) (1985) Handbook of Public Economics, Vol.I, North Holland, Amsterdam.
3. Jha, R (1998) Modern Public Economics, Routledge, London
4. Musgrave, R.A. (1959) The Theory of Public Finance, McGraw Hill, Kogakhusa, Tokyo
5. Shoup, C.S (1970) Public Finance, Aldine, Chicago
6. Peacock . A and G.K. shaw (1976) The Economic Theory of Fiscal Policy, George Allen and Unwin, London.
7. American Economic Association (1955) Readings in Fiscal Policy, George Allen and Unwin, London.

ECO-522

GROWTH & DEVELOPMENT-II

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Growth & Development-II
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: The study of economic development has gained importance because of sustained interest of the developing countries in uplifting their economic conditions by restructuring their economies to acquire greater diversity, efficiency and equity in consonance with their priorities. There have been many approaches to economic development and the objective of the paper is to make the students understand the various approaches to economic development and growth.

Expected outcome: Modules incorporated in this paper are devoted to the theories of growth and development, institutional aspects of development, role of international trade, investment criteria, social cost benefit analysis, relevance of planning in the context of development. After completing this course the students will be able to know the different aspects of economic development and can use these things in their future research as well as in qualifying the various national level tests.

1. Sectoral aspects of development-

- 1.1 Role of agriculture in economic development; Efficiency and productivity in agriculture,
- 1.2 New technology and sustainable agriculture;
- 1.3 Globalisation and agricultural growth,
- 1.4 rationale and pattern of industrialization in developing countries;

2. Trade and economic development-

- 2.1 International trade as engine of growth; Static and dynamic gains from trade, Prebisch, Singer and Myrdal thesis vs. Free trade
- 2.2 Export-led growth, Dual gap analysis
- 2.3 International Monetary Assistance and Development- FDI, FII, technology inflow, MNC activity in developing countries
- 2.4 Burden of borrowing- IMF and World bank policies in developing countries.

3. Allocation of resources-

- 3.1 Need for investment criteria in developing countries- present vs future, Alternative investment criteria
- 3.2 Cost-benefit analysis; shadow prices, project evaluation and UNIDO guidelines
- 3.3 The choice of techniques and appropriate technology and employment

4. Planning and development in India-

- 4.1 Need for planning- democratic, decentralized and indicative planning
- 4.2 Review of Indian plan models and planning: Mahalanobis Model

Reading List:

1. Ghatak, S (1986) An Introduction to development Economics, Allen and Unwin, London
2. Higgins, B. (1959) Economic Development, WW Norton, New York.
3. Meier G.M. (1986) Leading Issues in Economic Development, Oxford University Press, New York
4. Basu, Kaushik (2000) Analytical Development Economics: The less developed Economy Revisited, Oxford University Press, India.
5. Ray Debraj (2000) Development Economics, Oxford University Press, India.
6. Chenery H and T.N. Srinivasan (Eds) (1989) Handbook of Development Economics, Vols. 1&2, Elsevier, Amsterdam.
7. Todaro, M.P (1996) Economic Development, Longman, London
8. Thirlwal, A.P (1999) Growth and Development, Macmillan, UK.
9. Hayami, Y. (1997) Development Economics, Oxford University Press, New York
10. Sen, A.K. (Ed) (1990) Growth Economics, Penguin, Harmondsworth

ECO-523

MATHEMATICAL ECONOMICS-II

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Mathematical Economics-II
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: A student of economics can make much headway in understanding the subject with basic mathematical logic. Mathematical economics has been accordingly designed to include various mathematical techniques/ methods/ models related to the different parts of economic theory. The paper covers important aspects of macroeconomic theories Growth theories based on mathematics and operational research.

Expected outcome: Students will know the integration of Mathematics and Economic Theory.

1. Macro-economic Models

- 1.1 Determination of income and fluctuations in income- Classical and Keynes macro system
- 1.2 Static and dynamic multiplier.
- 1.3 Determinants of investment, accelerator
- 1.4 Trade cycle model of development of Samuelson and Hicks.

2. Growth models

- 2.1 Harrod problem; Neoclassical model of growth
- 2.2 Solow and Meade growth models with technical progress
- 2.3 Optimal growth, and golden rule of accumulation.

3. Game theory

Concept of game- Two person zero-sum game, Payoff matrix, pure and mixed strategies. Maximin and Minimax solutions ; Saddle point solution ; Non-constant sum game ; Prisoners' dilemma ; Linear programming- Primal and dual problem ; Simplex method.

4. Linear Programming application and Input-output analysis

- 4.1 Transport and storage problems and other applications of linear programming in economics
- 4.2 Input-output analysis- Open and closed systems
- 4.3 Hawkins-Simon conditions, Leontief's dynamic system
- 4.4 Testing consistency of planning models.

Reading List:

1. Allen RGD (1974) Mathematical Analysis for Economists, Macmillan Press and ELBS, London.
2. Chiang, A.C (1986), Fundamental Methods of Mathematical Economics, Mac Graw Hill, New York.
3. Henderson & Quandt, Micro Economic Theory, A mathematical approach, Mac Gaw Hill, New Delhi.
4. Allen, RHD, (1976) Mathematical Economics, Macmillan, London
5. Arrow K.J., and M. Intrilligator, (Eds) (1982), handbook of Mathematical Economics, Volumes, I, II, III, North Holland, Amsterdam.
6. Hadley, G (1962) Linear Programming, Addison Wesley Publishing Co., Massachusetts.

OR

ECO-523

AGRICULTURAL ECONOMICS-II

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of Agricultural Economics-II
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: The objective of this course is to provide a detailed treatment of issues in agricultural economics to those intending to specialise in this area. Its objective is to familiarise students with policy issues that are relevant to Indian agricultural economics and enable them to analyse these issues.

Expected outcome: After the completion of this course students will be able to comprehend and critically appraise the Indian agricultural sector.

1. Rural finance-

- 1.1 Role of capital and rural credit; Organised and unorganized capital market ; Rural savings and capital formation ; characteristics and sources of rural credit- institutional and non-institutional
- 1.2 Reorganization of rural credit- cooperatives, commercial banks, regional rural banks, Role of NABARD.
- 1.3 Cooperation in India- Cooperative movement; genesis and growth of cooperative sector, Agricultural cooperation in India; problems and prospects of cooperative institutions.

2. Agricultural prices-

- 2.1 Marketing and state policy; Agricultural markets and market efficiency- Marketing functions and costs; Market structure and imperfections; regulated markets; marketed and marketable surplus
- 2.2 Crop insurance; Terms of trade between agricultural and non-agricultural prices; Need for state interventions
- 2.3 Objectives of agricultural policy- Instruments and evaluation
- 2.4 Food security in India and Public Distribution System.

3. Agricultural growth in India-

- 3.1 Recent trends in agricultural growth in India; Inter- regional variations in growth of output and productivity
- 3.2 Cropping pattern shifts; supply of inputs- irrigation, power, seed and fertilizers
- 3.3 Pricing of inputs and role of subsidies; Distribution of gains from technological change
- 3.4 Role of Public investment and capital formation in Indian agriculture.

4. Agriculture and external sector-

- 4.1 International trade in agricultural commodities; Commodity agreements- Role of WTO; Issues in liberalization of domestic and international trade in agriculture
- 4.2 Nature and features of agro industries
- 4.3 Role of MNCs; Globalisation of Indian economy and problems and prospects of Indian agriculture, Impact of WTO on Indian agriculture.

Reading List:

1. Bhaduri A. (1984) The Economic Structure of Backward Agriculture, Macmillan, Delhi
2. Bilgrami SAR, (1996) Agricultural economics, Himalaya Publishing House, Delhi
3. Gulati , A & T. Kelly (1999), Trade Liberalisation and Indian Agriculture, Oxford University Press, New Delhi.
4. Rudra A. (1982), Indian Agricultural Economics: Myths and Reality, Allied Publishers, New Delhi.
5. Bardhan P. (1984) Land, Labour and Rural Poverty, Oxford University Press, New Delhi.
6. Soni, R.N (1995) Leading issues in Agricultural Economics, Arihant Press, Jalandhar.
7. Dantwala M.L, (1996) Dilemmas of Growth: the Indian Experience, sage Publications, New Delhi.
8. Vaidyanathan, A (1995) The Indian economy : Crisis, response and Prospects, Orient Longmans, New Delhi
9. Bhalla G. S (1994) Economic Liberalisation and Indian Agriculture, Institute for Studies in Industrial development, New Delhi.

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of ADVANCED Econometrics
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

Objective: *Econometrics is mainly concerned with the empirical verification of economic theory. It requires a reasonable understanding of economic relationships and relevant statistical methods. Thus, the econometric theory becomes a powerful tool for understanding of applied economic relationships and for meaningful research in economics. This paper is devoted to equip the students with basic as well as advanced theory of econometrics and relevant applications of the methods.*

Expected outcome: *The topics covered in the course include various problems faced in estimation of both single equations and simultaneous equations models. The course also covers various econometric methods applicable to different topics in economics and those needed for applied economic research. Students are expected to know the basic concepts and applications of econometrics, adding rigour to the understanding of economic problems*

1. SIMULTANEOUS EQUATION MODELS

- 1.1 Structural form and reduced form
- 1.2 The simultaneous equation bias and inconsistency of OLS estimators
- 1.3 The identification problem ; Rules of identification- order and rank conditions
- 1.4 Indirect least squares (ILS)
- 1.5 Two stage least square (2SLS)
- 1.6 Three stage least square (3SLS)
- 1.7 Maximum likelihood estimation (ML)

2. TIME SERIES ANALYSIS

- 2.1 Deterministic time series models and stochastic time series model
- 2.2 Test of stationarity: Autocorrelation Function (ACF) and Correlogram
- 2.3 The Unit Root Test: The Augmented Dickey-Fuller (ADF) test, The Phillips-Perron (PP) tests

3. FORECASTING TECHNIQUES

- 3.1 Forecasting with a single equation regression model
- 3.2 Forecasting with ARIMA modeling; Box-Jenkins methodology,
- 3.3 Vector Auto- Regression
- 3.4 Multi-variate Analysis: Discriminant Analysis and Principal Component Analysis

4. DYNAMIC ECONOMETRIC MODELS

- 4.1 Autoregressive and distributed lag models
- 4.2 Geometric lag approach: The Koyck model, Adaptive expectation model
- 4.3 Concept of rational expectation

- 4.4 Partial adjustment model
- 4.5 Polynomial lag: The Almon approach

Reading List:

1. Jhonston J. (1991), Econometric Methods , McGraw Hill Book Co. London
2. Asteriou Dimitrious, (2006), Applied Econometrics, Palgrave Macmillan, New York
3. Gujarati D.N. (1995), Basic Econometrics, (2nd edition) McGraw Hill, New Delhi
4. Kmenta, J. (1977), Elements of Econometrics, (reprint edition) University of Michigan Press, New York.
5. Koutsoyiannis A. (1977), Theory of Econometrics (2nd ed.) The Macmillan Press Ltd. London.
6. Madalla G.S. (1997), Econometrics, McGraw Hill, New York.
7. Intrilligator, M.D. (1978), Econometric Methods, Techniques and Applications, Prentice Hall, Englewood Cliffs, New Jersey.
8. Pindyck, Robert S. and Daniel L. Rubinfeld, (1976), Econometric Models and Economic Forecasts, International Student edition, McGraw-Hill

OR

ECO-524

ECONOMICS OF CLIMATE CHANGE

Course Outcomes

CO-1	Remember and understand the basic concepts/Principles of CLIMATE CHANGE
CO-2	Analyse the Various Concepts to understand them through case studies
CO-3	Apply the knowledge in understanding practical problems
CO-4	Execute/create the Project or field assignment as per the knowledge gained in the course

***Objectives:** The objective of this course is to acquaint the students of economics the various climate change issues and to provide some insights into the application of economic theory in the design and implementation of public policy related to the management of climate.*

***Expected outcomes:** The students will learn the issues relating to climate, the impact of climate change on the growth and development.*

1. Understanding Climate Change:

- 1.1 Introduction to the Climate System, Drivers of Climate system, Climate Change and Natural Variability
- 1.2 Economics, ethics and climate change;
- 1.3 Ethical frameworks and inter-temporal equity.

2. The Impacts of climate change on growth and development:

- 2.1 How climate change will affect people around the world, Implications of climate change for development,
- 2.2 Costs of climate change in developed countries,
- 2.3 Economic modelling of climate change, Climate change impacts on society
- 2.4 Displacement and migration, Human settlement and Health; Impact of climate change on marginalized sections.

3. Optimal Climate Policy:

- 3.1 Economic efficiency, carbon abatement costs, social cost of carbon, discounting.
- 3.2 National climate policy: externalities, cost effectiveness, carbon tax, cap-and-trade, induced innovation.
- 3.3 Climate change and equity: economic incidence, environmental justice, residential sorting.
- 3.4 Climate change and the environmental Kuznets curve

4. Climate Change and India's Concerns:

- 4.1 United Nations Framework Convention on Climate Change, The Kyoto Protocol to the Framework Convention,
- 4.2 Climate Change Impacts on Natural Resources, Vulnerability of Coastal Belt in India towards climate Change,
- 4.3 Climate Change, Rural Livelihoods and Food Security in India, India's Position on International Climate Negotiations,
- 4.4 India's National Action Plan on Climate Change.

Reading List:

1. Keohane and Olmstead, (2016). Markets and the Environment. Island Press
2. Stern, Nicholas (2008), "The Economics of Climate Change", American Economic Review: Papers & Proceedings, 98(2), 1-37.
3. Nordhaus, W. (2013). Chapter 16 - Integrated Economic and Climate Modeling.
4. Handbook of Computable General Equilibrium Modeling. B. D. Peter and W. J. Dale, Elsevier. Volume 1: 1069-1131. Read up to Section 16.1.10.
5. Ackerman, F., S.J. De Canio, R.B. Howarth, and K. Sheeran. 2009. "Limitations of integrated assessment models of climate change." Climatic Change.
6. Hepburn, Cameron (2006), "Discounting climate change damages: Working note for the Stern review".
7. Keohane and Olmstead, (2016). Markets and the Environment. Island Press
8. Goulder and Parry, "Instrument Choice in Environmental Policy." Review of Environmental Economics and Policy 2008.)
9. Aldy, Krupnick, Newell, Parry, and Pizer, "Designing Climate Mitigation Policy." Journal of Economic Literature, 2010) Section 3.
10. Goulder "Markets for Pollution Allowances: What Are the (New) Lessons?" Journal of Economic Perspectives 27(1), Winter 2013.
11. ARE, Special Issue: California's Climate Change Policy: The Economic and Environmental Impacts of AB 32—Notes from the Editors, 2010,
12. Fullerton and Muehlegger (2019). "Who Bears the Economic Burdens of Environmental Regulations," Review of Environmental Economics and Policy
13. Banzhaf, Ma, and Timmins (2019). "Environmental Justice: The Economics of Race, Place, and Pollution," Journal of Economic Perspectives.
14. Climate Change and Agriculture in India: By: K. Palanisami (Author) , C. R. Ranganathan (Author) , Udaya Sekhar Nagothu (Author) , Krishna Reddy Kakumanu (Author) | Publisher: Routledge India

**INTER-DEPARTMENTAL COURSE (IDC)
FOR
THE PG STUDENTS OF II SEMESTER,
OTHER THAN OF ECONOMICS**

Name of the Course: Elementary Economics

Syllabus

1. AN INTRODUCTION TO ECONOMICS

1.1 Basic economic issues of a household: (How to address the different needs with the limited income?) Needs, resource scarcity and optimal allocation of resources

1.2 Important economic concepts: (i) Utility and goods (ii) Demand and supply
(iii) Market

1.3 National income: National income as a measure of well-being of the country and the related concepts (GNP,GDP, NNP, NDP) Real and nominal Growth of GDP, Concept of Inflation.

2. PUBLIC FINANCE

2.1 Government Budget: Its meaning, objectives and components (Revenue and expenditure); Revenue deficit vs Fiscal deficit

2.2 Taxation: Direct and indirect taxes, Personal income tax, corporation tax,

2.3 GST, Cess and Surcharge (meaning only); Public Debt: Meaning and Need(deficit financing)

3. INDIAN ECONOMY

3.1 Financial Market: Money supply measures (Reserve money, narrow money, broad money); Commercial Banks and Credit creation; Basic awareness on NBFCs, Mutual Fund, Bond, Share, Stock market, SENSEX.

3.2 Poverty: Concept of Poverty line and the level of Head Count Ratio and MPI, Poverty Eradication programmes (recent only)

3.3 Economic Reforms of 1990s; Industrial policy reforms, Trade reforms, Fiscal reforms (in brief)

Reading List

1. Modern Microeconomics theory and applications by HL Ahuja, S chand Publication
2. Indian Economy, V K Puri and S K Misra, Himalaya Publishing House, latest Edition
3. R. A. Musgrave and P. B. Musgrave (1989): Public Finance in Theory and Practices. McGraw Hill
4. Shapiro E. (1996), Macroeconomic Analysis, Galgotia Publications, New Delhi.
5. L. M. Bhole and J. Mahukud, Financial Institutions and Markets, Tata McGraw Hill, 5th edition, 2011.