Semester – I			
Core IV Economics of Infrastructure			
19PECC 14	**Hrs/Week: 6**	**Hrs/ Semester: 90**	**Credits: 4**

Unit I - Introduction **20 Hrs**

Infrastructure and economic development - Infrastructure as a public good; Social and physical infrastructure; Special characteristics of public utilities - The peak-load – Off-Load Problem – Dual Principle Controversy; Economies of scale of Joint supply; Marginal Cost Pricing vs. other methods of pricing in public utilities

Unit II - Transport Economics **15 Hrs**

The structure of Transport Costs and Location of Economic Activities - Demand for Transport – Models of Freight and Passenger Demand – Model Choice; Cost Functions in the Transport Sector – Principle of Pricing – Special Problems of Individual Modes of Transport; Inter-modal condition in the Indian Situation.

Unit III - Energy Economics **20 Hrs**

Primacy of Energy in the Process of Economic Development – Factors Determining Demand for Energy; Effects of Energy Shortages – Energy Conservation – Renewable and Non-conventional Sources of Energy – Energy Modelling – The Search for an Optimal Energy Policy in the Indian Context

Unit IV- Supply of Energy **20 Hrs**

Electricity, Gas and Water Supply- Bulk Supply and Pricing of Electricity – The Relative Economics of Thermal, Hydel and Nuclear Power Plants – The Case for a National Power Grid – Financing Water Utilities – Urban and Rural Water Supply – The Exploitation of Natural Gas – Pricing Problem.

Unit V- Social Infrastructure **15 Hrs**

Education and Economic Growth – The Case for Universal, Free, Primary Education; Structure of higher education and problems of its financing in India – Human Resources and Human Capital Development

Text Book:

Becker.G.S. *Human Capital* (2nd Edition). New York: National Bureau of Economic Research,1974.

Books for Reference:

1. Crew.M.A. and P.R. Kleindorfer. *Public Utility Economics*. London: Macmillan, 1977.
2. *Economic and Political Weekly*, Various Issues.

Semester- II			
Core –VIII – Mathematics For Economists			
Sub. Code: 19PECC 24	**Hours / Week :4**	**Hrs / Semester: 60**	**Credits :3**

Unit I - Functions & Equations **10 Hrs**

Relations & functions – types – equations -types - Solution of linear equations in one &two variables, solution of quadratic equations- Applications

Unit II- Differentiation **15 Hrs**

Derivative of a Function – Rules of Differentiation - Application of Simple Derivation (Total, Marginal and Average Functions) - Concept of Elasticity, Inter-relationships among Total, Marginal and Average Cost and Revenues.

Unit III - Maxima and Minima **10 Hrs**

Maxima and Minima of Function of one Variable and two Variables-Partial Derivatives-First and Second order- Application

Unit IV-Integration **10 Hrs**

Meaning & definition-Types - properties of definite integrals – Rules - Application in Economics

Unit V - Matrices and Determinants **15 Hrs**

Matrices: concept, types, matrix operations, transpose, Determinants: concept, properties, Cramer's rule – rank – inverse of a matrix - matrix inversion method.

Text Book:

Monga, G.S. *Mathematics and Statistics for Economists*. New Delhi:Vikas Publishing House, 2005.

Books for Reference:

1. A.C. Chiang. *Fundamentals of Mathematical Economics*,New York: McGraw Hill, 2000.
2. Aggarwal.S.C. & R.K. Rana. *Basic Mathematical Economics,* New Delhi: V.K. Enterprise, 2003.
3. R.G.D. Allen.*Mathematics for Economics*. New York:Mc. Milan Press, 2003.
4. Taro Yamane. *Mathematics for Economics – An Elementary Survey.* New Delhi: Prentice Hall of India Pvt. Limited, P. S. 1990.

Semester- I			
Core III Statistics For Economists			
Code: 19PECC13	**Hours / Week :6**	**Hrs / Semester: 90**	**Credits :4**

Unit I: Measures of Averages and Dispersion **15 Hrs**

Measures of central tendency – Mean, Median, Mode Measures of Dispersion – M.D., Q.D. and S.D and relative measures of dispersion application of averages and dispersion

Unit II: Correlation and Regression **20 Hrs**

Meaning, assumptions and limitations of simple correlation and regression analysis – Pearson's product moment and Spearman's rank correlation co-efficient – Concept of least squares and the regression lines

Unit III: Analysis of Time Series **15 Hrs**

Uses – Components – Measurement – Methods of Moving Average – Semi Average – Method of least squares- Seasonal Variations and its Measurements

Unit IV: Probability **20 Hrs**

Various types of events – Classical and empirical definitions of probability, Laws of addition and multiplication, conditional probability and concept of interdependence, Baye's theorem and its applications- Probability Distribution-Binomial, Poisson and Normal distribution

Unit V :Theory of Estimation and Testing of Hypothesis **20 Hrs**

Properties of a good estimator, formulation of statistical hypotheses – Null and alternative, Goodness of fit, confidence intervals and level of significance - Type I and Type II errors - Hypothesis testing Z, t, χ^2 (chi-square) and F-test

Text Book:

Gupta.S.P. *Statistical Methods* (Edition). New Delhi: S.Chand& Sons Ltd,2000.

Books for Reference

1. Gupta.S.C. *Fundamentals of Applied Statistics*.New Delhi: S.Chand& Sons Ltd, 1993.
2. Speigal. M.R., *Theory and Problems and Statistics*.London: McGraw Hill Book Co,1992.
3. R.S.N. Pillai & Bagavathi. *Statistics*. New Delhi:S. Chand & Company Ltd, 1998.

Semester – II			
Core VII –Welfare Economics			
Sub.Code: 19PECC23	**Hrs / Week: 6**	**Hrs / Semester: 90**	**Credits : 4**

Unit I - Introductory Welfare Economics **20 hrs**

Concerns of welfare economics – value judgments in welfare economics - positive or normative - concept of social welfare – different welfare criteria - the welfare assumptions behind GDP and NNP

Unit II- Pre-Paretian Welfare Economics-I **20 hrs**

Benthamite approach to aggregate Welfare - optimum resource allocation and welfare maximization - assumption of uniform income - utility functions of individuals - consumer's surplus and tax-bounty analysis

Unit III - Paretian Welfare Economics - II **15 hrs**

Pareto optimality – Optimum exchange conditions, The production optimum, The consumption optimum; Concept of contract curve; Top level optimum; Infinite number of non-comparable optima vs. unique social optimum

Unit IV- Paretian Welfare Economics - III **15 hrs**

The Scitovsky double criterion; Concept of community indifference map, Samuelson's utility possibility curve; Value judgments and welfare economics; Bergson's social welfare function, Arrow's possibility theorem

Unit V: Some Later Developments **20 hrs**

Divergence between private and social costs; Problems of non-market interdependence; Externalities of production and consumption; External economies and diseconomies; Problem of public goods; Pigouvian welfare economics; Attempts to develop dynamic welfare analysis.

Text Book:

Graaff.J.*Theoretical Welfare Economics*. Cambridge: Cambridge University Press, 1957.

Books for Reference:

1. Arrow.K. J. *Social choice and Individual Values*. New Haven: Yale University Press, 1951.
2. Baumol.W. J. *Welfare Economics and the Theory of the State- Longmans.* London: UNESCO Publications, 1965.
3. Baumol, W. J. *Welfare Economics*. U.K: Edward Elgar Publishing Ltd, 2001.
4. Broadway. R. W. and N. Bruce. *Welfare Economics*. New York: Basil Blackwell – Oxford University, 1984.
5. Feldman. A. M. *Welfare Economics and Social Choice theory*. Boston: Martinus Nijhoff, 1980.

Semester – I			
Elective I Environmental Economics			
19PECE 11	**Hrs/Week: 6**	**Hrs/ Semester: 60**	**Credits: 3**

Vision:

Apply knowledge of environmental economics, including analytical tools and methods, to identify policy solutions that can correct environmental problems.

Mission:

Demonstrate understanding of the economic cause of environmental problems, environmental valuation techniques, environmental policy instruments and their economic consequences, and environmental policy decision making tools.

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	apply microeconomic theory to the study of environmental issues.	6	Ap
CO-2	identify and critically evaluate alternative environmental policy instruments.	4	Un
CO-3	develop written and verbal skills in communicating an environmental economic perspective.	5	An
CO-4	enhance the student's ability to conduct professional economic research and to develop and present professional proposals, papers, and presentations	4	Ap
CO-5	increase the student’s ability to analyze environmental policies through a deeper understanding of economic behavior and incentives	8	Re
CO-6	analyze the environmental policy practices in the real world using economics methods and tools.	4	An
CO-7	demonstrate the ability to model environmental policy issues using fundamental environmental and economics skills.	6	Ap
CO-8	engage in self-directed research and learning about environmental economics.	4	An

Semester – I			
Elective I Environmental Economics			
19PECE 11	**Hrs/Week: 6**	**Hrs/ Semester: 60**	**Credits: 3**

Unit I - Economic Growth and Environment **15 Hrs**

Economic Growth and Environment: conflicting or complementing – Limits to growth model - Environmental Kuznets Curve. Environment – Economics inter-linkages using Material Balance Approach –Pollution as an externality and its impact - Environmental quality as Public good

Unit II - Environmental Pollution and Global issues **10 Hrs**

Air pollution – Water pollution – Pollution by solid wastes; Global warming and Climate change – Ozone depletion – Bio-diversity Loss – Trade and Environment

Unit III - Sustainable development **10 Hrs**

Definition of sustainable development – components of sustainable development – Theoretical approaches to sustainable development: Neo - Classical Approach – Ecological Approach – Safe Minimum Standards Approach

Unit IV- Environmental Ethics and policy **15 Hrs**

Approaches to environmental ethics – Shallow Vs Deep Ecology – Environmental Movement – Environmental movement in India: Environmental Challenges to India with respect to Air Pollution, Water Pollution, Waste Management and Bio – Diversity Loss – Environmental Policy in India

Unit V - Corporate environmental Management **10 Hrs**

Corporate Responsibility for Environmental Problems - sustainable industrialization as a production paradigm - Principles of sustainable industrialization -Industrial Ecology – Life cycle Approach -C2C -Eco labelling – Business Charter Sustainable Development

Text Book:

Karpagam.M. *Environmental Economics*. London:Sterling Publishers, 2010.

Books for Reference

1. Karpagam M and R Geetha.*Green Management – Theory and Practice*.New Delllhi: Ane Book House, 2010.
2. Tan Hodge. *Environmental Economics*. Chennai: Macmillan Press,1995.

Semester – I			
Elective II		Energy Economics	
19PECE12	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 3**

Vision:

This course is tailored for the student desiring an understanding of the relationship between the energy sector and the wider economy. Studying methods of investment evaluation in energy sector, methods for energy production cost calculation and energy pricing methodology.

Mission:

` The course examines the role of energy in economic activity, economic methods of assessing energy technologies, projects, and policies, and debates concerning alternative future energy scenarios

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	understand the role of energy in economic activity.	2	Un
CO-2	have a knowledge of methods to assess alternative energy projects technologies, and policies	3	Ap
CO-3	apply this knowledge to the analysis of specific energy issues in India	5	Ap
CO-4	know what key factors and principles need to be considered in evaluating alternative energy policy options.	6	An
CO-5	understand of economic and ability to apply economic and financial evaluation of energy projects.	7	Un
CO-6	learning the basics of cost calculation for electricity and heat production from CHP and power plants	6	Ap
CO-7	provide students with a thorough grounding in the key concepts of energy economics.	5	Re
CO-8	illustrate how these concepts and standard economic tools can be used to analyse energy-related policy issues	7	Un

Semester – I			
Elective II		Energy Economics	
19PECE12	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 3**

Unit I - Energy Concepts and Sub-Sectors **15 Hrs**

Concepts - Definitions - Sources and Categories of Energy - Energy Balance Tables - Energy Data Sources - Energy System - Energy - Economy Linkages - Green Energy - Forms of Energy - Electricity, Coal, Oil and Renewable Sources.

Unit II - Energy Supply Analysis **15 Hrs**

Energy Supply Analysis: Availability and Supply of Different Sources of Energy – Supply Constraints - Role of Renewable Sources of Energy - Institutional Framework for Energy Supply in India - Alternative Energy Sources – Energy Imports - Trends and Issues.

Unit III – Energy Demand Analysis **10 Hrs**

Energy Demand Analysis: Determinants of Energy Demand - Price and Income Elasticity - Demand Estimation under Administered Price Regimes - Demand and Supply Gap - Energy Shortage and Crisis - Need for Energy Demand Management - Renewable Energy Options.

Unit IV- Energy Pricing **10 Hrs**

Methods and Principles of Energy Pricing - Economic Efficiency and Equity Considerations - Pricing under Supply Constrained Framework - Energy Markets - Regulation - Issues and Challenges.

Unit V - Energy Efficiency and Conservation **10 Hrs**

Principles and Methods - Energy Supply Side and Demand Side Management and Efficiency - Institutional Machinery and Community Engagement - Estimation of Benefits - Energy Audit - Policy Alternatives

Text Book:

Kneese. A. V. and Sweeny. J. L. *Handbook of Natural Resource and Energy Economics*, North Holland: 2003.

Books for Reference:

1.Munasinghe. M & Meier. P.(2005), *Energy Policy Analysis and Modeling*. U.K.Cambridge: University Press,2005.
2. Paul Stevens. *The Economics of Energy*. UK:Edward Elgar publications,2006.
3. Sankar.U. *Public Sector Pricing: Theory and Applications*. New Delhi:Indian Economic Association Trust for Research and Development, 2004.

Semester- II			
Elective I– Economics of Tourism			
Code: 19PECE21	**Hours / Week :4**	**Hrs / Semester: 60**	**Credits :3**

Vision:

To reflects the importance of tourism to the Seychelles economy and the social wellbeing of its population

Mission:

To delivers a value-for-money and unique visitor experience, through innovation, strategic partnerships and coordination, providing information and communication and capacity development.

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	critique tourism practices for their implications locally and globally.	7	Un
CO-2	contextualize tourism within broader cultural, environmental, political and economic dimensions of society.	3	Ev
CO-3	interpret and evaluate tourism as a phenomenon and as a business system.	3	Ev
CO-4	explain the diverse nature of tourism, including culture and place, global/local perspectives, and experience design and provision.	1	Ap
CO-5	identify and assess relationships and networks relative to building tourism capacity.	3, 2	An
CO-6	apply principles of sustainability to the practice of tourism in the local and global context.	4	Ap
CO-7	practice empathy and respect for diversity and multicultural perspectives.	6	Ev
CO-8	evaluate and apply various research methods commonly used in the context of tourism.	8	Ev

Semester- II			
Elective I Economics of Tourism			
Code: 19PECE21	**Hours / Week :4**	**Hrs / Semester: 60**	**Credits :3**

Unit I - Introduction **10 hrs**

Tourism as an Industry –Definition - Types, Functions, Volume and Components of Tourism - Development of Tourism - Factors responsible for the growth and development of Tourism over the Years

Unit II - Significance of Tourism **15 hrs**

Concepts of Tourism product – Characteristics of tourism product – Demand and supply characteristics – Factors affecting demand for tourism - Socio-economic importance of Tourism - Travel agency - Travel agents - Tourism guides – Travel Documents - Passport and other formalities

Unit III- Growth of Tourism **15 hrs**

Causes for the growth of Tourism - Economic and Social factors - Transport, Accommodation and Locality - Eco- Tourism – Tour Packages and Type of Package – National and International – Tour itinerary

Unit IV- Tourism Development **10 hrs**

Development of Tourism in India - Role of Private sector and Public sector - Five Year Plans and Tourism -New policy on Tourism Management Strategy- Tourism Policy analysis

Unit V - Tourism Promotion **10hrs**

Functions of Advertising Agencies - support activities – Public relations - Tamil Nadu Tourism- Importance of Tourism Centre - Chennai, Ooty, Kodaikanal, Kanyakumari, Tanjore, Madurai, Rameswaram, Kanjeepuram and Kollihills.

Text Book:

Sipra Mukhopadhay. *Tourism Economics*. New Delhi: Ann Books India, 2009.

Books for Reference:

1. Bishwanath Ghosh. *Tourism and travel management*. New Delhi:Vikas Publications House Pvt. Ltd, 2005.
2. Pran Nath Seth. *Successful Tourism Vol 1*.New Delhi: Sterling Publishers Pvt. Ltd, 1998.
3. P.J. Sangar.*Tourism Management*.New Delhi: Anmol Publications Pvt. Ltd,1990.
4. A.K. Bhatia. *International Tourism Management*. NewDelhi:Sterling Publishers Pvt. Ltd, 1980.

Semester- II			
Elective II Health Economics			
19PECE22	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 3**

Vision:

We envision a future where systems effectively, efficiently and equitably promote the health of all populations.

Mission:

To work with partner in public health and health care to prepare leaders, design solutions and conduct innovative research that is translated into practise and policy.

Course Outcome:

CO. No	Upon Completion of this course, students will be able to	PSO addressed	Cognitive Level
CO-1	analyze and evaluate complex policy and organizational challenges at both the micro level and at higher levels within health care systems	4	An
CO-2	differentiate between the functions, roles and responsibilities of healthcare managers	6	Ap
CO-3	make successful negotiations	7	Ev
CO-4	define and apply key quality concepts in health care organizations	3	Ap
CO-5	manage organizational processes, including redesigning organizations	3	Ap
CO-6	effectively and efficiently foster innovation within care settings	2	An
CO-7	demonstrate personal and professional ethical responsibility in all managerial and organizational decision making	8	Ev
CO-8	use economic models to understand behaviors of actors in the health care sector and do analyses of needs for health care services	6	An

Semester– II			
Elective II Health Economics			
19PECE22	**Hrs/Week: 4**	**Hrs/ Semester: 60**	**Credits: 3**

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Unit I – Introduction **15 Hrs**

Meaning and definition of health economics – Scope of health economics – theoretical issues – Classification of health economics – Conceptual framework – issues in health economics

Unit II - Concepts of Health **10 Hrs**

Concept of health and medical care: Meaning – Utility analysis of health – demand for and supply of health care. Determinants of health, poverty, malnutrition and environmental issues

Unit III - Health Care **15 Hrs**

Economic and Societal Dimension of Health Care: Financing of health care and resource constraints – National health policy under Five year plans. Health care delivery – problems in health care delivery – inequalities – rural and urban bias

Unit IV – Health Education **10 Hrs**

Health Education: Meaning – Objectives – approaches to public health – Indicators of health status – physical quality of life index – human development index

Unit V – Health Insurance **10 Hrs**

Health Insurance: Meaning – Community health insurance in India – Private health insurance – Demand for health insurance – Factors influencing demand for health insurance

Text book:

Jay Bhattacharya,Timothy Hyde. *Health Economics*. Mumbai: Macmillan Education Palgrave, 2013.

Books for Reference:

1. Banerjee. D. *Social and Cultural Foundations of Health Service Systems of India, Inquiry*, Supplement to Vol. XII, June. 29,1975.
2. Banerjee, D. *Poverty, class and Health Culture in India*. New Delhi: Vol. I ParchiPrakashan, 1982.
1. Government of India. National Health Policy, New Delhi: 2001.