

# **PONDICHERRY UNIVERSITY**



## **NEP CURRICULUM & SYLLABUS FOR**

### **MULTIDISCIPLINARY COURSES [1 TO 3 SEMESTERS]**

#### **AFFILIATED COLLEGES**

**FROM THE ACADEMIC YEAR (2023-24 onwards)**

# **MULTIDISCIPLINARY COURSES**

## **FOR ALL UG PROGRAMMES**

### **Semester – I:**

#### **Natural Sciences:**

- 1) Herbal Nutrition
- 2) Basic Botany
- 3) Basic Zoology
- 4) Basic Microbiology
- 5) Fundamentals of Biotechnology

### **Semester – II:**

#### **Physical Sciences:**

- 1) Electronics in Everyday Life
- 2) Chemistry in Everyday Life
- 3) Science and Society
- 4) Energy in Everyday Life
- 5) Basic Mathematics

### **Semester – III**

#### **Humanities/Social Sciences:**

- 1) Basic Economics Concepts and Measurement
- 2) Basics of Accounting
- 3) French for Beginners
- 4) Commercial Geography
- 5) Introduction to Public Administration

# **SEMESTER –I**

## **Natural Sciences**

### **MLD - HERBAL NUTRITION**

Credits: 3

Hours 4

#### **Learning Outcomes**

##### **Students will be able to**

1. gain knowledge on common herbs used as food, their botanical classification and culinary use
2. acquire knowledge on herbs and their drug interactions, toxicity and herbal product regulations

#### **Course Outcomes**

1. Acquire more knowledge about the common herbs, their nutritional properties and their regulations
2. Gains more knowledge about the healing properties of common medicinal plants and their use in traditional healthcare systems
3. Utilize these herbs as food and supplements

#### **Unit I**

**Definition of herb, herbal Nutrition, Selection, identification and authentication of herbs, Processing of herbal raw material.** Introduction to Medicinally important Plant parts: Fruits, Leaves, Stem and its modifications (underground and aerial), Roots. Importance of medicinal plants – role in human health care – health and balanced diet.

#### **Unit II**

Study of some medicinally important families with reference to systematic position. Diagnostic features and medicinal uses only: Meliaceae, Myrtaceae, Apiaceae, Asclepiadaceae, Solanaceae, Lamiaceae, Euphorbiaceae, Zingiberaceae, Musaceae and Poaceae. Cultivation methods – Crop protection – Harvesting – Storage and Protection – Marketing and utilization - Export of medicinally important (General aspects).

#### **Unit III**

Nutritional content of common Indian herbs, Phenolic content, Carotenoids, minerals and essential oils. Significance of common herbs, culinary herbs, cooking methods of herbs – Basil, Cherril, Chimes, Cilantro, Dill, Mint, Oregano, Parsley, Rosemary, Sage, Tarragon, Thyme, Lemongrass.

#### **Unit IV**

Plants in day today life – Ocimum sanctum, Centella asiatica, Solanum trilobatum, Cassia auriculata, Aloe vera. Nutritive and medicinal value of some fruits (Guava, Sapota, Orange, Mango, Banana, Lemon, Pomegranate) and vegetables - Greens (Moringa, Solanum nigrum) Cabbage.

#### **Unit V**

Common herbal dietary supplements, possible side effects and drug interactions – Black cohosh, Cranberry, Curcumin, Echinacea, Garlic, Ginkobiloba, Gingeng, Goldenseal, Greentea extract, Kava-kava, Milk thistle, Saw pal,etto, St.John's wort, Valerian, Phrmacokineics of herbal supplements.

#### **Text Books:**

1. Gokhale, S.S., C.K.Kokate and A.P. Purohit (1994) Pharmacognosy. Nirali Prakashan. Pune.
3. Farooqi, A.A., and B.S. Sreeramu (2004). Cultivation of Medicinal and Aromatic Crops. University Press (India) Pvt. Ltd., Hyderabad.

#### **References:**

1. **Mukherjee, P.W. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals. Business Horizons Publishers, New Delhi, India, 2002.**
2. Herb Nutrient and drug interactions: Clinical implications and therapeutic strategies (2008) Mitchell Bebel Stargrove Jonathan Treasure Dwight L. McKee, Published by Elsevier - Health Sciences Division

#### **WEBLINKS**

- 1.Natural Medicines Comprehensive Database. Available at [http://www. naturaldatabase.com](http://www.naturaldatabase.com) last accessed on April 2, 2013
2. <https://www.aafp.org/pubs/afp/issues/2017/0715/p101.html>

## MLD: BASIC BOTANY

**Total Credit: 3**

**Hours: 4**

**Course Objective and Outcome:** This course will provide an understanding on plant cells, major plant groups and plant ecology and diversity. On successful completion of the course, students will be able to understand – the cell and its types with emphasis on plant cells; the major groups of plants; the concept of ecology and biodiversity and the importance of plants and their role in human life.

Unit	Topics
<b>Unit I</b>	Cell and Anatomy: Introduction to cell and its types - Prokaryotes and Eukaryotes; Study of plant cells; Introduction to tissues - simple and complex; Study of Leaf - monocot and dicot; Structure and function of flower
<b>Unit II</b>	Ecology and Plant Diversity: Five Kingdom concept; Study of major groups - Bacteria, Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperm and Angiosperm (only general characteristics)  Concepts of ecology; Structure and function of ecosystem; Trophic organization - food chain and food web; Ecological pyramid; Ecosystem types in India; Case study of any one of the following in relation to Andaman and Nicobar Islands - forest ecosystem, aquatic ecosystem (marine or freshwater) and mountain ecosystem. Concept of biodiversity hotspot
<b>Unit III</b>	Plants and Human Affairs: Important vascular plants and products used as food, textiles and medicines, oils and perfumes; Spices of Andaman & Nicobar Islands; Study of harmful plants; Advantages and disadvantages of genetically modified plants

### Reading List

1. Campbell NA, Reece JB (2008) Biology, 8th edition, Pearson Benjamin Cummings, San Francisco.
2. Evert RF, Eichhorn SE (2012) Raven Biology of Plants, 8th edition, New York, NY: W.H. Freeman and Company.
3. Singh V, Pandey PC, Jain DK (2001) A Text Book of Botany. Meerut, UP: Rastogi and Co.
4. Odum EP (2005) Fundamentals of ecology. Cengage Learning India Pvt. Ltd., New Delhi.

The dition. Ambasht and Ambasht (2002) A text book of Plant Ecology. CBS publisher and Distribut

## MLD: BASIC ZOOLOGY

**Total Credit: 3**

**Hours: 4**

**Course Objective and Outcome:** The objective of the paper is to understand biodiversity, habitat, adaptation organization of animals and their economic importance. At the end of the course the students will understand the significance of animals in the biosphere and their economic importance and need for the conservation of their habitats

Unit	Topics
<b>Unit I</b>	General classification of Animal Kingdom – general characteristics of Invertebrate, Chordata and Vertebrata. Parasites of human – Plasmodium, Tapeworm. Vector and vector control – mosquitoes
<b>Unit II</b>	Economic importance of insects – honey bee, silk worm. Economic importance of Mollusca – pearl oysters, shells. Fish culture
<b>Unit III</b>	Geographical distribution of animals; Land and aquatic animals; Corals and coral reefs; Importance and threats to biodiversity

### Reading List

1. Arumugam N. (2017). *Developmental Zoology*, Saras Publication, Nagarcoil, Tamilnadu.
2. Ghosh, K.C. and Manna, B. (2015): *Practical Zoology*, New Central Book Agency, Kolkata
3. Nair NC, Leelavathy S, SoundaraPandian N and Arumugam N. (2013). *A Text Book of Invertebrates*, Saras Publication Nagercoil, Tamilnadu.
4. Thangamani A, Prasannakumar S, Narayanan LM, Arumugam N. (2013). *A Text Book of Chordates*, Saras Publication, Nagercoil, Tamilnadu.

## MLD - BASIC MICROBIOLOGY

**(Credits: Theory-3)**

(Teaching Hours – 4)

### Course objective:

To understand the basics of microbiology and to know the role in environment. To provide fundamental understanding of the microbial world, basic structure and functions of microbes, metabolism, nutrition, their diversity, physiology and relationship to environment and human health. To impart practical skills of isolation and manipulating conditions for their propagation. To ensure the students to understand about the structure and function of microorganisms.

### UNIT - I (10 hours)

**Microbial Diversity:** Basics of microbiology, History and Scope of microbiology, General features and Classification of Archaea, Bacteria, Fungi, Algae, Protozoa, Viruses and Prions. Differences between prokaryotic and eukaryotic organisms.

### UNIT- II (15 hours)

**Ultrastructure of Bacteria: Sub-cellular structures** - Cell wall of bacteria and its biosynthesis, Cell envelope - capsule and slime layer, Cellular appendages - pili, flagella and fimbriae, Cell membrane, inclusion bodies, Plasmid DNA and chromosomal DNA. **Bacterial genetics** - conjugation, transduction (generalized and specialized), and transformation.

### UNIT - III (15 hours)

**Microscopy: Staining** - Principles and types of staining (simple and differential) **Microscopy** -Instrumentation, principles and applications of light microscopes (bright field, dark field, phase contrast, fluorescent microscopes) and electron microscopes (transmission and scanning electron microscopes)

### UNIT - IV – (10 hours)

**Microbial Nutrition:** Classification of microorganisms based on their nutritional types, Preparation of media, types of media, culturing of microbes, Microbial growth curve, viral replication: lytic and lysogenic cycles, Isolation, preservation and maintenance of microorganisms, Aerobic and Anaerobic culturing of bacteria, Effect of biotic and abiotic factors on the growth of organisms.

### UNIT - V (10 hours)

**Microbial Control:** Sterilization, disinfection, antisepsis, fumigation. Physical control: Temperature (moist heat, autoclave, dry heat, hot air oven and incinerators), desiccation, osmotic pressure, radiation, UV-light, electricity, ultrasonic sound waves, filtration. Chemical control: Antiseptics and disinfectants (halogens, alcohol, gaseous sterilization)

### Course Learning Outcomes (CLO):

Students will be able to

1. Define the science of microbiology, its development and importance in human welfare.
2. Describe historical concept of spontaneous generation and the experiments performed to disprove.
3. Describe some of the general methods used in the study of microorganisms.
4. Recognize and compare structure and function of microbes and factors affecting microbial growth.
5. Demonstrate aseptic microbiological techniques in the laboratory and check sources of microbial contamination and their control.

**Text Books:**

- M.J. Pelczar Jr. E.C.S. Chan and N.R. Kreig, Microbiology (5<sup>th</sup> edition), Tata MaCraw-Hill, New Delhi;
- R. Ananthanarayanan. and C.K.Jayaram Panickar, Text book of Microbiology (9<sup>th</sup> edition), Orient Longman Publications, New Delhi
- Lansing M. Prescott, John. P. Harley, Donald A. Klein, 1999. Microbiology (9<sup>th</sup> edition) WCB MaCraw-Hill, New York;

**Further reading:**

- Sundararajan S (2003). College Microbiology, revised edition, Vardhana publications, Bangalore.
- R.C. Dubey, D.K.Maheswari, A Text book of Microbiology (2005), S.Chand & C7ompany Ltd. New Delhi



## MLD- Fundamentals of Biotechnology

Credits: 3 (T)  
(Teaching Hours – 4)

**Learning Objectives:** This course introduces the basics and fundamental concepts of biotechnology that covers the diversity of life, different kingdoms of living life, as well as applications of biotechnology in several fields.

**Course Outcome:** The students will be able to learn the basics biology, classification of the living organisms, nomenclature, and anatomy of different living systems. Also, they will be learned cell biology and application of biotechnology.

### Unit I

**Biodiversity and Classification:** Classification of the living organisms -five kingdom classification concepts. Salient features of animals-non-chordates up to phylum level and chordates up to class level;salient features of plants -Angiosperms up to class.

### Unit II

**Structural arrangements of animal and plant systems:** Anatomy and functions of animal organs- digestive, circulatory, respiratory, nervous, and reproductive. Anatomy and functions of dicots and monocots plants.

### Unit III

**Cell-Fundamental unit of life:** Differentiate between plant and animal cell; cell envelope; cell membrane, cell wall. Cellular organelles - structure and function; endoplasmic reticulum, Golgiapparatus, lysosomes, vacuoles, mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles; nucleus.

### Unit IV

**Human Diseases and Public Health Issues:** Pathogens and parasites causing human diseases (dengue, chikungunya, dengue, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; cancer, diabetes, HIV and AIDS; Adolescence - drug and alcohol abuse.

### Unit V

**Biotechnological Applications:** General perspectives of Biotechnology: Genetic engineering applications of biotechnology. Application of Biotechnology in health and agriculture: Production of Human insulin and vaccines.

### Text Books

1. The Cell: A Molecular Approach. 2019, 8th Edition, Oxford University Press, Author:Geoffrey Cooper.
2. Biotechnology Fundamentals, 2017, 2nd Edition, CRC Press, Author: Firdos Alam Khan
3. Life: The Science of Biology, 2012, 10<sup>th</sup> Edition. Authors: David E. Sadava, David M. Hillis, H. Craig Heller and May Berenbaum.
3. Biology of Plants, 2005, 7<sup>th</sup> Edition, New York: W.H. Freeman and Company. ISBN 0-7167-1007-2 Authors: Raven Peter H, Evert Ray F and Eichhorn, Susan E.
4. General Microbiology, 2007, 5<sup>th</sup> edition, MacMillan Press. Authors: Stanier R. Y, Adelberg E.A and Ingraham J. L

# **SEMESTER –II**

## **Physical Science**

**MLD - Electronics in Everyday Life**  
45 hours)

(3 credits -

This course aims to introduce a non-specialist student to the world of digital and smart devices thenanoscience and nanotechnology behind it, all covering the following topics (45 Lectures Total).

- Binary system of numbers.
- Difference between analog and digital systems of electronics.
- Concepts of memory (bits, bytes, speed).
- Different digital devices: desktops, tablets, laptops, flash drives, printers, scanners(components operation and communication).
- Introduction to sensors.
- Smart devices: Touch and voice-enabled devices (such as phones, tablets, ATMs, etc.).
- Technologies of inter-device communication.
- Innovative applications, societal impact, and barriers to implementation.
- Future electronic devices.
- Introduction to nanoscience and nanotechnology

## **CHEMISTRY IN EVERYDAY LIFE**

### **Learning Objectives:**

- To study functional food additives and food adulteration
- To study soaps and detergents, manufacturing process and environmental hazards
- To study chemical composition of cosmetics and perfumes
- To study the chemical nature of glasses, ceramics and plastics in daily use

### **Learning Outcomes:**

- Learn about food adulteration, food additives and artificial sweeteners, saccharin, cyclamate and aspartate in the food industries
- Understand the chemistry of soaps and detergents and their action
- Know about the ingredients in commonly used cosmetics and perfumes
- Gain knowledge about glasses and ceramics and their properties
- Learn the nature of the plastics used in everyday life and natural substitution for plastic

### **Unit I: Food additives**

**(12 Hours)**

Functional food additives and its importance, food adulteration, detection of food adulterations, food safety laws and fssai regulations. Food colours-permitted and non-permitted – Flavours – natural and synthetic, artificial sweeteners, toxic effect of additives.

### **Unit II: Soaps and Detergents**

**(12 Hours)**

Soaps and Detergents – saponification, classification, cleansing action of soap, manufacturing process, additives, fillers, flavours, bleaching agents and enzymes used in commercial detergents, environmental hazards.

### **Unit III: Cosmetics and perfumes**

**(12 Hours)**

Cosmetics and perfumes – classification, ingredients and regulations, bathing oils, face creams, talcom powder, skin products, hair dyes, shaving cream, shampoo, conditioners, nail polish, deodorants, antiperspirants, oral hygiene products, toxic effect of cosmetics.

### **Unit IV: Glasses and ceramics**

**(12 Hours)**

Glasses and ceramics – classification, manufacturing process, composition and properties of glasses, soda glass, borosilicate glass, coloured glass, photosensitive glass, armoured glass, safety glass, Important clays and feldspar, plasticity of clay, ceramic and its types, white pottery, glazing, applications.

**Unit V: Plastics in daily use****(12 Hours)**

Plastics in daily use. Polymerization process (brief). Thermosetting and thermoplastic polymers. Use of PET, HDPE, PVC, LDPE, PP, PS, ABS, and others. Recycling of plastics. Biodegradable plastics. Environmental Hazards of plastics. Paper news print, writing paper, paper boards, cardboards. Organic materials, wood, cotton, Jute, coir – International Universal recycling codes and symbols for identification.

**Reference Books:**

1. Food – The Chemistry of its components, T.P. Coultate,. Royal Society of Chemistry London, 2001.
2. Engineering Chemistry, Shashi Chowla, Danpat Rai & Co., 2017.
3. Industrial Chemistry, B.K. Sharma, Krishna Prakashan Publishers, 2012.
4. Understanding Chemistry, CNR Rao, Universities Press, 1999.
5. Engineering Chemistry, Jain and Jain, Darpat Rai Publication, 17<sup>th</sup> Ed., 2015.
6. Chemistry of cosmetics, Kumari R, Prestige publications, 2018.

## SCIENCE AND SOCIETY

(3 CREDITS / 45 HOURS)

### *Unit – I*

Manhattan project and definition of Modern and Ancient science in words of Prof. J. R. Oppenheimer. The first science Texts. The first theory of evolution and the 1st use of mathematics to measure the universe, nature, culture, and science.

### *Unit – II*

The birth of scientific methods refutation of ancient authorities through observation and experimentation. Instruments and new concepts, Rules of reasoning

### *Unit – III*

The laws of new science, two different theories of earth's present form, Unanswered questions- calculating the age of the earth, Continental drift

### *Unit – IV*

The first systematic attempt to describe the history of life, the origin of species, the laws of heredity, cell-level discoveries, mysteries of inheritance, Darwinist reductionism, relativity, quantum jumps, the big-bang, butterfly effect

### *Unit – V*

Distinction between heat and temperature – Evolution of temperature measurements – Kelvin's absolute temperature – Concept of triple point of water – Three laws of thermodynamics.

### ***Textbooks***

- [1] Story of Science From writings of Aristotle to the Big Bang Theory by Susan Wise Bauer,  
W.W. Norton and Company, 2015.

### ***Supplementary Readings***

- [1] Tantra Sangrah of Nilakantha Somayaji by K Ramaswamy and  
M S Sriram, Hindustan Book Agency, 2011.  
[2] Hindu Astronomy by W. Brennand, (Caxton Publication India, 1998).  
[3] Indian Astronomy: Concepts and Procedure by Dr. S. Balachandra Rao.  
[4] Origin of Life by Freeman Dyson, (Cambridge University Press

## **MLD - Energy in Everyday Life**

**Credits - 3**

### **Course objectives**

To teach the importance of energy in life

To sensitise the human pattern of energy consumption

To sensitise the energy consumption and related environmental issues

To sensitise the other possible hostile free energy technologies

To sensitise the energy related economic impacts

### **Course Outcome:**

Understand the importance of energy

Understand the human pattern of energy consumption Understand the energy related environmental problems

Learn about the possible hostile-free alternative energy sources Understand the relevance between energy and economy

### **Unit I. Energy**

Introduction to Energy, atoms, energy - atom interaction, energy consumption, units of energy - Energy sources: solar energy, geothermal energy and nuclear energy - bioenergy - wind energy- ocean energy and fossil fuels - human patterns of energy consumption: internal consumption and external consumption, Global energy cycle

### **Unit- II Fossil Fuel and Energy conversion**

Energy sources: Fossil fuels and their types, energy content and energy potential, energy capacity measurement, energy conversion, conversion efficiency, Global potentials of fossil fuels and supply chain - origin of pollution - types of pollution and their impact on daily life  
- nexus between energy, environment and sustainable development.

### **Unit II. Ecology and Environment**

Concept and theories of ecosystems, - energy flow in natural and man-made ecosystems. Examples of natural and manmade ecosystems - agricultural, industrial and urban ecosystems  
- sources of pollution from energy technologies and its impact on atmosphere: air, water and soil - environmental laws on pollution control.

### **Unit-IV - Pollution free renewable energy Technologies**

**Solar Energy:** potential, energy conversion through photosynthesis, Photovoltaic conversion and solar thermal energy conversion. **Wind Energy:** potential and energy conversion systems. **Ocean Energy:** potential and energy conversion principles **Bioenergy:** resources and types.

## **Unit V. Energy and Economy**

Energy and Economics: gross domestic product (GDP) and energy- energy market and society - energy efficiency - exergy - exergy and economics - energy: security- equity - environmental sustainability index and global measure

### **References**

1. Energy and Environment, (Eds.) Loulou, Richard; Waaub, Jean- Philippe; Zaccour, Georges (2005).
2. Energy and the Environment, Ristinen, Robert A. Kraushaar, Jack J. AK.raushaar, Jack P. Ristinen, Robert A., 2nd Edition, John Wiley, (2006)
3. Energy and the Challenge of Sustainability, World Energy assessment, UNDP, N York, (2000).
4. Solar Energy: principles of Thermal Collection and Storage, S.P. Sukhatme, Tata McGraw-Hill (1984).
5. Y. Goswami, F. Kreith and J. F. Kreider, Principles of Solar Engineering, Taylor and Francis, Philadelphia (2000).
6. Wind Energy Conversion Systems, L.L. Freris, Prentice Hal 1990.
7. Geothermal Energy: From Theoretical Models to Exploration and Development by Ingrid Sober and Kurt Bucher, Springer, 2013.
8. Ocean Energy: Tide and Tidal Power by R. H. Charlier and Charles W. Finkl, Springer 2010
9. Energy Economic by Peter M. Schwarz, Routledge publications (2018).

## **MLD - BASIC MATHEMATICS**

**- 3 CREDITS (48 HOURS)**

\*Offered to those who had not studied Mathematics or Business mathematics in their secondary level of Education.

**Unit 1 :** Matrices Matrices-Elementary Concepts- Evaluation of Determinant of a square matrix - Types of Matrices-Sum and product of Matrices-Inverse of a square matrix of order 2 and order 3 –Rank of Matrix.

**Unit 2 :** Theory of Equations Relation between roots and coefficients - solution of equations under simple given conditions - Formation and solution of equations with imaginary and surd roots.

**Unit 3 :** Application of Matrices Consistency of a system of linear non-homogeneous equations (statement only)- simple problems characteristic equation of a square matrix - evaluation of eigenvalues – Cayley Hamilton Theorem (statement only) – verification and computing inverse using Cayley Hamilton Theorem

**Unit 4 :** Differential Calculus Differential coefficient of  $f(x)$  with respect to  $x$  - rules for differentiation - Differential coefficient of standard functions – Trigonometric and Inverse trigonometric functions.

**Unit 5 :** Differential Calculus (continued) Logarithmic differentiation - Differentiation of one function with respect to another. Integral Calculus Integration as the inverse process of differentiation - integration of standard functions.

### **BOOKS FOR STUDY**

Manicavachgam Pillay, T.K., T. Natarajan, and K.S. Ganapathy. Algebra Vol. II. Chennai : S. Vishwanthan printers and publishers Pvt. Ltd., 2006. Chapter 2 Sections: 1-5, 7, 8, 11, 16.

Manicavachgam Pillay, T.K., T. Natarajan, and K.S. Ganapathy. Algebra Vol. I. Chennai : S. Vishwanthan printers and publishers Pvt. Ltd., 2006. Chapter 6 Sections: 1, 9, 10, and 11

Narayanan S., and T.K. Manicavachgam Pillay. Calculus Vol. I. Chennai : S. Vishwanthan printers and publishers Pvt. Ltd., 2004. Chapter 7 Sections: 1- 3.10, 4.1, 4.2, and 7

Narayanan S., and T.K. Manicavachgam Pillay, Ancillary Mathematics: Book II. Chennai : S. Vishwanthan printers and publishers Pvt. Ltd., 2004 . Chapter 1 Sections: 1.1- 6.1

### **BOOKS FOR REFERENCE**

Vittal, P.R. Allied Mathematics. Chennai : Margham Publications, 2002.

Narayanan S., R. Hanumantha Rao, T.K. Manicavachgam Pillay, and P. Kandaswamy. Ancillary Mathematics Vol. I. Chennai :

S. Vishwanthan printers and publishers Pvt. Ltd., 2007. Vittal, P.R., Business Mathematics. Chennai : Margham Publications, 1999



# SEMESTER –III

## Humanities / Social Sciences

### MLD: BASIC ECONOMIC CONCEPTS AND MEASUREMENT

Credit 3

#### Module 1: Principles of Economics

Economic problems – Economics and household management – Scope of economics -  
Optimization with constraints in economic analysis - Ten basic Principles of Economics -  
Microeconomics vs Macroeconomics – Normative and Positive Economics - Economic systems.

#### Module 2: Concepts in Microeconomics

Basic concepts and measurement in consumer analysis: Utility, tastes and preferences, types of goods, income, wealth, prices of goods and services, budget constraint, indifference curve, utility maximization, elasticity – Basic concepts and measurement in producer analysis: Labour, Capital, technology, factor productivity, revenue, cost, profit, returns to scale, economies and diseconomies of scale, - Different market structure and market Equilibrium - Market imperfections and externalities.

#### Module 3: Concepts in Macroeconomics

Measurement of standard of living and national income accounting – circular flow of income  
- major socioeconomic indicators, cost of living indicators – key macroeconomic variables: saving, investment, interest rate, money, inflation, balance of payments, foreign exchange rate, labour force and unemployment rate, Evolution of macroeconomic thinking: An overview

#### Readings:

1. Abel, Bernanke and Croushore, Macroeconomics, Pearson Education, 8<sup>th</sup> Edition, 2013.
2. Case, K.E. and Fair, R.C, Principles of Economics, Pearson Publisher, 8<sup>th</sup> Edition, 2013.
3. Dornbusch, R., Fischer, S. and Startz, R. Macroeconomics, Tata McGraw Hill, 12<sup>th</sup> Edition, 2018.
4. Gregory Mankiw, Principles of Economics,
5. Samuelson and Nordhaus, Economics, TATA McGraw Hill, 20<sup>th</sup> Edition, 2019

*Course Objectives:*

- To understand the basics Accountancy.
- To know the fundamental concepts of Cost Accounting and Management Accounting
- To gain the basics of Accounting Application package.

**UNIT -I**

Accounting – Introduction-Meaning-Accounting and book keeping distinguished- objectives of accounting- Branches of accounting-accounting concepts and conventions-accounting standards in India.

**UNIT - II**

Double Entry System of Book Keeping -Journal-Ledger-preparation of Trial balance-rectification of errors - Cash book and Petty cash book

**UNIT –III**

Preparation of Trading account- Preparation of Profit and loss account and Balance sheet- Final accounts with simple adjustments

**UNIT –IV**

Financial statement Analysis: Nature, significance and Types – Ratio Analysis and Cash Flow Analysis. Basics of Application Package-Tally, SAP, Excel programming

**UNIT –V**

Basics of cost Accounting – Basic Concepts- Elements of cost – prime cost – works cost – cost of production –Preparation of cost-sheet: Computation of total cost, total revenue and profit/loss.

**TEXT BOOKS**

- S.N. Maheswari, “Advanced Accountancy Vol I”, Vikas Publishing
- R.L. Gupta, “Advanced accounting”, S. Chand & Co. New Delhi
- Pillai and Baghawati, “Cost Accounting”
- Jain and Narang, “Cost Accounting”, Kalyani Publications
- T.S. Reddy & Murthy, “Financial Accounting”
- Jain & Narang, “Financial Accounting”
- M. C. Shukla & T.S.Grewal, “Financial Accounting”

**Multi Disciplinary : FRENCH FOR BEGINNERS**

**3 Credits**  
**Hours -4**

**Prescribed Textbook: *Collaboration*, Ragini Mehta, Goyal Saab, New Delhi, 2014.**

Unit 1 to 3- pp 10 to 106

**Unit I**

Introduction to Commercial Geography - a. Meaning and Definition of Commercial Geography, b. Nature, Scope and Development of Commercial Geography, c. Importance of Applied Commercial Geography, d. Approaches to the study of Commercial Geography - Economic Activities in the Geographical Environment - a. Basic Economic Activities of Man Geographical Environment - i. Primary, ii. Secondary, iii. Tertiary, iv. Quaternary, v. Quinary b. Factors affecting Economic activities of Man - i. Physical or Natural ii. Cultural or Human.

**Unit II**

Economic Resources -i. Meaning, Importance and Types of Resources, ii. Classification of Resources. Natural – Renewable, Non- Renewable, etc., ii Man Made Resources – Quantitative and Qualitative iii. Major Resources- Water, Soil, Forests, Energy (w.r.t. related economic and commercial activities), iv. Crises and Conservation of Resources

**Unit III**

Human Resources - a. Meaning, Characteristics, Advantages and Disadvantages of - i. Over population, ii. Under population, iii. Optimum population. - b. Contemporary Issues of Population and Development, i. Dependency Ratio, ii. Human Development Index (HDI), iii. Migration and its effects, - c. Major Population Characteristics of India

**Unit IV**

Industry and Economic Development, a. Role of Industry in Economic Development, i. Classification of Industries, ii. Factors affecting Industrial Location, iii. Weber's theory of Industrial Location - b. Major Industries in India- i. Agro Based – Sugar, Cotton Textile ii. Assembly line Based – Automobile, iii. Footloose and I.T. Industry, - c. New Industrial Policy in India

**Unit V**

Trade, Transport and Communication - a. Types of Trade, Factors affecting and Communication Trade, Balance of Payments for India, Major Trade Blocs and the role of W.T.O. in International Trade, - b. Classification of various means of Transport. Advantages and Disadvantages. Latest developments in India for: i Land Transport (Road and Railway), ii Water Transport (Inland and Oceans), iii Air Transport - c. Types of Communications and their use in Commerce, i. Use of telecommunications, Internet, Mobile phones in Trade

**Reference Books.**

- Hartshorne T. N. & Alexander J.W., (1994), Economic Geography, Prentice Hall, New Delhi.
- Wheeler J. O. et., at (1995), Economic Geography, John Wiley, New York.
- Robertson D., (2001), Globalization and Environment, E. Elgar Co., U.K.
- Saxena, H. M., (1990), Marketing Geography, Rawat Publication, Jaipur.
- Khanna K. K. & Gupta V. K., (1982), Economic and Commercial Geography, Sultan Chand, New Delhi.
- **Reference Books:** Commercial Geography – Sir Dudley
- Stamp Commercial Geography – E.C. K. Gonner, Trieste Publishing Human and Economic Geography – Goh Cheng Leong & Gillian Morgan, Oxford University Press Indian Economy (Datt & Sundaram) – Gaurav Datt & Ashwani Mahajan, S.Chand and Company .

**Course Rationale**

This Course introduces the students to the elements of public administration. This would help them obtain a suitable conceptual perspective on Public Administration. In addition, the course introduces to students, the growth of such institution devices as to meet the need of changing times. The course also aims to instill and emphasize the need of ethical seriousness in contemporary Indian public administration within the Constitutional framework.

**1. Introduction:**

Meaning, nature and Scope of Public Administration and its relationship with other disciplines- Evolution of Public Administration as a discipline – Woodrow Wilson, Henry Fayol , Max Weber and others - Evolution of Public Administration in India – Arthashastra – Colonial Administration upto 1947.

**2. Public Administration in India**

Enactment of Indian Constitution - Union Government – The Cabinet – Central Secretariat – All India Services – Training of Civil Servants – UPSC – Niti Ayog – Statutory Bodies: The Central Vigilance Commission – CBI - National Human Rights Commission – National Women’s Commission –CAG.

**3. State and Union Territory Administration**

Differential Administrative systems in Union Territories compared to States Organization of Secretariat: -Position of Chief Secretary, Functions and Structure of Departments, Directorates – Ministry of Home Affairs supervision of Union Territory Administration – Position of Lt.Governor in UT – Government of Union Territories Act 1963 – Changing trend in UT Administration in Puducherry and Andaman and Nicobar Island.

**4. Emerging Issues in Indian Public Administration**

Changing Role of District Collector – Civil Servants – Politicians relationship – Citizens Charter - Public Grievance Reddressal mechanisms — The RTI Act 2005 – Social Auditing and Decentralization – Public Private partnership -

**References:**

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