Course Objective: The objective of the course is to provide an understanding of the underlying concepts, strategies and issues involved in exchange of products and services between the firms and markets.

UNIT - I Marketing: An Overview –


UNIT – II Product and Price Management –


Price Management – Meaning, Importance, Objectives, Influencing factors, and procedure of Pricing, Pricing Policy and Methods and Pricing Strategies or Tactics, Various Pricing concepts (Price dumping, Discrimination, Price Vs Nonprice competition, Resale price maintenance, Price sensitivity, Allowances)

UNIT – III Promotion and Distribution Management –

Promotion Management - Concept of Marketing Communication, Marketing Communication Process, Promotion Concept, Types of Promotion and Promotion Mix, Advertising (Nature, Scope, Role, Importance, Developing ad programme), Sales Promotion (Purpose, Decisions and Types), Personal Selling (Designing and Managing Sales force, Principles of P.S.), Public Relations (Decision in P.R.)

Distribution Management – Role, Importance, Types, Levels, Influencing factors, Channel design and management decisions, Physical Distribution (Importance and Types), Retailing and Whole selling Types, Fronds and Decision.

UNIT – IV Marketing and Different Fields –

Industrial Marketing; Industrial Marketing perspective, industrial vs consumer marketing, classification of industrial goods, types of organizational customer and their characteristics, segmenting organizational market, industrial marketing planning, industrial buying process, buying situation analysis, vendor rating analysis.
UNIT - V  

**Customer Relationship Management:** Definition, measurement of CRM, customer response, customer satisfaction, loyalty and customer retention, complaint management, customer retention and its effect on profitability, strategies for improving customer retention, six E’s of relationship marketing, CRM implementation.
CSM 202  FINANCIAL MANAGEMENT


Unit – III  Management of Working Capital – Meaning and Concept of making capital, Sources of working capital and factor affecting working capital, Management of cash, Recurable Management and optimum Credit Policy, Management of Inventory.


Note: One Practical Question may be asked from any Unit.

Suggested Reading:

1. S.N.Maheshwari  : Financial Management
3. I.M.Pandey       : Financial Management
5. S.C.Kuchhal     : Financial Management
7. Weston Brigham   : Managerial Finance
CSM 203  BUSINESS ENVIRONMENT

Unit-I: Introduction:
Concept, Nature and Significance of business environment, Salient feature of Capitalism, Socialism, Mixed economy, Emergence of public sector, Public sector reforms, Emergence of private sector and Joint sector.

UNIT-II: Social Environment:
Social responsibilities of business, Consumerism, Ethics and Culture of business, SEBI, Indian Fiscal and Monetary Policy, Liberalization and Globalization, Foreign capital and technology, Import and Export policy, FEMA.

UNIT-III: Industrial Environment:

UNIT-IV: Demand and Production Analysis:
Law of demand, Factors affecting demand, Elasticity of demand, Techniques of forecasting demand - Survey and Statistical methods. Production function with one variable input, Law of variable proportions. Production function with two variable inputs, Isoquant production function with all variable inputs, Return to scale, Law of supply and Classification of cost.

UNIT-V: Market Structure and Pricing:
Different market structure, Price and output determination under perfect competition, Monopoly, Monopolistic competition, Oligopoly.
CSM – 204 (A) CHEMISTRY OF NATURAL PRODUCTS

Unit – I
Terpenoids and carotenoids : Classification, occurrence, isolation, general methods of structure determination, isoprene rule, stereo chemistry, biosynthesis. Synthesis and industrial uses of following representative molecule : citral, geraniol, Menthol, zingiberene, β-carotene.

Unit – II
Alkaloids : Definition, nomenclature and physiological action, occurrence, isolation, general methods of structure elucidation, degradation, classification based on nitrogen heterocyclic ring, role of alkaloid in plants, structure, stereo chemistry, synthesis and biosynthesis of the following; Conine, Nicotine, atropine, Quinine.

Unit – III
Perfumes : Constitution of perfumes, odorous substances. Extraction of perfumes from plants, synthesis of some important synthetic chemicals used in perfume industry coumarin, β-ionone, esters, phenylethyl alcohol, Musk ambrette, Musk Xylene, Halotropin, perfume formulation, some representative formulation of rose, jasmine, sandal wood, Fancy perfumes, lavender etc.

Unit – IV
Carbohydrate and Fermentation Industries: Manufacture of sugar. Manufacture of starch, dextrin from corn, Potato, rice and tapioca.

Industrial alcohol, manufacture of absolute alcohol, Beer, Wine, Distilled spirit, Butyl alcohol, Acetone, Acetic acid, Citric acid, Lactic acid, Oxalic acid etc.

Unit – V
Milk and Milk Products, Chemical Composition, Processing of milk, Types of milk, Analysis of Milk and Composition, uses and manufacturer of various milk products viz cream, butter, ghee, cheese, condensed milk, casein, khoa, milk powder, infant milk food, malted milk powder, ice-cream, fermented milk products.
CSM 205 (A)  UNIT OPERATIONS

UNIT – I

Distillation
Introduction: VLE, Batch and continuous distillation, Mecabe Thiele method, Reflux ratio, q-line, Azeotropic, Steam and extractive distillation.
Equipment: plate columns and packed columns.

Absorption

UNIT - II

Evaporation
Introduction: Equipments short tube (standard) evaporator, forced circulation evaporator, falling film evaporators, climbing film (upward flow) evaporators, wiped (agitated) film evaporators.

Heat Exchanger
Introduction: Equipments double pipe, Shell and tube, U-tube, Fine tube Heat exchanger

UNIT – III

Crystallization

Extraction
Introduction : selection of solvents, Equipments – spray column, packed column rotating disc column, mixer settler.

UNIT – IV

Filtration

Size Reduction and size Separation
Definition, objectives of size reduction, factors affecting size reduction, Law governing energy and power requirement of mills including ball mill, hammer mill, fluid energy mill etc.

Mixing
Theory of mixing, solid – solid, solid-liquid and liquid – liquid mixing equipments
UNIT - V

**Drying**
Introduction: free moisture, bound moisture, drying curve, Equipments – tray drier, rotary dryer, flash dryer and spray dryer.

**Ideal Reactors**
UNIT – I

Concept of polymers, polymerization, definition, classification and types. Bonding in polymers.
Condensation polymerization – types extent of condensation and degree of polymerization. Cross-linking, gel point and ring opening polymerization.

UNIT – II

Chemical properties
Hydrolysis, acidolysis, aminolysis, hydrogenation, addition, substitution isomerisation, cyclization and cross linking reactions of polymer.
Polymerization kinetics and Techniques
Free radical, cationic, anionic and radiation, polycondensation, mass, solution, emulsion and suspension polymerizations, Advantages and disadvantages of the techniques and of the products from them.

UNIT – III

Molecular mass
Relative molecular mass, mw, Mn and polydispersibility colligative property measurement and group analysis. Light scattering, ultra centrifugation, osmotic pressure and viscosity methods of molecular mass measurement. Gel permeation chromatography.

Glassy state, glass transition temperature, Mechanisms of glass transitions temperature. Factors influencing the glass transition temp. Relation of glass transitions temperature with molecular weight and melting point. Importance of glass transition temperature, crystallinity in polymers

UNIT – IV

Rubber
Materials and Processing Technology
Introduction, types, thermoplastic elastomers (TPE), compounding and processing technology, vulcanization of elastomers, theory and accelerator action of sulphur vulcanization, non-sulphur vulcanization, ebonite latex technology some major rubber products. Polymer industries in India.
Polymer degradation and stabilizers
Thermal degradation, photo degradation. Oxidative, degradation biological degradation, the role of antioxidants and stabilizers.

UNIT – V

Plastics Materials

Introduction, Synthesis, properties and uses of following:

1. Polyethylene
2. Polystyrene
3. Acrylic fibers
4. Polyamides
5. Polycarbonates
6. Cellulose plastics
7. Silicones
8. Poly Vinyl Chloride
9. Polyurethane's
CSM 204 (B) MEDICINAL CHEMISTRY-I

UNIT- I

General Pharmacological Principles
a) Drug nomenclature, routes of drug administration.
b) Pharmacokinetics: Passive diffusion and filtration, specialized transport, absorption, bio-availability, distribution, bio transformation (metabolism), excretion, clearance, plasma half life, loading and maintenance dose, prolongation of drug action.
d) Adverse drug effects.

UNIT- II

Antipyretics analgesics
a) Some common antipyretic drug: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of paracetamol, acetalilide, aspirin, cincophen, phenazone, mfenamic acid
b) Opioid analgesic or Narcotic analgesic drugs: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Morphene sulphate, codeine, levorphanon tartrate, metazocine, pethidine hydrochloride.
c) Non steroidal anti inflammatory drugs: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Indomethacin, Ibuprofen, Nuproren, Auranofin.

UNIT- III

a) Sulphonamides: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Sulfanilamide, Sulfathiazole, Sulphadiazine, Sulfacetamide, Mafenide
b) Cotrimoxazole, Quinolones and Fluroquinolones: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of ciprofloxacin, norfloxacin.
c) Anti Cancer Drugs: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Cyclophosphamide, Melphalan, Busulfan, Methotrexate.

UNIT- IV

Antibiotics
a) β-Lactam antibiotics: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Penicilline (Benzyl penicilline, cloxacillin, ampicilin) and Cephalosporins (cephalexin).

b) Aminoglycodies Antibiotics: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Streptomycin, neomycin.

c) Tetracyclines and chloramphenicol: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Tetracycline, Minocycline and Chloramphenicol.

d) Mecrolide Antibiotics: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Erythromycin.

e) Treatment of urinary tract infection: Antimicrobial agents

UNIT - V

a) Antitubercular Drugs: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Isoniazid, Rifampin, Streptomycin.

b) Antileprotic Drugs: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Dapsone, Clofazimine, Rifampin.

c) Antimalerial Drugs: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Chloroquine, Primaquin Phosphate.

d) Antiamoebic & Antiprotozoal Drugs: Classification, pharmacology, mode of action, adverse effects, synthesis and structure activity relationship of Mtoniadazole, Diloxanide Furoate, Sodium stibogluconate, Pentamidine.
CSM-205(B) MICROBIOLOGY

Unit - I
1. Introduction, History & Scope of Microbiology
3. Isolation & preservation of pure culture
4. Classification of bacteria

Unit - II
1. Growth factors of bacteria
2. Bacterial toxins
3. Identification of bacteria
4. Microbial Straining techniques

Unit - III
1. Principles of sterilization & Disinfections
2. Control of micro-organisms by physical & chemical method
3. Aseptic techniques & test for sterility
4. Method of evaluation of antimicrobial chemical agents

Unit - IV
1. Infection & factors influencing infection
2. Bacterial disease – Tuberculosis, Cholera, Typhoid, Diphtheria
3. Viral disease – Influenza, Infective hepatitis, Poliomyelitis
4. Protozoon disease – Malaria

Unit - V
1. Innate & Acquired immunity
2. Immuno globulins – Structure, types & functions
3. Antigen – Antibody reactions
4. Production of Monoclonal antibodies & vaccines
UNIT – I

The design of dosage forms and Preformulation

a) Design of Dosages Forms: Principles of dosage form design, biopharmaceuticals consideration in dosage form design, routes of drug administration, drugs factors in dosage form design, therepeutics consideration in dosage form design.

b) Preformulation: Concept of preformulations, Uxorious aspects of preformulations, spectroscopy, solubility, melting point, powder flow properties, assay development.

UNIT – II

Physiochemical Principles of Pharmaceutics

a) Viscosity, Rheology and the flow of fluids: Newtonian and Non-Newtonian fluids, viscosity values for Newtonian fluids, determination of the flow properties of simple fluids, types of non-Newtonian behaviour, determination of the flow properties of non-Newtonian fluids, the effects of rheological properties on bioavailability.

b) Solubility and dissolution rate: Methods of expressing solubility, prediction of solubility, solubility of liquids in liquids, solids in solids, gases in liquids and solids in liquids, dissolution rate of solids in liquids, factors affecting dissolution rates, measurement of dissolution rates

UNIT – III

a) Disperse systems: Colloids, Preparation of colloids, properties of colloids, physical stability of colloidal systems, gels, surface active agents, micellizations, solubilization, detergency.

b) Biopharmaceutics: Concept of Bioavailability and Biopharmaceutics, factor influencing bioavailability, assement of bioavailability, representation of bioavailability data, absolute and related bioavailability, one compartment open model of drug disposition in the body. Dosage regimens and their influence on the concentration, time profile of a drug in the body.

UNIT – IV

Study of Pharmaceutical Dosages Form Design Consideration

a) Tablets: Types of tablets, tablets ingredients, diluents, binders, disintegrants, lubricants, colors, flavours, sweeteners, types of coating.

b) Tablet Standardization: Hardness, friability, weight variations, disintegration, dissolution and content uniformity tests.

UNIT – V

a) **Pharmaceutical Preparations**: Principles and procedures involved in the dispensing of following classes of pharmaceutical dosages form – solutions, aromatic water, syrups, elixirs, spirits, tinctures, mixtures, lotions, liniments, throat paints.

b) **Suspensions**: Introduction, flocculations and deflocculating, sedimentations parameters, role of wetting, suspension formulation, evaluation of suspension stability.

c) **Emulsions**: Introduction, types, detection, thermodynamic consideration.