1.1.3 & 1.2.1

Institute Amity Institute of Pharmacy
Course B.Pharma
SEM I
Batch 2019-2023

| COURSE CODE | SUBJECT NAME | L | T | P | TOTAL CREDIT |
|---|---|---|---|---|---|
| BP101 | HUMAN ANATOMY AND PHYSIOLOGY I- THEORY | 3 | 1 | - | 4 |
| BP102 | PHARMACEUTICAL ANALYSIS I – THEORY | 3 | 1 | - | 4 |
| BP103 | PHARMACEUTICS I – THEORY | 3 | 1 | - | 4 |
| BP104 | PHARMACEUTICAL INORGANIC CHEMISTRY – THEORY | 3 | 1 | - | 4 |
| BP105 | COMMUNICATION SKILLS – THEORY * | 2 | - | - | 2 |
| BP106 | REMEDIAL BIOLOGY/ | 2 | - | - | 2 |
| BP107 | REMEDIAL MATHEMATICS – THEORY* | | | | |
| BP108 | HUMAN ANATOMY AND PHYSIOLOGY – PRACTICAL | - | - | 4 | 2 |
| BP109 | PHARMACEUTICAL ANALYSIS I – PRACTICAL | - | - | 4 | 2 |
| BP110 | PHARMACEUTICS I – PRACTICAL | - | - | 4 | 2 |
| BP111 | PHARMACEUTICAL INORGANIC CHEMISTRY – PRACTICAL | - | - | 4 | 2 |
| BC112 | COMMUNICATION SKILLS – PRACTICAL* | - | - | 2 | 1 |
| BP113 | REMEDIAL BIOLOGY – PRACTICAL* | - | - | 2 | 1 |
| BSU143 | BEHAVIOUR SCIENCE-VAS AUMP | 1 | - | - | 1 |
| FLU144 | FOREIGN LANGUAGE – VAS AUMP | 2 | - | - | 2 |

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Institute Amity Institute of Pharmacy
Course B.Pharma
SEM II
Batch 2019-2023

| COURSE CODE | SUBJECT NAME | L | T | P | TOTAL CREDIT |
|---|---|---|---|---|---|
| BP201 | HUMAN ANATOMY AND PHYSIOLOGY II – THEORY | 3 | 1 | | 4 |
| BP202 | PHARMACEUTICAL ORGANIC CHEMISTRY I – THEORY | 3 | 1 | | 4 |
| BP203 | BIOCHEMISTRY – THEORY | 3 | 1 | | 4 |
| BP204 | PATHOPHYSIOLOGY – THEORY | 3 | 1 | | 4 |
| BP205 | COMPUTER APPLICATIONS IN PHARMACY – THEORY * | 3 | - | | 3 |
| BP206 | ENVIRONMENTAL SCIENCES – THEORY * | 3 | - | | 3 |
| BP207 | HUMAN ANATOMY AND PHYSIOLOGY II -PRACTICAL | - | - | 4 | 2 |
| BP208 | PHARMACEUTICAL ORGANIC CHEMISTRY I- PRACTICAL | - | - | 4 | 2 |
| BP209 | BIOCHEMISTRY – PRACTICAL | - | - | 4 | 2 |
| BP210 | COMPUTER APPLICATIONS IN PHARMACY – PRACTICAL* | - | - | 2 | 1 |
| BCU241 | COMMUNICATION SKILLS – VAS AUMP | 1 | - | - | 1 |
| BSU243 | BEHAVIOUR SCIENCE-VAS AUMP | 1 | - | - | 1 |
| FLU244 | FOREIGN LANGUAGE – VAS AUMP | 2 | - | - | 2 |

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1.1.3

## BP101. HUMAN ANATOMY AND PHYSIOLOGY-I (Theory)

**45 Hours**

**Scope:** This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.

**Objectives:** Upon completion of this course the student should be able to

1. Explain the gross morphology, structure and functions of various organs of the human body.
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.
4. Perform the various experiments related to special senses and nervous system.
5. Appreciate coordinated working pattern of different organs of each system

### Course Content:

**Unit I** **10 hours**

- **Introduction to human body**

  Definition and scope of anatomy and physiology, levels of structural organization and body systems, basic life processes, homeostasis, basic anatomical terminology.

- **Cellular level of organization**

  Structure and functions of cell, transport across cell membrane, cell division, cell junctions. General principles of cell communication, intracellular signaling pathway activation by extracellular signal molecule, Forms of intracellular signaling: a) Contact-dependent b) Paracrine c) Synaptic d) Endocrine

- **Tissue level of organization**

  Classification of tissues, structure, location and functions of epithelial, muscular and nervous and connective tissues.

**Unit II** **10 hours**

- **Integumentary system**

  Structure and functions of skin

- **Skeletal system**

  Divisions of skeletal system, types of bone, salient features and functions of bones of axial and appendicular skeletal system

  Organization of skeletal muscle, physiology of muscle contraction, neuromuscular junction

- **Joints**

  Structural and functional classification, types of joints movements and its articulation

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**Unit III** **10 hours**

- **Nervous system**

  Organization of nervous system, neuron, neuroglia, classification and properties of nerve fibre, electrophysiology, action potential, nerve impulse, receptors, synapse, neurotransmitters.

  Central nervous system: Meninges, ventricles of brain and cerebrospinal fluid.structure and functions of brain (cerebrum, brain stem, cerebellum), spinal cord (gross structure, functions of afferent and efferent nerve tracts, reflex activity)

**Unit IV** **08 hours**

**Peripheral nervous system:**

Classification of peripheral nervous system: Structure and functions of sympathetic and parasympathetic nervous system. Origin and functions of spinal and cranial nerves.

- **Special senses**

  Structure and functions of eye, ear, nose and tongue and their disorders.

**Unit V** **07 hours**

- **Endocrine system**

  Classification of hormones, mechanism of hormone action, structure and functions of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas, pineal gland, thymus and their disorders.

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## BP102. PHARMACEUTICAL ANALYSIS (Theory)

**45 Hours**

**Scope:** This course deals with the fundamentals of analytical chemistry and principles of electrochemical analysis of drugs

**Objectives:** Upon completion of the course student shall be able to

- understand the principles of volumetric and electro chemical analysis
- carryout various volumetric and electrochemical titrations
- develop analytical skills

### Course Content:

**UNIT-I** **10 Hours**

**(a) Pharmaceutical analysis-** Definition and scope

i) Different techniques of analysis
ii) Methods of expressing concentration
iii) Primary and secondary standards.
iv) Preparation and standardization of various molar and normal solutions-Oxalic acid, sodium hydroxide, hydrochloric acid, sodium thiosulphate, sulphuric acid, potassium permanganate and ceric ammonium sulphate

**(b)Errors:** Sources of errors, types of errors, methods of minimizing errors, accuracy, precision and significant figures

**UNIT-II** **10 Hours**

- **Acid base titration:** Theories of acid base indicators, classification of acid base titrations and theory involved in titrations of strong, weak, and very weak acids and bases, neutralization curves
- **Non aqueous titration:** Solvents, acidimetry and alkalimetry titration and estimation of Sodium benzoate and Ephedrine HCl

**UNIT-III** **10 Hours**

- **Precipitation titrations:**Mohr's method, Volhard's, Modified
- **Complexometric titration:** Classification, metal ion indicators, masking and demasking reagents, estimation of Magnesium sulphate, and calcium gluconate.
- **Gravimetry:** Principle and steps involved in gravimetric analysis. Purity of the precipitate: co-precipitation and post precipitation, Estimation of barium sulphate.

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## BP103. PHARMACEUTICS- I (Theory)

**45 Hours**

**Scope:** This course is designed to impart a fundamental knowledge on the preparatory pharmacy with arts and science of preparing the different conventional dosage forms.

**Objectives:** Upon completion of this course the student should be able to:

- Know the history of profession of pharmacy
- Understand the basics of different dosage forms, pharmaceutical incompatibilities and pharmaceutical calculations
- Understand the professional way of handling the prescription
- Preparation of various conventional dosage forms

### Course Content:

**UNIT – I** **10 Hours**

- **Historical background and development of profession of pharmacy:** History of profession of Pharmacy in India in relation to pharmacy education, industry and organization, Pharmacy as a career, Pharmacopoeias: Introduction to IP, BP, USP and Extra Pharmacopoeia.
- **Dosage forms:** Introduction to dosage forms, classification and definitions
- **Prescription:** Definition, Parts of prescription, handling of Prescription and Errors in prescription.
- **Posology:** Definition, Factors affecting posology, Pediatric dose calculations based on age, body weight and body surface area.

**UNIT – II** **10 Hours**

- **Pharmaceutical calculations**: Weights and measures – Imperial & Metric system, Calculations involving percentage solutions, alligation, proof spirit and isotonic solutions based on freezing point and molecular weight.
- **Powders:** Definition, classification, advantages and disadvantages,Simple & compound powders – official preparations, dusting powders, effervescent, efflorescent and hygroscopic powders, eutectic mixtures. Geometric dilutions.
- **Liquid dosage forms:** Advantages and disadvantages of liquid dosage forms. Excipients used in formulation of liquid dosage forms. Solubility enhancement techniques

**UNIT – III** **08 Hours**

- **Monophasic liquids:** Definitions and preparations of Gargles, Mouthwashes, Throat Paint, Eardrops, Nasal drops, Enemas, Syrups, Elixirs, Liniments and Lotions.
- **Biphasic liquids:**

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- **Suspensions:** Definition, advantages and disadvantages, classifications, Preparation of suspensions; Flocculated and Deflocculated suspension & stability problems and methods to overcome.
- **Emulsions:** Definition, classification, emulsifying agent, test for the identification of type ofEmulsion, Methods of preparation & stability problems and methods to overcome.

**UNIT – IV** **08 Hours**

- **Suppositories**: Definition, types, advantages and disadvantages, types of bases, methods of preparations. Displacement value & its calculations, evaluation of suppositories.
- **Pharmaceutical incompatibilities**: Definition, classification, physical, chemical and therapeutic.incompatibilities with examples.

**UNIV – V** **07 Hours**

- **Semisolid dosage forms:** Definitions, classification, mechanisms and factors influencing dermal penetration of drugs. Preparation of ointments, pastes, creams and gels. Excipients used in semi solid dosage forms. Evaluation of semi solid dosages forms

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- **Suspensions:** Definition, advantages and disadvantages, classifications, Preparation of suspensions; Flocculated and Deflocculated suspension & stability problems and methods to overcome.
- **Emulsions:** Definition, classification, emulsifying agent, test for the identification of type ofEmulsion, Methods of preparation & stability problems and methods to overcome.

**08 Hours**

**UNIT – IV**

- **Suppositories**: Definition, types, advantages and disadvantages, types of bases, methods of preparations. Displacement value & its calculations, evaluation of suppositories.
- **Pharmaceutical incompatibilities**: Definition, classification, physical, chemical and therapeutic.incompatibilities with examples.

**07 Hours**

**UNIV – V**

- **Semisolid dosage forms:** Definitions, classification, mechanisms and factors influencing dermal penetration of drugs. Preparation of ointments, pastes, creams and gels. Excipients used in semi solid dosage forms. Evaluation of semi solid dosages forms

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## BP104. PHARMACEUTICAL INORGANIC CHEMISTRY (Theory)

**45 Hours**

**Scope:** This subject deals with the monographs of inorganic drugs and pharmaceuticals.

**Objectives:** Upon completion of course student shall be able to

- know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals
- understand the medicinal and pharmaceutical importance of inorganic compounds

**Course Content:**

**UNIT I** **10 Hours**

- **Impurities in pharmaceutical substances:** History of Pharmacopoeia, Sources and types of impurities, principle involved in the limit test for Chloride, Sulphate, Iron, Arsenic, Lead and Heavy metals, modified limit test for Chloride and Sulphate

  **General methods of preparation**, assay for the compounds superscripted with **asterisk (*)**, properties and medicinal uses of inorganic compounds belonging to the following classes

**UNIT II** **10 Hours**

- **Acids, Bases and Buffers:** Buffer equations and buffer capacity in general, buffers in pharmaceutical systems, preparation, stability, buffered isotonic solutions, measurements of tonicity, calculations and methods of adjusting isotonicity.
- **Major extra and intracellular electrolytes:** Functions of major physiological ions, Electrolytes used in the replacement therapy: Sodium chloride*, Potassium chloride, Calcium gluconate* and Oral Rehydration Salt (ORS). Physiological acid base balance.
- **Dental products:** Dentifrices, role of fluoride in the treatment of dental caries, Desensitizing agents, Calcium carbonate, Sodium fluoride, and Zinc eugenol cement.

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10 Hours

UNIT III

- **Gastrointestinal agents**

  **Acidifiers:** Ammonium chloride* and Dil. HCl

  **Antacid:** Ideal properties of antacids, combinations of antacids, Sodium Bicarbonate*, Aluminum hydroxide gel, Magnesium hydroxide mixture

  **Cathartics:** Magnesium sulphate, Sodium orthophosphate, Kaolin and Bentonite

  **Antimicrobials**: Mechanism, classification, Potassium permanganate, Boric acid, Hydrogen peroxide*, Chlorinated lime*, Iodine and its preparations

08 Hours

UNIT IV

- **Miscellaneous compounds**

  **Expectorants:** Potassium iodide, Ammonium chloride*.

  **Emetics**: Copper sulphate*, Sodium potassium tartarate

  **Haematinics:** Ferrous sulphate*, Ferrous gluconate

  **Poison and Antidote:** Sodium thiosulphate*, Activated charcoal, Sodium nitrite333

  **Astringents**: Zinc Sulphate, Potash Alum

07 Hours

UNIT V

- **Radiopharmaceuticals**: Radio activity, Measurement of radioactivity, Properties of $\alpha$, $\beta$, $\gamma$ radiations, Half life, radio isotopes and study of radio isotopes - Sodium iodide $I^{131}$, Storage conditions, precautions & pharmaceutical application of radioactive substances.

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## BP105.COMMUNICATION SKILLS (Theory)

**30 Hours**

**Scope:** This course will prepare the young pharmacy student to interact effectively with doctors, nurses, dentists, physiotherapists and other health workers. At the end of this course the student will get the soft skills set to work cohesively with the team as a team player and will add value to the pharmaceutical business.

**Objectives:**

Upon completion of the course the student shall be able to

1. Understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation
2. Communicate effectively (Verbal and Non Verbal)
3. Effectively manage the team as a team player
4. Develop interview skills
5. Develop Leadership qualities and essentials

**Course content:**

**UNIT – I** **07 Hours**

- **Communication Skills:** Introduction, Definition, The Importance of Communication, The Communication Process – Source, Message, Encoding, Channel, Decoding, Receiver, Feedback, Context
- **Barriers to communication:** Physiological Barriers, Physical Barriers, Cultural Barriers, Language Barriers, Gender Barriers, Interpersonal Barriers, Psychological Barriers, Emotional barriers
- **Perspectives in Communication:** Introduction, Visual Perception, Language, Other factors affecting our perspective - Past Experiences, Prejudices, Feelings, Environment

**UNIT – II** **07 Hours**

- **Elements of Communication:** Introduction, Face to Face Communication - Tone of Voice, Body Language (Non-verbal communication), Verbal Communication, Physical Communication
- **Communication Styles:** Introduction, The Communication Styles Matrix with example for each -Direct Communication Style, Spirited Communication Style, Systematic Communication Style, Considerate Communication Style

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**UNIT – III** **07 Hours**

- **Basic Listening Skills:** Introduction, Self-Awareness, Active Listening, Becoming an Active Listener, Listening in Difficult Situations
- **Effective Written Communication:** Introduction, When and When Not to Use Written Communication - Complexity of the Topic, Amount of Discussion Required, Shades of Meaning, Formal Communication
- **Writing Effectively:** Subject Lines, Put the Main Point First, Know Your Audience, Organization of the Message

**UNIT – IV** **05 Hours**

- **Interview Skills:** Purpose of an interview, Do's and Dont's of an interview
- **Giving Presentations:** Dealing with Fears, Planning your Presentation, Structuring Your Presentation, Delivering Your Presentation, Techniques of Delivery

**UNIT – V** **04 Hours**

- **Group Discussion:** Introduction, Communication skills in group discussion, Do's and Dont's of group discussion

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## BP 106 .REMEDIAL BIOLOGY (Theory)

30 Hours

**Scope:** To learn and understand the components of living world, structure and functional system of plant and animal kingdom.

**Objectives:** Upon completion of the course, the student shall be able to

- know the classification and salient features of five kingdoms of life
- understand the basic components of anatomy & physiology of plant
- know understand the basic components of anatomy & physiology animal with special reference to human

### UNIT I

07 Hours

**Living world:**

- Definition and characters of living organisms
- Diversity in the living world
- Binomial nomenclature
- Five kingdoms of life and basis of classification. Salient features of Monera, Potista, Fungi, Animalia and Plantae, Virus.

**Morphology of Flowering plants**

- Morphology of different parts of flowering plants – Root, stem, inflorescence, flower, leaf, fruit, seed.
- General Anatomy of Root, stem, leaf of monocotyledons & Dicotylidones.

### UNIT II

07 Hours

**Body fluids and circulation**

- Composition of blood, blood groups, coagulation of blood
- Composition and functions of lymph
- Human circulatory system
- Structure of human heart and blood vessels
- Cardiac cycle, cardiac output and ECG

**Digestion and Absorption**

- Human alimentary canal and digestive glands
- Role of digestive enzymes
- Digestion, absorption and assimilation of digested food

**Breathing and respiration**

- Human respiratory system
- Mechanism of breathing and its regulation
- Exchange of gases, transport of gases and regulation of respiration
- Respiratory volumes

### UNIT III

07 Hours

**Excretory products and their elimination**

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- Modes of excretion
- Human excretory system- structure and function
- Urine formation
- Rennin angiotensin system

**Neural control and coordination**

- Definition and classification of nervous system
- Structure of a neuron
- Generation and conduction of nerve impulse
- Structure of brain and spinal cord
- Functions of cerebrum, cerebellum, hypothalamus and medulla oblongata

**Chemical coordination and regulation**

- Endocrine glands and their secretions
- Functions of hormones secreted by endocrine glands

**Human reproduction**

- Parts of female reproductive system
- Parts of male reproductive system
- Spermatogenesis and Oogenesis
- Menstrual cycle

**UNIT IV** **05 Hours**

**Plants and mineral nutrition:**

- Essential mineral, macro and micronutrients
- Nitrogen metabolism, Nitrogen cycle, biological nitrogen fixation

**Photosynthesis**

- Autotrophic nutrition, photosynthesis, Photosynthetic pigments, Factors affecting photosynthesis.

**UNIT V** **04 Hours**

**Plant respiration:** Respiration, glycolysis, fermentation (anaerobic).

**Plant growth and development**

- Phases and rate of plant growth, Condition of growth, Introduction to plant growth regulators

**Cell - The unit of life**

- Structure and functions of cell and cell organelles. Cell division

**Tissues**

- Definition, types of tissues, location and functions.

**Text Books**

a. Text book of Biology by S. B. Gokhale
b. A Text book of Biology by Dr. Thulajappa and Dr. Seetaram.

**Reference Books**

a. A Text book of Biology by B.V. Sreenivasa Naidu
b. A Text book of Biology by Naidu and Murthy
c. Botany for Degree students By A.C.Dutta.
d. Outlines of Zoology by M. Ekambaranatha ayyer and T. N. Ananthakrishnan.
e. A manual for pharmaceutical biology practical by S.B. Gokhale and C. K. Kokate

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## BP 107 .REMEDIAL MATHEMATICS (Theory)

**30 Hours**

**Scope:** This is an introductory course in mathematics. This subject deals with the introduction to Partial fraction, Logarithm, matrices and Determinant, Analytical geometry, Calculus, differential equation and Laplace transform.

**Objectives:** Upon completion of the course the student shall be able to:-

1. Know the theory and their application in Pharmacy
2. Solve the different types of problems by applying theory
3. Appreciate the important application of mathematics in Pharmacy

### Course Content:

**UNIT – I** **06 Hours**

- **Partial fraction**

Introduction, Polynomial, Rational fractions, Proper and Improper fractions, Partial fraction , Resolving into Partial fraction, Application of Partial Fraction in Chemical Kinetics and Pharmacokinetics

- **Logarithms**

Introduction, Definition, Theorems/Properties of logarithms, Common logarithms, Characteristic and Mantissa, worked examples, application of logarithm to solve pharmaceutical problems.

- **Function:**

Real Valued function, Classification of real valued functions,

- **Limits and continuity :**

Introduction , Limit of a function, Definition of limit of a function ($\epsilon$ - $\delta$ definition), $\lim_{x \to a} \frac{x^n - a^n}{x - a} = na^{n-1}$ , $\lim_{\theta \to 0} \frac{\sin\theta}{\theta} = 1$.

**UNIT – II** **06 Hours**

- **Matrices and Determinant:**

Introduction matrices, Types of matrices, Operation on matrices, Transpose of a matrix, Matrix Multiplication, Determinants, Properties of determinants , Product of determinants, Minors and co-Factors, Adjoint or adjugate of a square matrix , Singular and non-singular matrices, Inverse of a matrix, Solution of system of linear of equations using matrix method, Cramer's rule, Characteristic equation and roots of a square matrix, Cayley–Hamilton theorem,Applicationof Matrices in solving Pharmacokinetic equations

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06 Hours

**UNIT – III**

- **Calculus**

**Differentiation** : Introductions, Derivative of a function, Derivative of a constant, Derivative of a product of a constant and a function , Derivative of the sum or difference of two functions, Derivative of the product of two functions (product formula), Derivative of the quotient of two functions (Quotient formula) – **Without Proof**, Derivative of $x^n$ *w.r.t*x,where $n$ is any rational number, Derivative of $e^x$,, Derivative of $\log_e x$ , Derivative of $a^x$,Derivative of trigonometric functions from first principles (**without Proof**), Successive Differentiation, Conditions for a function to be a maximum or a minimum at a point. Application

***06 Hours***

**UNIT – IV**

- **Analytical Geometry**

**Introduction:** Signs of the Coordinates, Distance formula,
**Straight Line** : Slope or gradient of a straight line, Conditions for parallelism and perpendicularity of two lines, Slope of a line joining two points, Slope – intercept form of a straight line

**Integration:**
Introduction, Definition, Standard formulae, Rules of integration , Method of substitution, Method of Partial fractions, Integration by parts, definite integrals, application

**06 Hours**

**UNIT-V**

- **Differential Equations** : Some basic definitions, Order and degree, Equations in separable form , Homogeneous equations, Linear Differential equations, Exact equations, **Application in solving Pharmacokinetic equations**
- **Laplace Transform** : Introduction, Definition, Properties of Laplace transform, Laplace Transforms of elementary functions, Inverse Laplace transforms, Laplace transform of derivatives, Application to solve Linear differential equations, **Application in solving Chemical kinetics and Pharmacokinetics equations**

**Recommended Books (Latest Edition)**


1. Differential Calculus by Shanthinarayan
2. Pharmaceutical Mathematics with application to Pharmacy by Panchaksharappa Gowda D.H.
3. Integral Calculus by Shanthinarayan
4. Higher Engineering Mathematics by Dr.B.S.Grewal


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## BP108 . HUMAN ANATOMY AND PHYSIOLOGY (Practical)

**4 Hours/week**

Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

1. Study of compound microscope.
2. Microscopic study of epithelial and connective tissue
3. Microscopic study of muscular and nervous tissue
4. Identification of axial bones
5. Identification of appendicular bones
6. To study the integumentary and special senses using specimen, models, etc.,
7. To study the nervous system using specimen, models, etc.,
8. To study the endocrine system using specimen, models, etc
9. To demonstrate the general neurological examination
10. To demonstrate the function of olfactory nerve
11. To examine the different types of taste.
12. To demonstrate the visual acuity
13. To demonstrate the reflex activity
14. Recording of body temperature
15. To demonstrate positive and negative feedback mechanism.

**Recommended Books (Latest Editions)**


1. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee brothers medical publishers, New Delhi.
2. Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill Livingstone, New York
3. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co,Riverview,MI USA
4. Text book of Medical Physiology- Arthur C,Guyton andJohn.E. Hall. Miamisburg, OH, U.S.A.
5. Principles of Anatomy and Physiology by Tortora Grabowski, Palmetto, GA, U.S.A.
6. Textbook of Human Histology by Inderbir Singh, Jaypee brother's medical publishers, New Delhi.
7. Textbook of Practical Physiology by C.L. Ghai, Jaypee brother's medical publishers, New Delhi.
8. Practical workbook of Human Physiology by K. Srinageswari and Rajeev Sharma, Jaypee brother's medical publishers, New Delhi.


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## BP109. PHARMACEUTICAL ANALYSIS (Practical)

**4 Hours / Week**

I **Preparation and standardization of**
- (1) Sodium hydroxide
- (2) Sulphuric acid
- (3) Sodium thiosulfate
- (4) Potassium permanganate
- (5) Ceric ammonium sulphate

AI **Assay of the following compounds along with Standardization of Titrant**
- (1) Ammonium chloride by acid base titration
- (2) Ferrous sulphate by Cerimetry
- (3) Copper sulphate by Iodometry
- (4) Calcium gluconate by complexometry
- (5) Hydrogen peroxide by Permanganometry
- (6) Sodium benzoate by non-aqueous titration
- (7) Sodium Chloride by precipitation titration

BI **Determination of Normality by electro-analytical methods**
- (1) Conductometric titration of strong acid against strong base
- (2) Conductometric titration of strong acid and weak acid against strong base
- (3) Potentiometric titration of strong acid against strong base

**Recommended Books: (Latest Editions)**


1. A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London
2. A.I. Vogel, Text Book of Quantitative Inorganic analysis
3. P. Gundu Rao, Inorganic Pharmaceutical Chemistry
4. Bentley and Driver's Textbook of Pharmaceutical Chemistry
5. John H. Kennedy, Analytical chemistry principles
6. Indian Pharmacopoeia.


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## BP110 . PHARMACEUTICSI (Practical)

3 Hours / week

1. Syrups a) Syrup IP
   b) Paracetamol pediatric syrup
2. Elixirsa) Piperazine citrate elixir
   b) Paracetamol pediatric elixir
3. Linctusa) Simple Linctus BPC
4. Solutions
   a) Strong solution of ammonium acetate
   b) Cresol with soap solution
5. Suspensions a) Calamine lotion
   b) Magnesium Hydroxide mixture
5. Emulsions a) Turpentine Liniment
   b) Liquid paraffin emulsion
6. Powders and Granules
   a) ORS powder (WHO)
   b) Effervescent granules
   c)Dusting powder
7. Suppositories
   a) Glycero gelatin suppository
   b) Soap glycerin suppository
8. Semisolids
   a) Sulphur ointment
   b) Non staining iodine ointment with methyl salicylate
   c) Bentonite gel
9. Gargles and Mouthwashes
   a) Potassium chlorate gargle
   b) Chlorhexidinemouthwash

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## BP111L PHARMACEUTICAL INORGANIC CHEMISTRY (Practical)

4 Hours / Week

I **Limit tests for following ions**
- Limit test for Chlorides and Sulphates
- Modified limit test for Chlorides and Sulphates
- Limit test for Iron
- Limit test for Heavy metals
- Limit test for Lead
- Limit test for Arsenic

AI **Identification test**
- Magnesium hydroxide
- Ferrous sulphate
- Sodium bicarbonate
- Calcium gluconate
- Copper sulphate

BI **Test for purity**
- Swelling power of Bentonite
- Neutralizing capacity of aluminum hydroxide gel
- Determination of potassium iodate and iodine in potassium Iodide

IV **Preparation of inorganic pharmaceuticals**
- Boric acid
- Potash alum
- Ferrous sulphate

**Recommended Books (Latest Editions)**


1. A.H. Beckett & J.B. Stenlake's, Practical Pharmaceutical Chemistry Vol I & II, Stahlone Press of University of London, 4th edition.
2. A.I. Vogel, Text Book of Quantitative Inorganic analysis
3. P. Gundu Rao, Inorganic Pharmaceutical Chemistry, 3rd Edition
4. M.L Schroff, Inorganic Pharmaceutical Chemistry
5. Bentley and Driver's Textbook of Pharmaceutical Chemistry
6. Anand & Chatwal, Inorganic Pharmaceutical Chemistry
7. Indian Pharmacopoeia


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## BP112 .COMMUNICATION SKILLS (Practical)

**2 Hours / week**

Thefollowing learning modules are to be conducted using wordsworth® English language lab software

**Basic communication covering the following topics**

Meeting People

Asking Questions

Making Friends

What did you do?

Do's and Dont's

**Pronunciations covering the following topics**

Pronunciation (Consonant Sounds)

Pronunciation and Nouns

Pronunciation (Vowel Sounds)

**Advanced Learning**

Listening Comprehension / Direct and Indirect Speech

Figures of Speech

Effective Communication

Writing Skills

Effective Writing

Interview Handling Skills

E-Mail etiquette

Presentation Skills

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## BP113 .REMEDIAL BIOLOGY (Practical)

30 Hours

1. Introduction to experiments in biology
   a) Study of Microscope
   b) Section cutting techniques
   c) Mounting and staining
   d) Permanent slide preparation
2. Study of cell and its inclusions
3. Study of Stem, Root, Leaf and its modifications
4. Detailed study of frog by using computer models
5. Microscopic study and identification of tissues
6. Identification of bones
7. Determination of blood group
8. Determination of blood pressure
9. Determination of tidal volume

**Reference Books**


1. Practical human anatomy and physiology. by S.R.Kale and R.R.Kale.
2. A Manual of pharmaceutical biology practical by S.B.Gokhale, C.K.Kokate and S.P.Shriwastava.
3. Biology practical manual according to National core curriculum .Biology forum of Karnataka. Prof .M.J.H.Shafi


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# AMITY UNIVERSITY
## MADHYA PRADESH

**Course Title: Understanding Self For Effectiveness**
**Subject Name: Behavioural Science - I**
**Course Level: Undergraduate** **Semester-I**
**Course Code: BSU-143** **Course Credit: 01**
**Total Hours: 10**

**Course Objective:**
This course aims at imparting an understanding of:
- Understanding self & process of self exploration
- Learning strategies for development of a healthy self esteem
- Importance of attitudes and its effective on personality
- Building Emotional Competency

**Course Contents:**

**Module I: Self: Core Competency** **(2 Hours)**
- Understanding of Self
- Components of Self – Self identity
- Self concept
- Self confidence
- Self image

**Module II: Techniques of Self Awareness** **(2 Hours)**
- Exploration through Johari Window
- Mapping the key characteristics of self
- Framing a charter for self
- Stages – self awareness, self acceptance and self realization

**Module III: Self Esteem & Effectiveness** **(2 Hours)**
- Meaning
- Importance
- Components of self esteem
- High and low self esteem
- Measuring your self esteem

**Module IV: Building Positive Attitude** **(2 Hours)**
- Meaning and nature of attitude
- Components and Types of attitude
- Importance and relevance of attitude

**Module V: Building Emotional Competence** **(2 Hours)**
- Emotional Intelligence – Meaning, components, Importance and Relevance
- Positive and negative emotions
- Healthy and Unhealthy expression of emotions

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**Student learning outcomes**

- Student will Develop accurate sense of self
- Student will nurture a deep understanding of personal motivation
- Student will develop thorough understanding of personal and professional responsibility
- Student will able to analyse the emotions of others for better adjustment.

**Examination Scheme:**

| Evaluation Components | Attendance | Journal of Success (JOS) | Social Awareness Program (SAP) SAP Report/SAP Presentation | End Semester Exam | Total |
|---|---|---|---|---|---|
| Weightage (%) | 5 | 10 | 15 | 70 | 100 |

**Suggested Readings:**


- Organizational Behaviour, Davis, K.
- Hoover, Judhith D. Effective Small Group and Team Communication, 2002,Harcourt College Publishers
- Dick, Mc Cann & Margerison, Charles: Team Management, 1992 Edition, viva books
- Bates, A. P. and Julian, J.: Sociology - Understanding Social Behaviour
- Dressler, David and Cans, Donald: The Study of Human Interaction
- Lapiere, Richard. T – Social Change
- Lindzey, G. and Borgatta, E: Sociometric Measurement in the Handbook of Social Psychology, Addison – Welsley, US.
- Rose, G.: Oxford Textbook of Public Health, Vol.4, 1985.
- LaFasto and Larson: When Teams Work Best, 2001, Response Books (Sage), New Delhi
- J William Pfeiffer (ed.) Theories and Models in Applied Behavioural Science, Vol 2, Group (1996); Pfeiffer & Company
- Smither Robert D.: The Psychology of Work and Human Performance, 1994, Harper Collins College Publishers


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# French syllabus - Programme d'études pour le français
## All U.G. Programmes – Foreign Language

### Français - I

**Course Code: FLU144** **Credit units: 02**

**Course Objective:**
To familiarize students with the French language, with its phonetic system and its accents.
To enable students

- to greet someone in French
- to present and describe oneself and people
- to enter in contact, and begin a conversation
- to talk about one's family, tastes and preferences

**Course Contents:**

**Dossiers 1, 2 – pg 5-24**

**Dossier 1 : Toi, moi, nous**
**Actes de Communication :**
S'adresser poliment à quelqu'un, entrer en contact, se présenter, présenter quelqu'un, saluer, poser des questions simples pour connaître quelqu'un, épeler et compter

**Dossier 2 : En famille**
**Actes de Communication :**
Parler de sa famille, Décrire quelqu'un, exprimer ses goûts, écrire et comprendre un message court, inviter quelqu'un, exprimer la possession, la négation

**Grammaire :**
1. articles indéfinis, articles définis, masculin et féminin des noms et des adjectifs, pluriel des noms et des adjectifs
2. pronoms sujets et toniques, on, c'est/il est + profession,
3. masculin et féminin des adjectifs de nationalité
4. verbes- être, avoir, aller, 'er' groupe
5. l'interrogation – l'intonation, est-ce que, qui est-ce ? Qu'est-ce que? L'inversion ; où, comment, quand ; quel
6. la négation
7. adjectifs possessifs

**Examination Scheme:**

| | INTERNAL | | | | EXTERNAL | GRAND TOTAL |
|---|---|---|---|---|---|---|
| Components | MID-SEM | VIVA-VOCE | ATTENDANCE | TOTAL | END SEMESTER | |
| Weightage (%) | 15 | 10 | 5 | 30 | 70 | 100 |

**Text & References:**

*Text:*
**Le livre à suivre:**
- Andant, Christine et al. A propos A1 Livre de l'élève. Grenoble: Presses universitaires de Grenoble, 2010.
- Andant, Christine et al. A propos A1 Cahier d'exercices. Grenoble: Presses universitaires de Grenoble, 2010.

*Références :*
- Girardeau, Bruno et Nelly Mous. Réussir le DELF A1. Paris: Didier, 2010.

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## BP 201T. HUMAN ANATOMY AND PHYSIOLOGY-II (Theory)

**45 Hours**

**Scope:** This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.

**Objectives:** Upon completion of this course the student should be able to:

1. Explain the gross morphology, structure and functions of various organs of the human body.
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.
4. Perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume.
5. Appreciate coordinated working pattern of different organs of each system
6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

**Course Content:**

**Unit I** **10 hours**

**Body fluids and blood**

Body fluids, composition and functions of blood, hemopoeisis, formation of hemoglobin, anemia, mechanisms of coagulation, blood grouping, Rh factors, transfusion, its significance and disorders of blood, Reticulo endothelial system.

**Lymphatic system**

Lymphatic organs and tissues, lymphatic vessels, lymph circulation and functions of lymphatic system

**Unit II** **10 hours**

**Cardiovascular system**

Heart – anatomy of heart, blood circulation, blood vessels, structure and functions of artery, vein and capillaries, elements of conduction system of heart and heart beat, its regulation by autonomic nervous system, cardiac output, cardiac cycle, Regulation of blood pressure, pulse, electrocardiogram and disorders of heart.

**Unit III** **06 hours**

**Digestive system**

Anatomy of GI Tract with special reference to anatomy and functions of stomach, ( Acid production in the stomach, regulation of acid production through parasympathetic nervous system, pepsin role in protein digestion) small intestine and large intestine, anatomy and functions of salivary glands, pancreas and liver, movements of GIT, digestion and absorption of nutrients and disorders of GIT.

**Respiratory system**

Anatomy of respiratory system with special reference to anatomy of lungs, mechanism of respiration, regulation of respiration

**Unit IV**

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- **Respiratory system** **10 hours**

  Lung Volumes and capacities transport of respiratory gases, artificial respiration, and resuscitation methods.

**Urinary system**

Anatomy of urinary tract with special reference to anatomy of kidney and nephrons, functions of kidney and urinary tract, physiology of urine formation, micturition reflex and role of kidneys in acid base balance, role of RAS in kidney and disorders of kidney.

**Unit V** **09 hours**

**Reproductive system**

Anatomy of male and female reproductive system, Functions of male and female reproductive system, sex hormones, physiology of menstruation, fertilization, spermatogenesis, oogenesis, pregnancy and parturition

**Introduction to genetics**

Chromosomes, genes and DNA, protein synthesis, genetic pattern of inheritance

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## BP202T. PHARMACEUTICAL ORGANIC CHEMISTRY –I (Theory)

**45 Hours**

**Scope:** This subject deals with classification and nomenclature of simple organic compounds, structural isomerism, intermediates forming in reactions, important physical properties, reactions and methods of preparation of these compounds. The syllabus also emphasizes on mechanisms and orientation of reactions.

**Objectives:** Upon completion of the course the student shall be able to

write the structure, name and the type of isomerism of the organic compound

write the reaction, name the reaction and orientation of reactions

account for reactivity/stability of compounds,

identify/confirm the identification of organic compound

**Course Content:**

General methods of preparation and reactions of compounds superscripted with asterisk (*) to be explained

To emphasize on definition, types, classification, principles/mechanisms, applications, examples and differences

**UNIT-I** **07 Hours**

**Classification, nomenclature and isomerism**

Classification of Organic Compounds

Common and IUPAC systems of nomenclature of organic compounds

(up to 10 Carbons open chain and carbocyclic compounds)

Structural isomerisms in organic compounds

**UNIT-II** **10 Hours**

**Alkanes*, Alkenes* and Conjugated dienes***

$SP^3$ hybridization in alkanes, Halogenation of alkanes, uses of paraffins.

Stabilities of alkenes, $SP^2$ hybridization in alkenes

$E_1$ and $E_2$ reactions – kinetics, order of reactivity of alkyl halides, rearrangement of carbocations, Saytzeffs orientation and evidences. $E_1$ verses $E_2$ reactions, Factors affecting $E_1$ and $E_2$ reactions. Ozonolysis, electrophilic addition reactions of alkenes, Markownikoff's orientation, free radical addition reactions of alkenes, Anti Markownikoff's orientation.

Stability of conjugated dienes, Diel-Alder, electrophilic addition, free radical addition reactions of conjugated dienes, allylic rearrangement

**UNIT-III** **10 Hours**

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## BP202T. PHARMACEUTICAL ORGANIC CHEMISTRY –I (Theory)

**45 Hours**

**Scope:** This subject deals with classification and nomenclature of simple organic compounds, structural isomerism, intermediates forming in reactions, important physical properties, reactions and methods of preparation of these compounds. The syllabus also emphasizes on mechanisms and orientation of reactions.

**Objectives:** Upon completion of the course the student shall be able to

write the structure, name and the type of isomerism of the organic compound

write the reaction, name the reaction and orientation of reactions

account for reactivity/stability of compounds,

identify/confirm the identification of organic compound

**Course Content:**

General methods of preparation and reactions of compounds superscripted with asterisk (*) to be explained

To emphasize on definition, types, classification, principles/mechanisms, applications, examples and differences

**UNIT-I** **07 Hours**

**Classification, nomenclature and isomerism**

Classification of Organic Compounds

Common and IUPAC systems of nomenclature of organic compounds

(up to 10 Carbons open chain and carbocyclic compounds)

Structural isomerisms in organic compounds

**UNIT-II** **10 Hours**

**Alkanes*, Alkenes* and Conjugated dienes***

$SP^3$ hybridization in alkanes, Halogenation of alkanes, uses of paraffins.

Stabilities of alkenes, $SP^2$ hybridization in alkenes

$E_1$ and $E_2$ reactions – kinetics, order of reactivity of alkyl halides, rearrangement of carbocations, Saytzeffs orientation and evidences. $E_1$ verses $E_2$ reactions, Factors affecting $E_1$ and $E_2$ reactions. Ozonolysis, electrophilic addition reactions of alkenes, Markownikoff's orientation, free radical addition reactions of alkenes, Anti Markownikoff's orientation.

Stability of conjugated dienes, Diel-Alder, electrophilic addition, free radical addition reactions of conjugated dienes, allylic rearrangement

**UNIT-III** **10 Hours**

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**Alkyl halides***

$SN_1$ and $SN_2$ reactions - kinetics, order of reactivity of alkyl halides, stereochemistry and rearrangement of carbocations.

$SN_1$ versus $SN_2$ reactions, Factors affecting $SN_1$ and $SN_2$ reactions

Structure and uses of ethylchloride, Chloroform, trichloroethylene, tetrachloroethylene, dichloromethane, tetrachloromethane and iodoform.

**Alcohols*-** Qualitative tests, Structure and uses of Ethyl alcohol, chlorobutanol, Cetosteryl alcohol, Benzyl alcohol, Glycerol, Propylene glycol

**UNIT-IV** **10 Hours**

**Carbonyl compounds* (Aldehydes and ketones)**

Nucleophilic addition, Electromeric effect, aldol condensation, Crossed Aldol condensation, Cannizzaro reaction, Crossed Cannizzaro reaction, Benzoin condensation, Perkin condensation, qualitative tests, Structure and uses of Formaldehyde, Paraldehyde, Acetone, Chloral hydrate, Hexamine, Benzaldehyde, Vanilin, Cinnamaldehyde.

**UNIT-V** **08 Hours**

**Carboxylic acids***

Acidity of carboxylic acids, effect of substituents on acidity, inductive effect and qualitative tests for carboxylic acids ,amide and ester

Structure and Uses of Acetic acid, Lactic acid, Tartaric acid, Citric acid, Succinic acid. Oxalic acid, Salicylic acid, Benzoic acid, Benzyl benzoate, Dimethyl phthalate, Methyl salicylate and Acetyl salicylic acid

**Aliphatic amines*** - Basicity, effect of substituent on Basicity. Qualitative test, Structure and uses of Ethanolamine, Ethylenediamine, Amphetamine

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## BP203 T. BIOCHEMISTRY (Theory)

**45 Hours**

**Scope:** Biochemistry deals with complete understanding of the molecular levels of the chemical process associated with living cells. The scope of the subject is providing biochemical facts and the principles to understand metabolism of nutrient molecules in physiological and pathological conditions. It is also emphasizing on genetic organization of mammalian genome and hetero & autocatalytic functions of DNA.

**Objectives:** Upon completion of course student shell able to

- Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.
- Understand the metabolism of nutrient molecules in physiological and pathological conditions.
- Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.

**Course Content:**

**UNIT I** **10 Hours**

**Carbohydrate metabolism**

Glycolysis – Pathway, energetics and significance

Citric acid cycle- Pathway, energetics and

significance

HMP shunt and its significance; Glucose-6-Phosphate dehydrogenase (G6PD) deficiency

Glycogen metabolism Pathways and glycogen storage diseases

(GSD) Gluconeogenesis- Pathway and its significance

Hormonal regulation of blood glucose level and Diabetes mellitus

**Biological oxidation**

Electron transport chain (ETC) and its mechanism.

Oxidative phosphorylation & its mechanism and substrate level phosphorylation

Inhibitors ETC and oxidative phosphorylation/Uncouplers

**UNIT II** **10 Hours**

**Lipid metabolism**

β-Oxidation of saturated fatty acid (Palmitic acid)
Formation and utilization of ketone bodies; ketoacidosis De novo synthesis of fatty acids (Palmitic acid)
Biological significance of cholesterol and conversion of cholesterol into bile acids, steroid hormone and vitamin D

Disorders of lipid metabolism: Hypercholesterolemia, atherosclerosis, fatty liver and obesity

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**Amino acid metabolism**

General reactions of amino acid metabolism: Transamination, deamination & decarboxylation, urea cycle and its disorders

Catabolism of phenylalanine and tyrosine and their metabolic disorders (Phenyketonuria, Albinism, alkeptonuria, tyrosinemia)

Synthesis and significance of biological substances; 5-HT, melatonin, dopamine, noradrenaline, adrenaline

Catabolism of heme; hyperbilirubinemia and jaundice

**UNIT III**

**10 Hours**

**Nucleic acid metabolism and genetic information transfer**

Biosynthesis of purine and pyrimidine nucleotides

Catabolism of purine nucleotides and Hyperuricemia and Gout disease Organization of mammalian genome

Structure of DNA and RNA and their functions

DNA replication (semi conservative model)

Transcription or RNA synthesis

Genetic code, Translation or Protein synthesis and inhibitors

**UNIT IV**

**08 Hours**

**Biomolecules**

Introduction, classification, chemical nature and biological role of carbohydrate, lipids, nucleic acids, amino acids and proteins.

**Bioenergetics**

Concept of free energy, endergonic and exergonic reaction, Relationship between free energy, enthalpy and entropy; Redox potential.

Energy rich compounds; classification; biological significances of ATP and cyclic AMP

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## BP203 T. BIOCHEMISTRY (Theory)

**45 Hours**

**Scope:** Biochemistry deals with complete understanding of the molecular levels of the chemical process associated with living cells. The scope of the subject is providing biochemical facts and the principles to understand metabolism of nutrient molecules in physiological and pathological conditions. It is also emphasizing on genetic organization of mammalian genome and hetero & autocatalytic functions of DNA.

**Objectives:** Upon completion of course student shell able to

- Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.
- Understand the metabolism of nutrient molecules in physiological and pathological conditions.
- Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.

**Course Content:**

**UNIT I** **10 Hours**

**Carbohydrate metabolism**

Glycolysis – Pathway, energetics and significance

Citric acid cycle- Pathway, energetics and

significance

HMP shunt and its significance; Glucose-6-Phosphate dehydrogenase (G6PD) deficiency

Glycogen metabolism Pathways and glycogen storage diseases

(GSD) Gluconeogenesis- Pathway and its significance

Hormonal regulation of blood glucose level and Diabetes mellitus

**Biological oxidation**

Electron transport chain (ETC) and its mechanism.

Oxidative phosphorylation & its mechanism and substrate level phosphorylation

Inhibitors ETC and oxidative phosphorylation/Uncouplers

**UNIT II** **10 Hours**

**Lipid metabolism**

β-Oxidation of saturated fatty acid (Palmitic acid)
Formation and utilization of ketone bodies; ketoacidosis De novo synthesis of fatty acids (Palmitic acid)
Biological significance of cholesterol and conversion of cholesterol into bile acids, steroid hormone and vitamin D

Disorders of lipid metabolism: Hypercholesterolemia, atherosclerosis,

**Amino acid metabolism**

General reactions of amino acid metabolism: Transamination, deamination & decarboxylation, urea cycle and its disorders

Catabolism of phenylalanine and tyrosine and their metabolic disorders (Phenyketonuria, Albinism, alkeptonuria, tyrosinemia)

Synthesis and significance of biological substances; 5-HT, melatonin, dopamine, noradrenaline, adrenaline

Catabolism of heme; hyperbilirubinemia and jaundice

**UNIT III** **10 Hours**

**Nucleic acid metabolism and genetic information transfer**

Biosynthesis of purine and pyrimidine nucleotides

Catabolism of purine nucleotides and Hyperuricemia and Gout

disease Organization of mammalian genome

Structure of DNA and RNA and their functions

DNA replication (semi conservative model)

Transcription or RNA synthesis

Genetic code, Translation or Protein synthesis and inhibitors

**UNIT IV** **08 Hours**

**Biomolecules**

Introduction, classification, chemical nature and biological role of carbohydrate, lipids, nucleic acids, amino acids and proteins.

**Bioenergetics**

Concept of free energy, endergonic and exergonic reaction, Relationship between free energy, enthalpy and entropy; Redox potential.

Energy rich compounds; classification; biological significances of ATP and cyclic AMP

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**UNIT V**
**07 Hours**

**Enzymes**

Introduction, properties, nomenclature and IUB classification of enzymes Enzyme kinetics (Michaelis plot, Line Weaver Burke plot)

Enzyme inhibitors with examples

Regulation of enzymes: enzyme induction and repression, allosteric enzymes regulation

Therapeutic and diagnostic applications of enzymes and isoenzymes Coenzymes –Structure and biochemical functions

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## BP 204T.PATHOPHYSIOLOGY (THEORY)

**45Hours**

**Scope:** Pathophysiology is the study of causes of diseases and reactions of the body to such disease producing causes.This course is designed to impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic pathophysiological mechanisms. Hence it will not only help to study the syllabus of pathology, but also to get baseline knowledge required to practice medicine safely, confidently, rationally and effectively.

**Objectives:** Upon completion of the subject student shall be able to –

Describe the etiology and pathogenesis of the selected disease states;
Name the signs and symptoms of the diseases; and
Mention the complications of the diseases.

### Course content:

**Unit I** **10Hours**

**Basic principles of Cell injury and Adaptation:**

Introduction, definitions, Homeostasis, Components and Types of Feedback systems, Causes of cellular injury,Pathogenesis (Cell membrane damage, Mitochondrial damage, Ribosome damage, Nuclear damage),Morphology of cell injury – Adaptive changes (Atrophy, Hypertrophy, hyperplasia, Metaplasia, Dysplasia),Cell swelling, Intra cellular accumulation, Calcification, Enzyme leakage and Cell Death Acidosis &Alkalosis,Electrolyte imbalance

**Basic mechanism involved in the process of inflammation and repair:**

Introduction, Clinical signs of inflammation, Different types of Inflammation,Mechanism of Inflammation – Alteration in vascular permeability and blood flow, migration of WBC's,Mediators of inflammation,Basic principles of wound healing in the skin,Pathophysiology of Atherosclerosis

**Unit II** **10Hours**

**Cardiovascular System:**

Hypertension, congestive heart failure, ischemic heart disease (angina,myocardial infarction, atherosclerosis and arteriosclerosis)

**Respiratory system:**Asthma, Chronic obstructive airways diseases.

**Renal system:**Acute and chronic renal failure

**Unit III** **10Hours**

**Haematological Diseases:**

Iron deficiency, megaloblastic anemia (Vit B12 and folic acid), sickle cell anemia, thalasemia, hereditary acquired anemia, hemophilia

**Endocrine system:** Diabetes, thyroid diseases, disorders of sex hormones

**Nervous system:** Epilepsy, Parkinson's disease, stroke, psychiatric disorders: depression, schizophrenia and Alzheimer's disease.

**Gastrointestinal system:** Peptic Ulcer

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**Unit IV** **8 Hours**

Inflammatory bowel diseases, jaundice, hepatitis (A,B,C,D,E,F) alcoholic liver disease.

**Disease of bones and joints:** Rheumatoid arthritis, osteoporosis and gout

**Principles of cancer:** classification, etiology and pathogenesis of cancer

**Diseases of bones and joints:**Rheumatoid Arthritis, Osteoporosis,Gout

**Principles of Cancer:** Classification, etiology and pathogenesis of Cancer

**Unit V** **7 Hours**

**Infectious diseases:**Meningitis,Typhoid, Leprosy, Tuberculosis Urinary

tract infections

**Sexually transmitted diseases:**AIDS, Syphilis, Gonorrhea

**Recommended Books (Latest Editions)**


Vinay Kumar, Abul K. Abas, Jon C. Aster; Robbins &Cotran Pathologic Basis of Disease; South Asia edition; India; Elsevier; 2014.

Harsh Mohan; Text book of Pathology; 6th edition; India; Jaypee Publications; 2010.

Laurence B, Bruce C, Bjorn K. ; Goodman Gilman's The Pharmacological Basis of Therapeutics; 12th edition; New York; McGraw-Hill; 2011.

Best, Charles Herbert 1899-1978; Taylor, Norman Burke 1885-1972; West, John B (John Burnard); Best and Taylor's Physiological basis of medical practice; 12th ed; united states;

William and Wilkins, Baltimore;1991 [1990 printing].

Nicki R. Colledge, Brian R. Walker, Stuart H. Ralston;Davidson's Principles and Practice of Medicine; 21st edition; London; ELBS/Churchill Livingstone; 2010.

Guyton A, John .E Hall; Textbook of Medical Physiology; 12th edition; WB Saunders Company; 2010.

Joseph DiPiro, Robert L. Talbert, Gary Yee, Barbara Wells, L. Michael Posey; Pharmacotherapy: A Pathophysiological Approach; 9th edition; London; McGraw-Hill Medical; 2014.

V. Kumar, R. S. Cotran and S. L. Robbins; Basic Pathology; 6th edition; Philadelphia; WB Saunders Company; 1997.

Roger Walker, Clive Edwards; Clinical Pharmacy and Therapeutics; 3rd edition; London; Churchill Livingstone publication; 2003.


**Recommended Journals**


The Journal of Pathology. ISSN: 1096-9896 (Online)

The American Journal of Pathology. ISSN: 0002-9440

Pathology. 1465-3931 (Online)

International Journal of Physiology, Pathophysiology and Pharmacology. ISSN: 1944-8171 (Online)

Indian Journal of Pathology and Microbiology. ISSN-0377-4929.


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## BP205 T. COMPUTER APPLICATIONS IN PHARMACY (Theory)

**30 Hrs (2 Hrs/Week)**

**Scope:** This subject deals with the introduction Database, Database Management system, computer application in clinical studies and use of databases.

**Objectives:** Upon completion of the course the student shall be able to

know the various types of application of computers in pharmacy
know the various types of databases
know the various applications of databases in pharmacy

**Course content:**

### UNIT – I

**06 hours**

**Number system:** Binary number system, Decimal number system, Octal number system, Hexadecimal number systems, conversion decimal to binary, binary to decimal, octal to binary etc, binary addition, binary subtraction – One's complement ,Two's complement method, binary multiplication, binary division

**Concept of Information Systems and Software :** Information gathering, requirement and feasibility analysis, data flow diagrams, process specifications, input/output design, process life cycle, planning and managing the project

### UNIT –II

**06 hours**

**Web technologies:**Introduction to HTML, XML,CSS and Programming languages, introduction to web servers and Server Products
Introduction to databases, MYSQL, MS ACCESS, Pharmacy Drug database

### UNIT – III

**06 hours**

**Application of computers in Pharmacy** – Drug information storage and retrieval, Pharmacokinetics, Mathematical model in Drug design, Hospital and Clinical Pharmacy, Electronic Prescribing and discharge (EP) systems, barcode medicine identification and automated dispensing of drugs, mobile technology and adherence monitoring

Diagnostic System, Lab-diagnostic System, Patient Monitoring System, Pharma Information System

### UNIT – IV

**06 hours**

**Bioinformatics:** Introduction, Objective of Bioinformatics, Bioinformatics Databases, Concept of Bioinformatics, Impact of Bioinformatics in Vaccine Discovery

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## BP 206 T. ENVIRONMENTAL SCIENCES (Theory)

**30 hours**

**Scope:** Environmental Sciences is the scientific study of the environmental system and the status of its inherent or induced changes on organisms. It includes not only the study of physical and biological characters of the environment but also the social and cultural factors and the impact of man on environment.

**Objectives:** Upon completion of the course the student shall be able to:

Create the awareness about environmental problems among learners.
Impart basic knowledge about the environment and its allied problems.
Develop an attitude of concern for the environment.
Motivate learner to participate in environment protection and environment improvement.
Acquire skills to help the concerned individuals in identifying and solving environmental problems.
Strive to attain harmony with Nature.

**Course content:**

**Unit-I** **10hours**

The Multidisciplinary nature of environmental studies

Natural Resources

Renewable and non-renewable resources:

Natural resources and associated problems

Forest resources; b) Water resources; c) Mineral resources; d) Food resources; e) Energy resources; f) Land resources: Role of an individual in conservation of natural resources.

**Unit-II** **10 Hours**

Ecosystems

Concept of an ecosystem.

Structure and function of an ecosystem.

Introduction, types, characteristic features, structure and function of the ecosystems: Forest ecosystem; Grassland ecosystem; Desert ecosystem; Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

**Unit- III** **10hours**

Environmental Pollution: Air pollution; Water pollution; Soil pollution

**Recommended Books (Latest edition):**


1. Y.K. Sing, Environmental Science, New Age International Pvt, Publishers, Bangalore
2. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
3. Bharucha Erach, The Biodiversity of India, Mapin Pu blishing Pvt. Ltd., Ahmedabad – 380 013, India,
4. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
5. Clark R.S., Marine Pollution, Clanderson Press Oxford
6. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
7. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
8. Down of Earth, Centre for Science and Environment


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## BP 207 P. HUMAN ANATOMY AND PHYSIOLOGY (Practical)

**4 Hours/week**

Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

1. Introduction to hemocytometry.
2. Enumeration of white blood cell (WBC) count
3. Enumeration of total red blood corpuscles (RBC) count
4. Determination of bleeding time
5. Determination of clotting time
6. Estimation of hemoglobin content
7. Determination of blood group.
8. Determination of erythrocyte sedimentation rate (ESR).
9. Determination of heart rate and pulse rate.
10. Recording of blood pressure.
11. Determination of tidal volume and vital capacity.
12. Study of digestive, respiratory, cardiovascular systems, urinary and reproductive systems with the help of models, charts and specimens.
13. Recording of basal mass index
14. Study of family planning devices and pregnancy diagnosis test.
15. Demonstration of total blood count by cell analyser
16. Permanent slides of vital organs and gonads.

**Recommended Books (Latest Editions)**


1. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam, Jaypee brothers medical publishers, New Delhi.
2. Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill Livingstone, New York
3. Physiological basis of Medical Practice-Best and Tailor, Williams & Wilkins Co,Riverview,MI USA
4. Text book of Medical Physiology- Arthur C,Guyton and John.E. Hall. Miamisburg, OH, U.S.A.
5. Principles of Anatomy and Physiology by Tortora Grabowski, Palmetto, GA, U.S.A.
6. Textbook of Human Histology by Inderbir Singh, Jaypee brothers medical publishers, New Delhi.
7. Textbook of Practical Physiology by C.L. Ghai, Jaypee brothers medical publishers, New Delhi.
8. Practical textbook of Human Physiology by P. Srivastava and Rajeev Sharma


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## BP208P. PHARMACEUTICAL ORGANIC CHEMISTRY -I (Practical)

**4 Hours / week**

1. Systematic qualitative analysis of unknown organic compounds like
    1. Preliminary test: Color, odour, aliphatic/aromatic compounds, saturation and unsaturation, etc.
    2. Detection of elements like Nitrogen, Sulphur and Halogen by Lassaigne's test
    3. Solubility test
    4. Functional group test like Phenols, Amides/ Urea, Carbohydrates, Amines, Carboxylic acids, Aldehydes and Ketones, Alcohols, Esters, Aromatic and Halogenated Hydrocarbons, Nitro compounds and Anilides.
    5. Melting point/Boiling point of organic compounds
    6. Identification of the unknown compound from the literature using melting point/ boiling point.
    7. Preparation of the derivatives and confirmation of the unknown compound by melting point/ boiling point.
    8. Minimum 5 unknown organic compounds to be analysed systematically.
2. Preparation of suitable solid derivatives from organic compounds
3. Construction of molecular models

**Recommended Books (Latest Editions)**


1. Organic Chemistry by Morrison and Boyd
2. Organic Chemistry by I.L. Finar , Volume-I
3. Textbook of Organic Chemistry by B.S. Bahl & Arun Bahl.
4. Organic Chemistry by P.L.Soni
5. Practical Organic Chemistry by Mann and Saunders.
6. Vogel's text book of Practical Organic Chemistry
7. Advanced Practical organic chemistry by N.K.Vishnoi.
8. Introduction to Organic Laboratory techniques by Pavia, Lampman and Kriz.
9. Reaction and reaction mechanism by Ahluwaliah/Chatwal.


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## BP 209 P. BIOCHEMISTRY (Practical)

*4 Hours / Week*

1. Qualitative analysis of carbohydrates (*Glucose, Fructose, Lactose, Maltose,* Sucrose and starch)
2. Identification tests for Proteins (albumin and Casein)
3. Quantitative analysis of reducing sugars (*DNSA method*) and Proteins (Biuret method)
4. Qualitative analysis of urine for abnormal constituents
5. Determination of blood creatinine
6. Determination of blood sugar
7. Determination of serum total cholesterol
8. Preparation of buffer solution and measurement of pH
9. Study of enzymatic hydrolysis of starch
10. Determination of Salivary amylase activity
11. Study the effect of Temperature on Salivary amylase activity.
12. Study the effect of substrate concentration on salivary amylase activity.

**Recommended Books (Latest Editions)**


1. Principles of Biochemistry by Lehninger.
2. Harper's Biochemistry by Robert K. Murry, Daryl K. Granner and Victor W. Rodwell.
3. Biochemistry by Stryer.
4. Biochemistry by D. Satyanarayan and U.Chakrapani
5. Textbook of Biochemistry by Rama Rao.
6. Textbook of Biochemistry by Deb.
7. Outlines of Biochemistry by Conn and Stumpf
8. Practical Biochemistry by R.C. Gupta and S. Bhargavan.
9. Introduction of Practical Biochemistry by David T. Plummer. (3rd Edition)
10. Practical Biochemistry for Medical students by Rajagopal and Ramakrishna.
11. Practical Biochemistry by Harold Varley.


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## BP210P. COMPUTER APPLICATIONS IN PHARMACY (Practical)

1. Design a questionnaire using a word processing package to gather information about a particular disease.
2. Create a HTML web page to show personal information
3. Retrieve the information of a drug and its adverse effects using online tools
4. Creating mailing labels Using Label Wizard , generating label in MS WORD
5. Create a database in MS Access to store the patient information with the required fields Using access
6. Design a form in MS Access to view, add, delete and modify the patient record in the database
7. Generating report and printing the report from patient database
8. Creating invoice table using – MS Access
9. Drug information storage and retrieval using MS Access
10. Creating and working with queries in MS Access
11. Exporting Tables, Queries, Forms and Reports to web pages
12. Exporting Tables, Queries, Forms and Reports to XML pages

### Recommended books (Latest edition):


1. Computer Application in Pharmacy – William E.Fassett –Lea and Febiger, 600 South Washington Square, USA. (215) 922-1330.
2. Computer Application in Pharmaceutical Research and Development –Sean Ekins – Wiley-Interscience, A John Willey and Sons, INC., Publication, USA
3. Bioinformatics (Concept, Skills and Applications) – S.C.Rastogi-CBS Publishers and Distributors. 4596/1- A, 11 Darya Gani, New Delhi – 110 002(INDIA)
4. Microsoft office Access - 2003, Application Development Using VBA, SQL Server, DAP and Infopath – Cary N.Prague – Wiley Dreamtech India (P) Ltd., 4435/7, Ansari Road, Daryagani, New Delhi - 110002


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**Course Title: Individual, Society And Nation**
**Subject Name: Behavioural Science - II**
**Course Level: Undergraduate** **Semester-II**
**Course Code: BSU-243** **Course Credit: 01**
**Total Hours: 10**

**Course Objective:**

This course aims at enabling students towards:

- Understand the importance of individual differences
- Better understanding of self in relation to society and nation
- Facilitation for a meaningful existence and adjustment in society
- Inculcating patriotism and national pride

## Course Contents:

**Module I: Individual differences & Personality** **(2 Hours)**
- Personality: Definition& Relevance
- Importance of nature & nurture in Personality Development
- Importance and Recognition of Individual differences in Personality
- Accepting and Managing Individual differences
- Intuition, Judgment, Perception & Sensation (MBTI)
- BIG5 Factors

**Module II: Managing Diversity** **(2 Hours)**
- Defining Diversity
- Affirmation Action and Managing Diversity
- Increasing Diversity in Work Force
- Barriers and Challenges in Managing Diversity

**Module III: Socialization** **(2 Hours)**
- Nature of Socialization
- Social Interaction
- Interaction of Socialization Process
- Contributions to Society and Nation

**Module IV: Patriotism and National Pride** **(2 Hours)**
- Sense of pride and patriotism
- Importance of discipline and hard work
- Integrity and accountability

**Module V: Human Rights, Values and Ethics** **(2 Hours)**
- Meaning and Importance of human rights
- Human rights awareness
- Values and Ethics- Learning based on project work on Scriptures like- Ramayana, Mahabharata, Gita etc.

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**Student learning outcomes**

- Student will be able to identify, understand, and apply contemporary theories of leadership to a wide range of situations and interactions
- Student will be able to understand and respect individual difference, so to enhance the relationship
- Learn social responsibility and develop a sense of citizenship
- Student will be able to identify and understand the impact of culture on one's leadership style

**Examination Scheme:**

| Evaluation Components | Attendance | Journal of Success (JOS) | Social Awareness Program (SAP) SAP Report/SAP Presentation | End Semester Exam | Total |
|---|---|---|---|---|---|
| Weightage (%) | 5 | 10 | 15 | 70 | 100 |

**Suggested Readings:**


- Davis, K. Organizational Behaviour,
- Bates, A. P. and Julian, J.: Sociology - Understanding Social Behaviour
- Dressler, David and Cans, Donald: The Study of Human Interaction
- Lapiere, Richard. T – Social Change
- Lindzey, G. and Borgatta, E: Sociometric Measurement in the Handbook of Social Psychology, Addison – Welsley, US.
- Rose, G.: Oxford Textbook of Public Health, Vol.4, 1985.

Robbins O.B.Stephen;. Organizational Behaviour


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# French syllabus - Programme d'études pour le français
## All U.G. Programmes – Foreign Language

### Français - II

**Course Code: FLU244** **Credit units: 02**

**Course Objective:**

To furnish the linguistic tools

- to talk about daily activities and sports, to express necessities
- to talk about activities in recent future,
- to have conversations and perform day to day life tasks like enquiring about time, take an appointment
- to enquire about products and place orders in a shop/ restaurant

**Course Contents:**

**Dossiers 3,4 – pg 25-44**

**Dossier 3 : Quelle journée !**
**Actes de Communication :**
Parler de ses activités quotidiennes, se situer dans le temps, demander l'heure et la date, parler des sports et des loisirs, exprimer la fréquence

**Dossier 4 : Vous désirez ?**
**Actes de Communication :**
Exprimer la quantité, demander et donner le prix, exprimer la nécessité, la volonté et la capacité, comparer et exprimer ses préférences, s'exprimer au futur proche, prendre rendez-vous, s'exprimer au restaurant/dans les magasins

**Grammaire :**
1. l'expression du temps
2. les articles contractés, les quantités indéterminées et déterminées
3. les adverbes de fréquences
4. verbes- faire, prendre, venir, pouvoir, vouloir, les verbes pronominaux
5. la comparaison de l'adjectif
6. la négation (suite)
7. le future proche

**Examination Scheme:**

| | INTERNAL | | | | EXTERNAL | GRAND TOTAL |
|---|---|---|---|---|---|---|
| Components | MID-SUM | VIVA-VOCE | ATTENDANCE | TOTAL | END SEMESTER | 100 |
| Weightage (%) | 15 | 10 | 5 | 30 | 70 | |

**Text & References:**

*Text:*
**Le livre à suivre:**
- Andant, Christine et al. A propos A1 Livre de l'élève. Grenoble: Presses universitaires de Grenoble, 2010.
- Andant, Christine et al. A propos A1 Cahier d'exercices. Grenoble: Presses universitaires de Grenoble, 2010.

*Références :*
- Girardeau, Bruno et Nelly Mous. Réussir le DELF A1. Paris: Didier, 2010.

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# AMITY UNIVERSITY
## MADHYA PRADESH
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**UG: Semester II**
**Course Title: Communication Skills-II**
**Course Code: BCU 241**
**Credit Units: 1**

**FORMAT OF COURSE CURRICULUM** — **Annexure' CD-01'**

| L | T | P/S | SW/FW | TOTAL CREDIT UNITS |
|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 1 |

**Course Objectives:**

To understand the different aspects of communication using the four macro skills – LSRW (Listening, Speaking, Reading, Writing)

**Prerequisites:** NIL

| **Course Contents / Syllabus:** | | |
|---|---|---|
| 1. | **Module I Communication** | **35% Weightage** |
| | • Process and Importance<br>• Models of Communication (Linear & Shannon Weaver)<br>• Role and Purpose<br>• Types & Channels<br>• Communication Networks<br>• Principles & Barriers | |
| 2. | **Module II Verbal Communication** | **25% Weightage** |
| | Oral Communication: Forms, Advantages & Disadvantages<br>Written Communication: Forms, Advantages & Disadvantages<br>Introduction of Communication Skills (Listening, Speaking, Reading, Writing) | |
| 3. | **Module III Non-Verbal Communication** | **30% Weightage** |
| | • Principles & Significance of Nonverbal Communication<br>• KOPPACT (Kinesics, Oculesics, Proxemics, Para-Language, Artifacts, Chronemics, Tactilics)<br>• Visible Code | |
| 4. | **Module IV : Prose** | **10% Weightage** |
| | TEXT: APJ Abdul Kalam and Arun Tiwari, *Wings of Fire: An Autobiography*. | |

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1.1.2, 1.2.1

AMITY UNIVERSITY

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Date: 31/1/2019

**BOARD OF STUDIES ( PHARMACY)**

**MINUTES OF THE MEETING**

**(03 Pages Only)**

1. A meeting of board of studies of Amity Institute of Pharmacy, Amity University Madhya Pradesh was held on 21st Jan 2019 at 1200 hrs at AUMP, under the Chairmanship of Prof. (Dr.) A. N. Nagappa, Director AIP. The following members attended the meeting:-

   (a) Chairman: Prof. (Dr.) A. N. Nagappa, Director AIP

   (b) Member

   i) Prof (Dr.) Suman Jain, Director, SOS Pharmacy, Jiwaji University, Gwalior, MP (External Member)

   ii) Dr. Ajay Sharma, Professor, AIP

   iii) Dr. Naveen Sharma, Associate Professor, AIP

2. The agenda of the meeting included the following:

   (a) Approval of the syllabus of new subjects to be offered in Bachelor of Pharmacy (B. Pharm)

   (b) Approval of the Choice based Credit Courses to be undertaken and their scheme and syllabus.

   (c) The Communication skill for 1st semester taught as per PCI syllabus. The syllabus of Communication skills from 2nd to 8th semester will be framed before the commence of second BOS.

   (d) The value added course will be covered to the students as per University norms

   (e) Any other point with due permission of the Chairperson.

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3. Discussions/Comments:

a) **Discussion:** Discussion on existing syllabus

**Comment:** The syllabus is well designed and recommended to be continued

b) **Discussion:** Discussion on choice based Credit Courses to be undertaken and their scheme and syllabus

**Comment:** The choice based credit courses to be undertaken is well designed and recommended to be continued

c) **Discussion:** Discussion on syllabus of communication skills from 2nd to 8th semester

**Comment:** The Communication skill for 1st semester taught as per PCI syllabus. Communication skills for other semester will be covered as follows.

| S. No. | Semester | No of Credits |
|---|---|---|
| 1 | III$^{rd}$ | 1 |
| 2 | IV$^{th}$ | 1 |
| 3 | V$^{th}$ | 1 |
| 4 | VI$^{th}$ | 1 |
| 5 | VII$^{th}$ | 1 |
| 6 | VIII$^{th}$ | 1 |

d) **Discussion:** Discussion on value added courses like Foreign language and Behavioral Sciences

**Comment:** The value added courses will be covered as follows

| S. No. | Subjects | Semester | No of Credits |
|---|---|---|---|
| 1 | Behavior Science | III$^{rd}$ | 1 |
| 2 | Foreign language | III$^{rd}$ | 2 |
| 3 | Behavior Science | IV$^{th}$ | 1 |
| 4 | Foreign language | IV$^{th}$ | 1 |
| 5 | Behavior Science | V$^{th}$ | 1 |
| 6 | Foreign language | V$^{th}$ | 3 |
| 7 | Foreign language | VI$^{th}$ | 1 |
| 8 | Behavior Science | VII$^{th}$ | 1 |
| 9 | Foreign language | VII$^{th}$ | 2 |
| 10 | Behavior Science | VIII$^{th}$ | 2 |
| 11 | Foreign language | VIII$^{th}$ | 3 |

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4. **Recommendation:**

The BOS recommends that the syllabus for the courses of B. Pharm is well designed and recommended to be continued without modification.

5. **Summary of changes is given below:** No Changes are found during BOS

**Signature of Members:**

Dr. Ajay Sharma
Member

Dr. Naveen Sharma
Member

Dr. Suman Jain
External Member

Dr. A. N. Nagappa
Chairman

24/02/19

Prof. (Dr.) M. P. Kaushik
Hon'ble Pro Vice Chancellor,
AUMP, Gwalior

26/2/19

APPROVED BY
Hon'ble Vice Chancellor
AUMP, Gwalior

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## BOARD OF STUDIES IN BACHELOR OF PHARMACY COURSE (B. PHARM)

A meeting of Board of Studies in Bachelor of Pharmacy Course (B. Pharm) was held on 21/1/19 at 1 pm.

The following members are present.

| S. No. | Name | Members (Internal) | Member (External) | Signature |
|---|---|---|---|---|
| 1. | Dr. A.N. Nagappa | Chairperson | | |
| 2. | Dr. Ajay Sharma | Member | | |
| 3. | Dr. Naveen Sharma | Member | | |
| 4. | Dr. Suman Jain | | Professor & Director, School of Studies in Pharmaceutical Sciences, Jiwaji University, Gwalior (MP) | |

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## Table-I: Course of study for semester I

#Applicable ONLY for the students who have studied Mathematics / Physics / Chemistry at HSC and

| Course code | Name of the course | PIC- No. of hours | PCI- Tutorial | Credit points | AIP hours |
|---|---|---|---|---|---|
| BP101T | Human Anatomy and Physiology I - Theory | 3 | 1 | 4 | 4 |
| BP102T | Pharmaceutical Analysis I - Theory | 3 | 1 | 4 | 4 |
| BP103T | Pharmaceutics I - Theory | 3 | 1 | 4 | 4 |
| BP104T | Pharmaceutical Inorganic Chemistry - Theory | 3 | 1 | 4 | 4 |
| BP105T | Communication skills - Theory * | 2 | - | 2 | 2 |
| BP106RBT<br>BP106RMT | Remedial Biology/ *<br>Remedial Mathematics - Theory* | 2 | - | 2 | 2 |
| BP107P | Human Anatomy and Physiology - Practical | 4 | - | 2 | 3 |
| BP108P | Pharmaceutical Analysis I - Practical | 4 | - | 2 | 3 |
| BP109P | Pharmaceutics I - Practical | 4 | - | 2 | 3 |
| BP110P | Pharmaceutical Inorganic Chemistry - Practical | 4 | - | 2 | 3 |
| BP111P | Communication skills - Practical* | 2 | - | 1 | 1 |
| BP112RBP | Remedial Biology - Practical* | 2 | - | 1 | 2 |
| Total | | 32/34$<br>/36# | 4 | 27/29$/30# | 35/35 |

appearing for Remedial Biology (RB)course.
$Applicable ONLY for the students who have studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM)course.
* Non University Examination (NUE)

## Table-II: Course of study for semester II

| Course Code | Name of the course | PCI- No. of hours | PCI Tutorial | Credit points | AIP hours |
|---|---|---|---|---|---|
| BP201T | Human Anatomy and Physiology II - Theory | 3 | 1 | 4 | 4 |
| BP202T | Pharmaceutical Organic Chemistry I - Theory | 3 | 1 | 4 | 4 |
| BP203T | Biochemistry - Theory | 3 | 1 | 4 | 4 |
| BP204T | Pathophysiology - Theory | 3 | - | 3 | 3 |
| BP205T | Computer Applications in Pharmacy - Theory * | 3 | - | 3 | 3 |
| BP206T | Environmental sciences - Theory * | 3 | - | 3 | 3 |
| BP207P | Human Anatomy and Physiology II -Practical | 4 | - | 2 | 3 |
| BP208P | Pharmaceutical Organic Chemistry I- Practical | 4 | - | 2 | 3 |
| BP209P | Biochemistry - Practical | 4 | - | 2 | 3 |
| BP210P | Computer Applications in Pharmacy - Practical* | 2 | - | 1 | 2 |
| Total | | 32 | 4 | 29 | 33/35 |

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