SYLLABUS

Glocal School of Pharmacy

Glocal University

Bachelor of Pharmacy 1st year (1st Semester)
(Theory and Practical)

S No.	Course	Subject name	Credits		Sessional			Exam	Total
			T	P	TA	MSE	Total	ESE	
1	GSP-101	Professional Communication-I	3	0	30	20	50	50	100
2	GSP-102	Computer Fundamentals & Programming	3	0	30	20	50	50	100
3	GSP-103	Pharmaceutical Inorganic Chemistry	3	0	30	20	50	50	100
4	GSP-104	General Pharmacy	3	0	30	20	50	50	100
5	GSP-105	Human Anatomy Physiology & Pathophysiology-I	3	0	30	20	50	50	100
6	GSP-106	Remedial Biology or Remedial Mathematics	3	0	30	20	50	50	100
PRACTICAL									
1	GSP-101P	Professional Communication-I	0	2	30	20	50	50	100
2	GSP-102P	Computer Fundamental & Programming	0	2	30	20	50	50	100
3	GSP-103P	Pharmaceutical Inorganic Chemistry	0	2	30	20	50	50	100
4	GSP-104P	General Pharmacy	0	2	30	20	50	50	100
5	GSP-105P	Human Anatomy Physiology & Pathophysiology-I	0	2	30	20	50	50	100
							Total		**1100**

GSP-101
PROFESSIONAL COMMUNICATION-I

UNIT-I.

Grammar: parts of speech, types of sentence, subject-verb agreement, articles, degrees of comparison and punctuation.

UNIT-2.

Verbal and Non-Verbal Communication: understanding communication, meaning of verbal and non-verbal communication, types of nonverbal communication, role and importance of effective communication, 7 'C's and barriers of communication.

UNIT-3.

Writing Skills: Letter Writing, Précis Writing, and Essay Writing

Reading Skills: Comprehension, Speed Reading, Scanning and Skimming

Listening Skills: Types and methods of listening, importance of listening in learning, some basic listening exercises.

Speaking Skills: Making short speeches, extempore, power-point presentations

UNIT-4.

Word Power for Development of Appropriate Vocabulary: learning to use dictionary and thesaurus effectively, and words to show agreement and disagreement.

UNIT-5.

Organizational Behaviour: role of professional communication in organizations.

GSP-101P
PROFESSIONAL COMMUNICATION (PRACTICAL)

Experiment based on theory topics.

BOOKS RECOMMENDED:

1. Wren and Martin. Rev. by N. D. V. Prasad Rao. High School English Grammar and Composition. S. Chand & Company: New Delhi.
2. Robbins, S., Organizational Behaviour. Dorling Kindersley: New Delhi, 2013.
3. Raman, Meenakshi and Sangeeta Sharma. Technical Communication: Principles and Practice. 2nd ed. Oxford University Press: New Delhi, 2011.
4. Miglani, Seema and Shikha Goyal. English for Professionals: A Book of Communication Skills in English. 2nd ed. Nirmal: Kurukshetra, 2013.
5. Steinberg, S. Introduction to Communication Course Book 1: The Basics. 3rd ed. Reprint, The University of South Africa: Cape Town, 2006.
6. Miglani, Seema. Communication Skills. Vayu Education: Delhi, 2009.
7. Cutler, Wade E. Triple Your Reading Speed. Pocket Books: NY, 2002. [Also on Google Books]
8. Gangal, J. K. A Practical Course in Effective English Speaking Skills. PHI Learning: New Delhi, 2012.
9. A Practical Course for Developing Writing Skills in English. PHI Learning: New Delhi, 2011.

GSP-102
COMPUTER FUNDAMENTALS AND PROGRAMMING

UNIT-1.

Definition and Overview Of Computer- Computer classification, Computer Organization, Computer code, computer classification of Boolean algebra. Input Devices, Out put devices, Storage devices. Computer Software, Types of software. Overview of Computer Networks, LAN, MAN, WAN, Internet, Intranet, network topology. Internetworking: Bridges, Repeaters and Routers.

UNIT-2.

Introduction- Operating system and function, Evolution of operating system, Batch, Interactive, Time sharing and Real Time System. Single user operating system and Multi-user operating system, Compare MS-DOS vs. UNIX, Various window features. Internal and External commands in MS-DOS.

UNIT-3.

Introduction to Ms-Office- Word Document creation, Editing, formatting table handling, mail merge, Excel, Editing, working Retrieval, Important functions, short cut keys used in EXCEL.

UNIT-4.

Ms-Power Point- Job Profile, Elements of Power point, ways of delivering Presentation, concept of Four P's (Planning, Preparation, Practice and Presentation) ways of handling presentations e.g. creating, saving slides show controls, Adding formatting, animation and multimedia effects. Database system concepts, Data models schema and instance , Database language, Introduction to MS Access 2003, main components of Access tables, Queries, Reports, Forms table handling, working on Query and use of database. Fundamentals of Structured Querry Language (SQL).

UNIT-5.

Computer applications in Pharmaceutical and Clinical studies- Uses of Internet in Pharmaceutical Industry. Fundamentals of C programming, Data structure using C, Queue, FIFO etc, Internet History, Characteristics, uses.

GSP - 102P
COMPUTER FUNDAMENTALS AND PROGRAMMING (PRACTICAL)

Software Lab to be used for the following:-

1. Windows, Managing Windows, Working with Disk, Folders and files.
2. MS-Office 2003 (MS Word, MS Power point, MS Excel, MS Access).
3. Computer Operating System Like DOS and Windows.
4. Internet Features (E- mail, Browser etc.)
5. Data Structure using C
6. Programming using C language.

BOOKS RECOMMENDED:

1. Sinha, R.K., Computer Fundamentals, BPB Publications.
2. Raja Raman, V, Computer Programming in 'C', PHI Publication.
3. Hunt N and Shelley J. Computers and Common Sense Prentice Hall of India.
4. G.N.Rao, Biostatistics & computer Applications. Pharma med Press Hyderabad.
5. Sinha PK "Fundamentals of Computers".

GSP– 103
PHARMACEUTICAL INORGANIC CHEMISTRY

UNIT-1.

Sources of impurities & their control, limit test for iron, arsenic, lead, heavy metals, chloride & sulphate.

UNIT-2.

An outline of methods of preparation, uses, sources of impurities, tests of purity and identification and special tests, if any, of the following classes of inorganic pharmaceuticals included in the latest Indian Pharmacopoeia. Gases and Vapors: Inhalants (Oxygen), Anaesthetics (Nitrous oxide).Topical Agents: Protective (Calamine, titanium dioxide, talc, kaolin), astringents(Zinc oxide, Zinc Sulphate) and anti infective (Boric Acid, Hydrogen peroxide, Iodine, Povidone Iodine, Potassium permanganate, Silver nitrate).Dental Products: Dentrifices- anti-caries agents (Sodium fluoride).

UNIT-3.

Gastrointestinal Agents: Acidifying agents (Dilute Hydrochloric acid), antacids (Bismuth subcarbonate, Aluminium hydroxide, Calcium carbonate, Magnesium hydroxide, Magnesium oxide (light and heavy), Magnesium carbonate (light and heavy), Magnesium trisilicate), cathartics (disodium hydrogen phosphate, Magnesium sulphate and other Magnesium compounds), protective and adsorbents (Activated Charcoal, Light Kaolin).

UNIT 4.

Major Intra And Extra- Cellular Electrolytes: Physiological ions, Electrolytes used for replacement therapy, acid-base balance & combination therapy(Calcium chloride, Calcium gluconate, Calcium lactate, Calcium levulinate, Sodium dihydrogen phosphate, sodium acetate, sodium bicarbonate, sodium chloride, potassium chloride, magnesium chloride). Cationic and anionic components of inorganic drugs useful for systemic effects.

Unit 5.

ESSENTIAL AND TRACE ELEMENTS: Transition elements and their compounds of pharmaceutical importance. Iron and haematinics (Ferrous fumarate, Ferrous gluconate, Ferrous sulphate, Ferric ammonium citrate, mineral supplements (Cu, Zn, Cr, Mn, Sb, S, I). Miscellaneous Agents: Expectorants (Ammonium chloride, Potassium Iodide), antioxidants (Sodium metabisulphite, Sodium benzoate).

GSP-103P
PHARMACEUTICAL INORGANIC CHEMISTRY (PRACTICAL)

Proposed list of experiments

1. To perform the limit test for chloride in the given sample (for e.g. Ammonium Carbonate calcium gluconate)
2. To perform the limit test for sulphate in the given sample (for e.g. Ammonium Chloride)
3. To perform the limit test for iron in the given sample (for e.g. calcium carbonate)
4. To perform the limit test for heavy metal in the given sample (for e.g. Calcium carbonate)
5. To perform the limit test for arsenic in the given sample (for e.g. Barium Sulphate)
6. To prepare Boric acid from borax and perform the limit test and identification test.

7. To prepare potash alum by using potassium sulphate and aluminium sulphate and perform the limit test and identification test.
8. To prepare calcium Carbonate by using calcium chloride and sodium carbonate and perform the limit test and identification test.
9. To prepare heavy magnesium carbonate by using sodium carbonate and magnesium sulphate and perform the limit test and identification test.
10. To prepare zinc sulphate by using zinc and sulphuric acid and perform the limit test and identification test.
11. To prepare Peritoneal Dialysis Solution.

BOOKS RECOMMENDED:

1. Block, J.H. Roche, E, Soine, T and Wilson, C., Inorganic, Medicinal & Pharmaceutical Chemistry, Lea & Febiger.
2. Dischер, C.A.,et.al Modern Inorganic Pharmaceutical Chemistry, waveland press.
3. The pharmacopoeia of India.
4. Atherden L.M., Bentley and Drivers' Text Book of Pharmaceutical Chemistry, Oxford University Press, London.
5. Remington Pharmaceutical Sciences, Mack Publishing Co., Pennsylvania.

GSP 104
GENERAL PHARMACY

UNIT-1.

History of Pharmacy- Origin & developments of pharmacy, Scope of Pharmacy, A brief review of development of Pharmaceutical Education and drugs, Pharmaceutical Industry in India, Pioneers who have contributed to the development of Pharmacy in India and Pharmaceutical legislations and ethics- a brief review.

UNIT-2.

Introduction to Pharmacopoeias- Special references to I.P., B.P., U.S.P. & International Pharmacopoeia including general notices.

UNIT-3.

Pharmaceutical Calculations- Posology, Latin terms, calculation of doses for infants, adults and elderly patients; Enlarging and reducing recipies percentage solution, alligation, alcohol dilution, proof spirit, Chelating agents.

UNIT-4.

Pharmaceutical Additives- Colouring, flavouring and sweetening agents, co-solvents, preservatives, surfactant and their applications, antioxidants, Natural and Semi-synthetic Biopolymers.

UNIT-5.

Introduction Of Pharmaceutical Dosage Forms– Definition, classification method of preparation, uses, advantages also including illustrative examples of equivalent Indian marketed formulations of the following- solutions, aromatic waters, mixtures, spirits, syrups, elixirs, powders, lotions, liniments, pastes, mucilage, glycerin, paints, mouth washes, and inhalations.

GSP-104P
GENERAL PHARMACY- (PRACTICAL)

The Practical based on the dosage forms, at least two experiments from each category mentioned below.

Preparation and Evaluation

Aromatic waters: Concentrated Camphor Water BP, Strong rose water USP/NF, Peppermint water USP/NF.

Syrups: Syrup BP, Paracetamol Syrup IP, Codeine Syrup IP, Chloroquine Syrup IP.

Linctus: Simple Linctus BP, Pholcodine Linctus IP

Sprits: Peppermint spirit BP, Aromatic sprit of Ammonia BP, Lemon spirit BP

Elixir: Simple elixir BP, Piperazine citrate elixir BP, Ephedrine elixir IP, Aromatic elixir USP/NF.

Solutions:

A. Oral: Paediatric Ferrous sulphate solution BP, Iodine oral solution aqueous BP, Ascorbic acid

oral solution USP/NF.

B.Topical: Hydrogen peroxide topical solution USP/NF, Strong ammonium acetate solution BP, Calcium hydroxide solution BP, Povidone iodine solution IP, Cresol with soap Solution IP, Benzalkonium Chloride Solution IP.

Mixtures: Aromatic Magnesium Carbonate Mixture BP, Ammonium Chloride mixture BP, Magnesium hydroxide mixture BP, Magnesium sulphate mixture BP.

Powders: Oral rehydration salts BP, Compound magnesium trisillicate oral powder BP, Talc dusting powder BP, Sodium bicarbonate oral powder USP/NF, Absorbable dusting powder USP/NF

Pastes: Compound zinc paste BP, Magnesium sulphate paste BP, Salicylic acid and zinc paste USP/NF

Poultices: Kaolin poultice BP

Liniments: White liniment BP, Methyl Salicylate liniment BP

Lotions: Calamine lotion IP, Zinc sulphate lotion BP, Benzyl benzoate application IP

Mouth washes: Compound sodium chloride mouthwash BP, Chlorhexidine mouth wash BP, Povidone iodine mouthwash BP

Inhalations: Benzoin inhalation BP, Menthol and benzoin inhalation IP

BOOKS RECOMMENDED:

1. I.P. Latest Edition
2. B.P. Latest Edition
3. U.S.P. Latest Edition
4. International Pharmacopoeia
5. Ansel's HC, Pharmaceutical Calculations, 13th edition, Lipincott Williams and Wilkins
6. Ansel's HC, Pharmaceutical Doasge Forms and Drug Delivery Systems, 9th edition, Lipincott Williams and Wilkins
7. Cooper and Gunn's, Dispensing for Pharmaceutical Students, 12th edition,CBS Publishers & Distributors Pvt. Ltd.

GSP-105
HUMAN ANATOMY, PHYSIOLOGY AND PATHOPHYSIOLOGY-I

UNIT-1.

a. Introduction to human body and organization of human body.
b. Functional and structural characteristics of cell.
c. Detailed structure of cell membrane and physiology of transport process (Including enzymes and co-enzymes).
d. Structural and functional characteristics of tissue: epithelial, connective, muscle and nerve.

UNIT-2.

a. Skeletal System-Structure, composition and functions of skeleton, classification of joints, types of movement of joints.
b. Anatomy and physiology of skeletal muscle and smooth muscle,
c. Contraction, energy metabolism, types of muscle contraction, muscle tone.

UNIT-3.

Haemopoietic System:- composition, and function of blood elements, hemopoiesis, blood groups, blood coagulation.

Lymphatic System:- composition, formation and circulation of lymph mode and spleen**.**

UNIT-4.

Endocrine System: Basic anatomy and physiology of pituitary, thyroid, parathyroid, Adrenals, Pancreas, Testes and ovary, their hormones and functions**.**

UNIT-5.

Sense Organs: Basic anatomy and physiology of the eye (vision), ear (hearing), taste buds, nose (smell) and skin (superficial receptors).

GSP-105 P
HUMAN ANATOMY, PHYSIOLOGY AND PATHOPHYSIOLOGY-I (PRACTICAL)

Exp.1-10

Estimation of Haemoglobin and determination of blood groups, blood pressure, clotting time and Bleeding time, RBC, WBC (Total), DLC,ESR and hematocrit values

Exp.11-12

Study of Human Skeleton with the help of charts and models

Exp.13-14

Microscopic study of different tissues.

Exp.15-18

Study of different systems of Human body with help of charts and Models.

Books Recommended:

1. Ross and Wilson, Human anatomy and Physiology, Churchill Livingstone London.
2. Guyton AC, Hall JE, Text book of Medical Physiology, WB Saunders Company.

3. Robbins SL, Kumar V, Basic Pathology, WB Saunders.
4. Chatterjee,C.C, Human Physiology, Medical allied agency, Calcutta.

GSP-106
REMEDIAL BIOLOGY

UNIT 1.

Methods of classification of plants.

UNIT 2.

Plant cell: It's detailed structure, mitosis, meiosis different types of plant tissues and their functions. An introduction to R.N.A and D.N.A.

UNIT 3.

Simple and compound microscopes used in biology, section cutting, staining and mounting of sections. Morphology and histology of root, stem, bark, wood leaf, flower, fruit and seed. Modification of root and stem.

UNIT 4.

General survey of animal kingdom; structure and life history of parasites illustrated by amoeba, Entamoeba, Trypanosoma, Plasmodium, Taenia, Ascaris, Schistosoma, Oxyuris and Ancylostoma.

UNIT 5.

General structure of life history of insects including their relation to medicinal crops as illustrated by grasshopper, mite, silkworm and pests.

GSP-106
REMEDIAL MATHEMATICS

UNIT 1.

Algebra: Equations reducible to quadratics, simultaneous equations (linear & quadratic). Determinants, Properties of determinants, solution of simultaneous equations by Cramer's rule, matrices, properties of matrices, solution of simultaneous equations by matrices, pharmaceutical applications of determinants and matrices.

UNIT 2.

Trigonometry: Measurement of angle, T-ration, addition, substraction and transformation formulae, T-ration of multiple, submultiples, allied and certain angles, application of logarithms in pharmaceutical computations.

UNIT 3.

Analytical Plain Geometry: Certain co-ordinates, distance between two points, area of triangle, locus of a point, straight line, slope and intercept form, double intercept form normal (perpendicular form), slope-point and two point form, general equation of first degree.

UNIT 4.

Calculus: Differential Limits and functions, definition of differential coefficient, differentiation of standard functions including function of a function (chain rule). Integral: Integration as inverse of differentiation, indefinite integrals of standard form, integration by parts.

UNIT 5.

Introduction to Statistics: Mean, Types of means, Median, Mode-Measure of dispersion, Quartile, eviation, Mean deviation, Standard error of Mean (SEM).

BOOKS RECOMMENDED:

1. A textbook of Mathematics for XI-XII Students, NCERT Publication Vol. I-IV.
2. Loney S.L, Plane Trigonometry AITBS Publishers.
3. Loney S.L, The elements of coordinate geometry AITBS Publishers.
4. Gupta S.P., Statistical Methods, Sultan Chand and Co., New Delhi
5. Narayan Shanti, Integral calculus, Sultan Chand & Co.
6. Prasad Gorakh, Text book on differential calculus , Pothishala Pvt. Ltd., Allahabad.
7. Narayan Shanti, Differential calculus, Shyamlal Charitable Trust, New Delhi.
8. Prasad Gorakh, Text book on integral calculus, Pothishala Pvt. Ltd., Allahabad.
9. Vishal Mehta, Remedial Mathematics for Pharmacy, Kamini Publication, Kanpur