Estd. 1962
"A++" Accredited by
NAAC (2021)
With CGPA 3.52

SHIVAJI UNIVERSITY, KOLHAPUR - 416004,
MAHARASHTRA
PHONE:EPABX-2609000, www.unishivaji.ac.in, bos@unishivaji.ac.in
शिवाजी विद्यापीठ, कोल्हापूर -४१६००४,महाराष्ट्र
दूरध्वनी-ईपीएबीएक्स -२६०९०००, अभ्यासमंडळे विभाग दुरध्वनी ०२३१—२६०९०९४
०२३१—२६०९४८७

Ref.No.SU/BOS/Science/438 **Date: 17/07/2025**

To,

The Principal,
All Concerned Affiliated Colleges/Institutions
Shivaji University, Kolhapur.

Subject: Regarding syllabi of B.Sc. Part-I (Sem.I & II) degree programme under the Faculty of Science and Technology as per NEP-2020 (2.0).

Sir/Madam,

With reference to the subject mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the syllabi, nature of question paper of B.Sc. Part-I (Sem.I & II) degree programme under the Faculty of Science and Technology as per NEP-2020 (2.0).

B.Sc. Part-I (Sem. I & II) as per NEP-2020 (2.0)			
1.	Pharmacology (Entire)	2.	Medicinal Chemistry (Entire)

This syllabus, nature of question and shall be implemented from the academic year 2025-2026 onwards. A soft copy containing the syllabus is attached herewith and it is also available on university website www.unishivaji.ac.in NEP-2020@suk(Online Syllabus)

The question papers on the pre-revised syllabi of above-mentioned course will be set for the examinations to be held in October /November 2025 & March/April 2026. These chances are available for repeater students, if any.

You are, therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Dy Registrar
Dr. S. M. Kubal

Encl: As above

for Information and necessary action

Copy to:

1	Dean, Faculty of Science & Technology	6	Appointment Section A & B
2	Director, Board of Examinations and Evaluation	7	I.T.Cell /Computer Centre
3	Chairman, Respective Board of Studies	8	Eligibility Section
4	B.Sc.-M.Sc. Exam Section	9	Affiliation Section (T.1) (T.2)
5	Internal Quality Assurance Cell (IQAC Cell)	10	P.G. Seminar Section

SHIVAJI UNIVERSITY, KOLHAPUR

Estd.in1962

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A3.52

CHOICEBASEDCREDITSYSTEM WITH MULTIPLE ENTRY

AND MULTIPLE EXIT OPTIONS

Syllabus

for

B.ScPart-I

Pharmacology(Entire)

SEMESTER I AND II

(Syllabus to be implemented from June 2025

PROGRAM OUTCOMES	
PO1	Able to develop the skill and knowledge in clinical aspects.
PO2	Able to acquire the competencies about the understanding of anatomy and physiology of human body.
PO3	Able to utilize the different instruments and equipment's for understanding of clinical and preclinical aspects of animal and human body.
PO4	Able to work in multidisciplinary at different areas of professional practices in pharma and non-pharma industry.
PO5	To develop ethics and professional practices.
PO6	Able to interact and communicate with other professionals.
PO7	Able to provides professional services at national and international level.
PO8	Able to develop scientific acumen among the society.
PO9	Able to design in silico experiments using different software's to design drug and dosage forms to meet requirement of society and industry.
PO10	Able to use the information and knowledge to develop critical and analytical thinking to meet the requirements of regulatory bodies in and around the globe.

PROGRAM SPECIFIC OUTCOMES	
PSO1	**Skill &Knowledge:** Undergraduate candidates are able to understand the skill and knowledge required for pharmaceutical domains.
PSO2	**Employment & Entrepreneur:** Undergraduate candidates are seeking career prospects in IT healthcare and professional as well as technical sectors.
PSO3	**Professional Practice:** Students are able to practice as professional in and around the globe
PSO4	**Lifelong Learner:** able to become lifelong learner of personal and professional practice.
PSO5	**Professional Ethics:** Able to develop ethics in relation to professional career.

B.Sc. in Pharmacology

About Course:

Pharmacology is mainly dealing with study of drug and poisonous effects of chemicals. Now, India is the third largest drug manufacturing country in the word. India also has diversity of population with less expenditure. so Pharmaceutica Contract research organizations are looking for study of drug in humans. So, increasing demand of young and dynamic professional for pharmaceutical and healthcare industry sector.

Course Name: B.Sc. in Pharmacology (Entire)

Eligibility: 10+2 science

Programme fees:As per university and government rules.

Medium of instruction: English

Pattern: semester

Duration: full time course

Course of study:

BSc in Pharmacology comprises of Semester Wise theory &practicals. This course is divided into six semesters.

Career/job opportunities:

- Clinical Trial Assistant,
- Clinical Research Coordinator,
- Clinical Data Analyst,
- Drug Safety Associate,
- Toxicology Assistant,
- Regulatory Affairs associate.

SHIVAJI UNIVERSITY, KOLHAPUR

NEP-2020(2.0):Credit Frame work for UG (B.Sc.) Programme under Faculty of Science and Technology

SEM (Level)	COURSES			OE	VSC/SEC	AEC/VEC/IKS	OJT/FP/CEP /CC/RP	Total Credits	Degree/Comic. MEME
	Course-1	**Course-2**	**Course-3**						
SEM I(4.5)	DSC-IIntroduction to dosageForm I(2) DSC-IIHuman Anatomy and Physiology-I(2) DSCP-I Lab Course I (Based on DSC I &II)(2)	DSC-IMicrobiology(2) DSC-IIIntroduction to Drug and its Administration(2) DSCP-I Lab Course II (Based on DSC I &II)(2)	DSC-IDrug Development (2) DSC-II Pathophysiology I (2) DSCP-I Lab Course III (Based on DSC I &II)(2)	OE I-(2)(T/P)		IKS-I Introduction to IKS (2)		**22**	**UG Certificate 44**
SEM II (4.5)	DSC-IIII Introduction to dosage Form II (2) DSC-IVHuman Anatomy and Physiology-II(2) DSCP-II Lab Course IV (Based on DSC III &IV)(2)	DSC-IIIIV Cell and Molecular Biology (2) DSC- Basics of Pharmacology I (2) DSCP-II Lab Course V (Based on DSC III &IV)(2)	DSC-IIIInfectious Diseases (2) DSC-IV Pathophysiology II(2) DSCP-II Lab Course VI (Based on DSC III &IV)(2)	OE- II(2)(T/P)		VEC-I(2) (Democracy, Electionand Constitution)		**22**	
Credits	**8(T)+4(P)=12**	**8(T)+4(P)=12**	**8(T)+4(P)=12**	**2+2=4 (T)**	**--**	**2+2=4**	**--**	**44**	**ExitOption:4creditsNSQF/Internship/Skill courses**
	MAJOR		**MINOR**						

Sem-I

Course code	Name of the course	No. of hours	Credit point
DSC PT A1	Introduction to Dosage form-I	**30**	**2**
DSC PT A 2	Human Anatomy and physiology-I	**30**	**2**
DSC PT A 3	Microbiology	**30**	**2**
DSC PT A 4	Introduction to drug and its administration	**30**	**2**
DSC PT A 5	Drug development	**30**	**2**
DSC PT A 6	Pathophysiology-I	**30**	**2**
DSC PT A 7	OE I	**30**	**2**
DSC PT A 8	IKS I Introduction to IKS	**30**	**2**

Sem-II

Course code	Name of the course	No. of hours	Credit point
DSC PT B 1	Introduction to Dosage form-II	**30**	**2**
DSC PT B 2	Human anatomy and physiology-II	**30**	**2**
DSC PT B 3	Cell and Molecular biology	**30**	**2**
DSC PT B 4	Basics of Pharmacology-I	**30**	**2**
DSC PT B 5	Infectious Diseases	**30**	**2**
DSC PT B 6	Pathophysiology-II	**30**	**2**
DSC PT B 7	OE II	**30**	**2**
DSC PT B 8	VEC IDemocracy, Election and Constitution	**30**	**2**

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course I
DSC-I Introduction to dosage Form I (2)

Course Outcomes:

CO1	**Explain the various dosage forms of drug.**
CO2	**Understand the different pharmacopeia for preparation and testing of dosage forms.**
CO3	**T know about various packaging materials used for pharmaceutical products.**
CO4	**Ability to use the instruments used for manufacturing of drug and drug products.**

Introduction: Dosage forms are important factor for administration of different drugs through different routes. it helps to make safe and effective for administration to patient and healthcare professionals.

Topic No.	**Name of topics**	**Lectures 30**
1.	**Introduction to different dosage form of medicines:** Definition, advantages, disadvantages,classification, need of dosage formsforSolid, liquid, semisolid, Gaseous etc.	**15**
2.	**Introduction to different Pharmacopoeia:** IP,BP, USP, NF, Extra Pharmacopoeia	**5**
3.	**Packaging materials:** Plastics, glass, metals, rubber anddifferent materials its merits and demerits, selection and criteria.	**5**
4.	**Manufacturing of dosage forms:** Method of preparation,different instruments used forSolid, liquid, semisolid, Gaseous etc.	**5**

Suggestive readings:

1. H.C. Ansel et al., Pharmaceutical Dosage Form and Drug Delivery System, Lippincott Williams and Walkins, New Delhi
2. M.E. Aulton, Pharmaceutics, The Science& Dosage Form Design, Churchill Livingstone, Edinburgh
3. Lachmann. Theory and Practice of Industrial Pharmacy, Lea& Febiger Publisher, The University of Michigan.
4. Indian pharmacopoeia latest edition.

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course I
DSC-II Human Anatomy and Physiology-I (2)

Course Outcomes:

CO1	Describe the structure and function of cell, tissue and organs of human body
CO2	Identify the various tissues and organs of human body.
CO3	Identify the axial and appendicular skeleton bones of human body.
CO4	Correlate between working of different bones of human body.

Topic No.	**Name of Topics**	**Lectures 30**
1.	**Cell:** Definition,different organelles their structures and functions, cell communication, Active and passive transport, facilitated diffusion, cell divisions, cell cycle	**8**
2.	**Tissue:** Definition, Different organelles their structures and functions of all tissues. Epithelial tissues, connective tissues, muscular tissue and nervous tissue.	**7**
3.	**Skeleton:** Definition, classification,study of axil and appendicular skeleton according to structure and functions. Shoulder bones and pelvic bones.	**7**
4.	**Cardiovascular system:** Heart, blood vessels, structure and functions, cardiac cycle, types of circulation, disorders of heart and blood vessels. **Blood:** Components, structure and functions of blood cells,mechanism of blood coagulation, clotting factors, disorders of it. **Lymphatic system:** Definition, structure and functions, disorders of it.	**8**

Suggestive readings:

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. Textbook of Human Histology by Inderbir Singh, Jaypee brother's medical publishers, New Delhi

Lab Course

SHIVAJI UNIVERSITY, KOLHAPUR Syllabus as per National Education Policy (NEP)2020 B.Sc. Pharmacology SEMESTER–I Course 1 DSC Practical I Lab Course I (Based on DSC I & II) Credits: 2	
1.	Study of compound microscope
2.	Identification of axial bone
3.	Identification of appendicular bones
4.	Determination of bleeding time
5.	Determination of clotting time
6.	To prepare & submit ORS powder (WHO)
7.	To prepare & submit simple syrup
8.	To prepare & submit Lugols solutions
9.	To prepare & submit cresol with soap solution
10.	To prepare & submit effervescent granules

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course II
DSC-I Microbiology (2)

Course Outcomes:

CO1	**Identify the different groups of microorganisms and their staining techniques.**
CO2	**Understand different sterilization techniques and instruments.**
CO3	**Outline the list of disease caused by microorganisms like bacteria, viruses, fungi etc.**
CO4	**Know the historical background in the development of microbiology.**

Topic No.	**Credit**	**Lectures 30**
1.	**History of microbiology and its introduction:** Scientist contribute for development of microbiology, Introduction of all microorganism with their meanings.Antony Van Leeuwenhoek, Edward Jenner, Louis Pasteur, Robert Koch,	**8**
2.	**Microorganisms:** Meaning, structure and disease inducing of all microorganism including gram positive, gram-negative, acid-fast stain, viruses, fungi, etc.	**7**
3.	**Disease:** Terminology, mode of transmission,pathology of it induced by gram positive, gram negative, acid-fast stain, viruses, fungi agents etc.	**7**
4.	**Introduction to instruments used for microbiology.** Structure and functions of Autoclave, Hot Air Oven, Incubator, Zone Reader etc.	**8**

Suggestive readings::

1. Pelczar, Chan Kreig, Microbiology, Tata McGraw Hill edn
2. N.K.Jain: Pharmaceutical Microbiology, Vallabh Prakashan, Delhi

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course II
DSC-II Introduction to
Drug and its Administration (2)

Course Outcomes:

CO1	**Students able to understand different sources of drugsnatural, semi synthetic, and synthetic.**
CO2	**Students correlates the link between human body and drug.**
CO3	**Students able to understand the various terminologies for study of drugs.**
CO4	**Students know the various routes of drug administration.**

Topic No.	**Credit**	**Lectures 30**
1.	**Introduction to drug:** Definition of drug, sources of drugs like natural, semisynthetic, and synthetic. Meaning of terminologies like preclinical pharmacology, therapeutics, toxicology, etc.	**8**
2.	**Basics of drugs:** Concepts of orphan drug, prodrug, essential drugs criteria and importance, addiction, abuse, dependence, etc.	**7**
3.	**Route of administration:** Definition, Types, Advantages, and Disadvantages of oral, parenteral etc.	**7**
4.	**Kinetics of drug:** Definition, Properties ofzero order kinetics, first order kinetics, kinetics of eliminations.	**8**

Suggestive readings::

1. K.D.Tripathi. Essentials of Medical Pharmacology, JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
2. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher

Lab Course

SHIVAJI UNIVERSITY, KOLHAPUR Syllabus as per National Education Policy (NEP)2020 B.Sc. Pharmacology SEMESTER–I Course 1 DSC Practical I Lab Course II (Based on DSC I & II) Credits: 2	
1.	Introduction and study of different equipments like Hot air oven, autoclave
2.	Sterilization of glassware,
3.	Staining methods- Simple, Grams staining
4.	Preparation and sterilization of media
5.	Bacteriological analysis of water
6.	Introduction to animal pharmacology
7.	Study of instruments like organ bath
8.	Study of instruments like sherringtons drum device
9.	Studyof different routes of drugs administration in mice/rats.
10.	Study of drugs of different origins

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course III
DSC-I Drug Development (2)

CO1	**Understand the drug development process in silico and in vivo using different methods.**
CO2	**Explain the preclinical and clinical aspects of drugs and its**
CO3	**Explain the regulatory mechanism in and around the globe.**
CO4	**Describe the mechanism of drug acting acts cellular and molecular level.**

Topic No.	**Credit**	**Lectures 30**
1.	**Introduction to drug development:** Meaning and important concepts oflead identification, In silico lead discovery techniques and Target identification.	**8**
2.	**Drug development phases**: Discovery and development, preclinical, clinical study, FDA approval and Post marketing	**7**
3.	**Introduction of NDA, ANDA:** Meaning, Process of approval of it.	**7**
4.	**Regulatory requirement for Drug development:** Definition, structure ofFDA, USFDA, TGA	**8**

Suggestive readings::

1. K.D.Tripathi. Essentials of Medical Pharmacology, JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
2. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher
3. Drug Regulatory Affairs by Sachin Itkar, Dr. N.S. Vyawahare, Nirali Prakashan

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course III
DSC-II Pathophysiology I (2)

Course Outcomes:

CO1	**Knowledge of the structure and functions of disease involved in organs system.**
CO2	**Describe the pathophysiological process of cell injury, types and mechanism involved in it.**
CO3	**To understand the concept of inflammation and associated mechanism involved in it.**
CO4	**To identify disease, its types and classification on the basis of pathophysiology.**

Topic No.	**Credit**	**Lectures 30**
1.	**Introduction to Pathophysiology:** Meaning and important concepts like etiology,pathogenesis,clinical manifestation etc.	**8**
2.	**Cell injury**: Definition, Types, and mechanisms.	**7**
3.	**Inflammation:** Definition, types, and mechanism involved in acute and chronic inflammation.	**7**
4.	**Bacterial and viral disease:** Meaning, mechanism, Life cycle ofTB, Leprosy, Covid-19, Typhoid, malaria	**8**

Suggestive readings::

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

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

Lab Course

SHIVAJI UNIVERSITY, KOLHAPUR Syllabus as per National Education Policy (NEP)2020 B.Sc. Pharmacology SEMESTER–I Course 1 DSC Practical I Lab Course III (Based on DSC I & II) Credits: 2	
1.	Study of TB, leprosy using models and charts
2.	Study of inflammation mechanism using models and charts
3.	Study of cell injury mechanism using models and charts
4.	Study of bacterial, viral infections using models and charts
5.	Study of different diagnostic kits used for diagnosis of disease.
6.	In silico experiments-ADMET analysis
7.	Molecular docking
8.	Preparation of IND documents
9.	Preparation of NDA documents
10.	Preparation of Clinical trial protocol

BST 1.7OE I

To be refereed from Shivaji University Website

BST 1.7IKS I Introduction to IKS

To be refereed from Shivaji University Website

Syllabus for Sem-II

Course code	Name of the course	No. of hours	Credit point
DSC PT B 1	Introduction to Dosage form-II	**30**	**2**
DSC PT B 2	Human anatomy and physiology-II	**30**	**2**
DSC PT B 3	Cell and Molecular biology	**30**	**2**
DSC PT B 4	Pathophysiology-II	**30**	**2**
DSC PT B 5	Infectious diseases	**30**	**2**
DSC PT B 6	Basics of Pharmacology-I	**30**	**2**
DSC PT B 7	OE II	**30**	**2**
DSC PT B 8	VEC I Democracy, Election and Constitution	**30**	**2**

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course I
DSC-III Introduction to dosage Form II (2)

Course Outcomes:

CO1	Understand the various granulation techniques like wet granulation, dry granulation, official and non-official test.
CO2	Outline the concept of advantages and disadvantages of tablets, capsules, and parenteral.
CO3	Describe the formulation steps and process involved in the tablets, capsule and parenteral.
CO4	Describe the various official and unofficial tests involved in the tablets, capsule and parenteral.

Introduction: Dosage forms are important factor for administration of different drugs through different routes. it helps to make safe and effective for administration to patient and healthcare professionals.

Topic No.	Name Of Topics	Lectures 30
1.	**Tablet:** Definition, types, advantages and disadvantages, wet granulation, dry granulation, official and non-official test.	**8**
2.	**Capsule:** Definition, types, advantages and disadvantages, soft gelation and hard gelatin capsule, test for evaluation.	**7**
3.	**Parenteral:** Definition, types, advantages and disadvantages, small volume and large volume parenteral, test for evaluation.	**8**
4.	**Aerosols:** Definition, types, advantages and disadvantages, different formulations, test for evaluation.	**7**

Suggestive readings::

1. H.C. Ansel et al., Pharmaceutical Dosage Form and Drug Delivery System, Lippincott Williams and Walkins, New Delhi
2. M.E. Aulton, Pharmaceutics, The Science& Dosage Form Design, Churchill Livingstone, Edinburgh
3. Lachmann. Theory and Practice of Industrial Pharmacy, Lea& Febiger Publisher, The University of Michigan.
4. Indian pharmacopoeia.

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course I
DSC-IV Human Anatomy and Physiology-II (2)

Course Outcomes:

CO1	Able to gain the knowledge and analyze the various systems of human body like nervous system, muscular system, digestive system and endocrine system.
CO2	Evaluate the role of neurotransmitters, exocrine secretion and endocrine system**.**
CO3	To remember types and classification of various systems of human body.
CO4	Able to understand the mechanisms, disorders of nervous system, muscular systems, digestive and endocrine systems.

Topic No.	**Name Of Topics**	**Lectures 30**
1.	**Nervous system:** Definition,Types,Neurons its types,neurotransmitters, spinal nerve, cranial nerve.	**8**
2.	**Muscular system:** Definition of muscle, Types, in detail study of cardiac muscles.	**7**
3.	**Digestive system:** Definition, Organs of digestion, Special study of acid secretion in stomach.	**7**
4.	**Endocrine system:** Definition, Different glands of endocrine system, Special study of pituitary gland hormone secretion.	**8**

Suggestive readings:

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. Textbook of Human Histology by Inderbir Singh, Jaypee brother's medical publishers, New Delhi

Lab Course

SHIVAJI UNIVERSITY, KOLHAPUR Syllabus as per National Education Policy (NEP)2020 B.Sc. Pharmacology SEMESTER–II Course I DSCP-II Lab Course IV (Based on DSC III &IV)	
1.	Estimation of hemoglobin content
2.	Recording of blood pressure.
3.	Determination of heart rate and pulse rate.
4.	Determination of RBC count
5.	Determination of WBC count
6.	Determination of blood group.
7.	To prepare & submit simple solutions
8.	Perform wet granulation techniques
9.	Perform dry granulation techniques
10.	To prepare & submit gels

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course II
DSC-III Cell and Molecular Biology

Course Outcomes:

CO1	**To understand structure of animal and microbial cell and its components.**
CO2	**Able to explain the mechanism of action of drug acting through receptor.**
CO3	**To study signal transduction mechanism in all receptor types.**
CO4	**To acquire the knowledge of drug receptor interactions by using various theroies.**

Topic No.	Name Of Topic	Lectures 30
1.	**Cell structure and function:** Understanding of animal and microbial cell and their components.	**8**
2.	**Cell receptors:** Definition, types, extracellular and intracellular receptors	**7**
3.	**Receptor:** Definition, classification, structural study of G-protein coupled receptor, Ion channel receptor, Enzyme, and transporters.	**7**
4.	**Signal transduction mechanism:** Definition, Couplers, and signal transduction of GPCR, Ion channel receptor, Enzyme and transporters	**8**

Suggestive readings:

1. K.D.Tripathi. Essentials of Medical Pharmacology, JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
2. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher
3. Modern Pharmacology with clinical Applications, by Charles R.Craig& Robert

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course II
DSC- Basics of Pharmacology

Course Outcomes:

CO1	**To understand the meaning of pharmacology and its types.**
CO2	**To know about routes of drug administration of drugs.**
CO3	**To understand the concepts of agonist, antagonist, partial agonist, inverse agonist.**
CO4	**To acquire the knowledge of drug absorption, distribution, metabolism and excretion.**

Topic No.	**Name Of Topics**	**Lectures 30**
1.	**Introduction to Pharmacology:** Definition, types of pharmacology, meaning of terms with examples like Pharmacokinetics, pharmacodynamics, toxicology, pharmacotherapeutics, clinical pharmacology.	**8**
2.	**Routes of drug administration:** Definition, Advantages and disadvantages of oral route, Parenteral route, transdermal, rectal routes.	**7**
3.	**Drug action:** Definition, Principles of drug action, Meaning of agonist, antagonist, partial agonist, inverse agonist.	**7**
4.	**Pharmacokinetics:** Definition, types, absorption, distribution, metabolism and elimination-factors, mechanisms of it.	**8**

Suggestive readings:

1. K.D.Tripathi. Essentials of Medical Pharmacology, JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
2. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher
3. Modern Pharmacology with clinical Applications, by Charles R.Craig& Robert

Lab Course

SHIVAJI UNIVERSITY, KOLHAPUR **Syllabus as per National Education Policy (NEP)2020** **B.Sc. Pharmacology** **SEMESTER–II** **DSCP-II Lab Course V (Based on DSC III &IV) (2)** **Introduces From June 2024**	
1.	Preparation of cell culture of bacteria
2.	Isolation of DNA from plant specimens
3.	Study of protein database bank
4.	In silico drug receptor interaction
5.	Introduction to phytochemical databases
6.	Study of zone of inhibition
7.	In vitro study of drugs
8.	Study of routes of drug administrations in human body
9.	Study of ADME using computer simulations
10.	Study of effects of drugs using computer simulations

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course III
DSC-III Infectious Diseases (2)

Course Outcomes:

CO1	**To understand the pathology involved in infectious diseases like bacterial and viral diseases.**
CO2	**To understand the pathology involved in infectious diseases like Tuberculosis, leprosy.**
CO3	**To understand the pathology involved in STD diseases likeHIV, AIDS, Gonorrhoea.**
CO4	**To understand the pathology involved in fungal infections.**

Topic No.	**Name Of Topics**	**Lectures 30**
1.	**Introduction to infectious disease:** Definition, types, Examples of bacterial and viral diseases.	**8**
2.	**Tuberculosis, leprosy:** Definition, types, Causes, signa and symptoms, mechanisms of it.	**7**
3.	**Sexual transmitted disease:** HIV, AIDS, Gonorrhoea Syphilis-definition, types, causes, signa and symptoms, mechanisms of it.	**7**
4.	**Fungal infections:** Definition, types, Causes, signa and symptoms, mechanisms of it.	**8**

Suggestive readings::

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

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

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

SHIVAJI UNIVERSITY, KOLHAPUR
Syllabus as per National Education Policy (NEP)2020
B.Sc. Pharmacology
SEMESTER–I
Course III
DSC-IV Pathophysiology II (2)

Course Outcomes:

CO1	**To understand the pathology involved in diseases like heart, respiratory, endocrine and nervous systems**
CO2	**To understand the pathophysiology of heart diseases like Hypertension, Anginal Pectoris, Atherosclerosis, Cardiac arrythmia**
CO3	**To acquire the knowledge of causative agents of diseases like heart, respiratory, endocrine and nervous systems.**
CO4	**Understand the signs and symptoms of diseases like heart, respiratory, endocrine and nervous systems.**

Topic No.	Name Of Topics	Lectures 30
1.	**Pathophysiology of Heart disease:** Definition, Types, causes, signa and symptoms, mechanisms of following: Hypertension Anginal Pectoris Atherosclerosis Cardiac arrythmia	**8**
2.	**Pathophysiology of Respiratory disease:** Definition, Types, causes, signa and symptoms, mechanisms of following: Asthma COPD	**7**
3.	**Pathophysiology of Endocrine disease:** Definition, Types, causes, signa and symptoms, mechanisms of following: Diabetes mellitus Thyroid disease	**7**
4.	**Pathophysiology of Nervous disease:** Definition, types, causes, signa and symptoms, mechanisms of following: Parkinsons disease Epilepsy Alzheimer's disease	**8**

Suggestive readings::

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

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

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

Lab Course

SHIVAJI UNIVERSITY, KOLHAPUR Syllabus as per National Education Policy (NEP)2020 B.Sc. Pharmacology SEMESTER–II DSCP-II Lab Course VI (Based on DSC III &IV) (2) Introduces From June 2024Practical II Lab Course III	
1.	Study of infectious disease using models and charts.
2.	Study of disease using models and charts.
3.	Study of infectious disease using models and charts.
4.	Study of pathophysiology of heart disease using models and charts.
5.	Study of pathophysiology of Asthma disease using models and charts.
6.	Study of pathophysiology of diabetes disease using models and charts
7.	Study of pathophysiology of kidney disease using models and charts
8.	Study of pathophysiology of epilepsy disease using models and charts
9.	Study of pathophysiology of Parkinson disease using models and charts
10.	Study of pathophysiology of hypertension using models and charts

Nature of Question paper Sessional

Q. No	Type of Question	Marks
1.	MCQ (0.5×4)	2
2.	Long answer (5×1)	5
3.	Short Answer (3×1)	3
	Total	10

Nature of Question paper Semester

Q. No	Type of Question	Marks
4.	MCQ	8
5.	Long answer	16
6.	Short Answer	16
	Total	40

Semester Theory Examination:

Nature of Question Paper for B.Sc. Pharmacology (Entire) Part – I, II & III (40 + 10 Pattern)

Subject: B.Sc. Pharmacology Part-I Maximum Marks: 40

Duration: 2 hrs.

Q. 1 MCQ one mark each with four options(All questions are compulsory) 1×8[8]

A)

B)

C)

D)

E)

F)

G)

H)

Q.2 Attempt any TWO of the following 2×8[16]

A)

B)

C)

Q. 3 Attempt any FOUR of the following 4×4[16]

a)

b)

c)

d)

e)

Semester Practical Examination

Distribution of Marks for Practical Examination

Total Marks 50

1. Major Experiment 20 Marks
2. Minor Experiment 10 Marks
3. Spotting 10 Marks (5 spots- each carry two marks)
4. Journal & Viva- 10 Marks