

### Wainganga Bahu-Uddesniya Vikas Sanstna, Nagpur's

# BAJIRAOJI KARANJEKAR COLLEGE OF PHARMACY

Nagzira Road, Sakoli, District: Bhandara (Maharashtra) 441802.

Tel./Fax: 07186-237199

E-mail: bkcpsakoli2003@gmail.com,

Web Site: www.bkcp.in

Date:

Key Indicate Outcome	tor: 2.6- Student Performance and Learning
2.6.1	Teachers and students are aware of the stated programme and course outcomes of the programs offered by the institution.
File Description	Cos for all courses

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2.6.1- Teachers and students are aware of the stated programme and course outcomes of the programs offered by the institution.

Sr. No	Details of Documents	Page No.	
1	Academic Session 2017-18 (Old and New Syllabus)	3	
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#### **Academic Session 2017-18**

Name code    Name   Code   Introduction	Program	Course	Course Name	Year of	Course Outcomes
Human Anatomy and Physiology I (New Syllabus)  BP101 T  Human Anatomy and Physiology I (New Syllabus)  2017-18  2017-18  2017-18  2017-18  2017-18  course the student shall be able to.  Students would have studied about the gross morphology, structure and functions of cell, skeletal, muscular, cardiovascular system of the human body.  They would have understood the various homeostatic mechanisms and their imbalances.  Students would able to identify the different types of bones in human body.  Students would be able to identify the various tissues of different systems of human body.  Students would learn about the various experimental techniques related to physiology.  They would have learnt various experimental techniques related to physiology.  They would have learnt various tissues of different systems of human body.  They would have learnt various experimental techniques related to physiology.  They would have learnt various tissues of different systems of human body.  Students would be able to identify the various tissues of different systems of human body.  They would have learnt various tissues of different systems of human body.  They would have learnt various tissues of different systems of human body.  They would have learnt various tissues of different systems of human body.	_	code			
understood the various homeostatic mechanisms and their imbalances.  Students would able to identify the different types of bones in human body.  Students would be able to identify the various tissues of different systems of human body.  Students would learn about the various experimental techniques related to physiology.  They would have learnt various techniques like blood group determination, blood pressure measurement, blood cells counting	Name	BP101	Physiology I		course the student shall be able to.  • Students would have studied about the gross morphology, structure and functions of cell, skeletal, muscular, cardiovascular system of the human body.
Students would learn about the various experimental techniques related to physiology.  They would have learnt various techniques like blood group determination, blood pressure measurement, blood cells counting					understood the various homeostatic mechanisms and their imbalances.  • Students would able to identify the different types of bones in human body.  • Students would be able to identify the various tissues of different systems of human
B.Pharm Semester I  Various techniques like blood group determination, blood pressure measurement, blood cells counting					<ul> <li>Students would learn about the various experimental techniques related to physiology.</li> </ul>
			karanjeka.		various techniques like blood group determination, blood pressure measurement,
	-			- N	Upon completion of the



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**BP102** 

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BP103

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Pharmaceutical Analysis

(New Syllabus)

Pharmaceutics I

(New Syllabas)

Stoli \* Nocul

Baj ¥

	Date:				
2017-18	course the student shall be able to  Learning this subject content will develop the ideas with the fundamental of analytical chemistry among the pupil.  It constructs the fundamental methodology to prepare different strength of solutions.  It facilitates the fellow pupil to predict the sources of mistakes and errors.  It helps to develop the fundamentals of volumetric analytical skills.  It peculates the basic knowledge in the principles of electrochemical analytical techniques  The student interpretation skills will be improve by the course content in terms of choice of analytical techniques to perform				
2017-18	Upon completion of the				
	course the student shall be				
E	able to				
ege	• To know the historical				
College of Ab	Asche				

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Ref:		A	P	Date:
				background and profession of pharmacy and basics of Pharmaceutical dosage forms.  To understand the importance of prescription and posology.  To solve pharmaceutical calculations and understand the formulation of powders and Liquid dosage forms.  To develop monophasic and biphasic liquid dosage forms.  To explain the concepts of suppositories and pharmaceutical in compatibilities.  To Formulate and Evaluate semi solid dosage form
	BP 104T	Pharmaceutical Inorganic Chemistry (New Syllabus)	2017-18	Upon completion of the course the student shall be able to  • Well acquainted with the principles of limit tests.  • Familiar with different classes of inorganic pharmaceuticals and their analysis  • Identification of different anions, cations and different inorganic pharmaceuticals.
		* Stoli * Ko	oune.	Officiating Principal



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2017-18

2017-18

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**BP105** 

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**BP106** 

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Communication skills

(New Syllabus)

Remedial Mathematics

(New Syllabus)

Date: Knowledge about the sources of impurities and methods determine the impurities in inorganic drugs and pharmaceuticals Understand the medicinal and pharmaceutical importance of inorganic compounds • To have been introduced to a variety of inorganic drug classes. Upon completion of the course the student shall be able to Understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation Communicate effectively (Verbal and Non Verbal) • Effectively manage the team as a team player • Develop interview skills Develop Leadership qualities and essentials Upon completion of the course the student shall be able to Understand to apply Computations for pharmaceutical sciences.

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• Know the applications



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	of mathematical concepts for pharmacy  Understand to create, use and analyze mathematical representations and Mathematical relationships  Understand to communicate mathematical knowledge and
	understanding to help In the field of clinical pharmacy  Understand to perform abstract mathematical reasoning  Understand to solve the different types of problems by applying theory
anjekar Cor	Upon completion of the course the student shall be able to  • Understand the gross morphology, structure and functions of various organs of the human body.  • Learnt details about various tissues and organs of different systems of human body.  • Understand to elaborate coordinated working pattern of different organs of each system.  • Learnt interlinked mechanisms in the



B.Pharm Semester II

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2017-18

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E-mail: bkcpsakoli2003@gmail.com,

BP202

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BP203

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Pharmaceutical Organic

Chemistry I

(New Syllabus)

Biochemistry

(New Syllabus)

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		web site . www.bkep.i
		Date:
		maintenance of normal
		functioning
		(homeostasis) of
		human.
	•	Understand some
		hematological tests like
		blood cell counts,
d	,	hemoglobin estimation,
		bleeding/clotting time
1		etc and also record
3		blood pressure, heart
į		rate, pulse and
		respiratory volume.
	Up	oon completion of the
		urse the student shall be
	ab	le to
1	•	Write the structure,
		name of the organic
		compound
	•	Knowledge about the
		type of isomerism
	•	Write the reaction,
		name the reaction and
		orientation of reactions
	•	Account for
		reactivity/stability of
		compounds,
	•	Identify/confirm the
		unknown organic
		compound
8	•	Knowledge about the
		naming reactions of
		carbonyl compounds
	•	To perform common
	_	laboratory techniques
		including reflux,
		distillation,
		recrystallization,
		vacuum filtration, etc.
10	Ur	oon completion of the
0.00		urse the student shall be
3		le to
Sugar		Understand history of
	, T	Charleman matery of

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and

**Biochemistry** 





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Stoll + 10

Pathophysiology

(New Syllabus)

**BP204** 

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2017-18

E-mail: bkcpsakoli2003@gmail.com,

Date: introduction, classification, chemical biological nature & role of Biomolecules. Understand introduction. classification. preparation and importance of the bioenergetics molecules. Understand the electron transport chain biological and oxidation process. Understand the introduction. metabolism and catabolism of nutrient molecules Biomolecules in physiological and pathological conditions. Understand the different disorders related to Biomolecules which involve introduction, precautions and treatment. Understand the genetic information mammalian genome and introduction functions of DNA. RNA, proteins enzymes.

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Upon completion of the

course the student shall be



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T T		
		<ul> <li>able to</li> <li>Understand mechanism of cell injury and process of inflammation and repair.</li> <li>Learnt the sign and symptoms of the disease.</li> <li>Understand the etiology and complications of disease.</li> <li>Know most commonly encountered path physiological state.</li> <li>Know the disease mechanism and clinical testing requirements.</li> <li>Understand the importance of systems working in human body.</li> </ul>
Computer Applications in Pharmacy (New Syllabus)	2017-18	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  • Understand to solve and work with a professional context pertaining to ethics, social, cultural and regulations with regard to pharmacy
	in Pharmacy (New Syllabus)	in Pharmacy



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Ref:				Date:
NGI.				<ul> <li>Understand to integrate and apply efficiently the contemporary IT tools to all pharmaceutical related activities</li> <li>Understand to design and develop solutions to analyze pharmaceutical problems using computers</li> </ul>
	BP206 T	Environmental sciences (New Syllabus)	2017-18	Upon completion of the course the student shall be able to  Understand to create the awareness about environmental problems among learners  Understand to develop basic knowledge about the environment and its allied problems  Understand to develop an attitude of concern for the environment  Learn participation 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
	3T1	Pharmacoutios Hi (Unit Operation)	2017-18	Upon completion of the course the student shall be
			000	C July



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Ref:		Date:
	(Old Syllabus)	able to
		Understand importance of unit operations in pharmaceutical manufacturing, importance of size reduction, powder size and size separation, principle, construction and working of equipments used in size reduction and size separations
B.Pharm Semester III		<ul> <li>Develop knowledge of unit operations, mixing, mass transfer and flow of fluids and theories as well as basic mechanisms; understand principle, construction and working of equipments used in mixing, mass transfer and flow of fluids.</li> </ul>
		Exemplify concepts and methods of transportations of solids, filtration and centrifugation during pharmaceutical manufacturing.     understand principle, construction and working of equipments used in transportations of solids, filtration and centrifugation.
	La anjekar Co	Comprehend selection of type of equipment



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Ref:				Date:
				used in unit operations during pharmaceutical manufacturing and logic behind selection; develop knowledge and skill of designing a proper pharmaceutical process comprising of set of equipments for various unit operations for quality result.
				Build up skill and ability to analyse; particle size distribution, effect of filter aid on filtration rate, analyzing and evaluating suspension sedimentation rate and hardness of wate
				Develop skills in engineering drawings
	3T2		2017-18	Upon completion of the course the student shall be able to
				After the completion of syllabus, students shall be able to understand the various methods of preparation and acquire knowledge about reagents and chemical reactions of some aliphatic and alicyclic compounds
		Pharmaceutical		To know the reaction mechanism, stability of intermediate and reactivity of some aliphatic and alicyclic compounds.
		Chemistry III (Old Syllabus)	e	To interpret and distinguish chemical
		10	2	_ MO



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Ref:				Date:
				behavior of aromatic compounds.
				Understand the methods
				of preparation, chemical reactions
				include mechanism and
				reactivity of some
				aromatic compounds.
				• Identify unknown
				organic compound.
l.				• To carryout synthesis of some organic
				compounds.
			2017-18	Upon completion of the
				course the student shall be able to
				• Explain causes and
				mechanism of cell
	ļ.			injury, cellular
				adaptation and cellular
				ageing <ul> <li>explain</li> <li>basic</li> </ul>
				mechanism involved in
				process of inflammation
				and repair along with its
				mediators
				detail pathophysiology of common diseases
				Explain diseases related
				to carbohydrate, protein and fat metabolism and
				understand different
				organ function test
				Determine
				hematological
				parameters and normal and abnormal
		0		constituents of urine
		2		and signify their
				pathological importance
				Demonstrate different
		Pathopysiology And		method for collection of blood in experimental
	3T3	Clinical Biochemistry		animal
	3T4	(Old Syllabus) Pharmacology Kanjekar Co	2017-18	Upon completion of the
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Ref:			Date:
	(Old Syllabus)		<ul> <li>course the student shall be able to</li> <li>Describe the scope of pharmacology and signify routes of drug administration.</li> <li>Explain the principle of absorption, distribution, metabolism and excretion and understand the factors affecting the pharmacokinetics of drug in its therapeutic regimen.</li> <li>Explain molecular &amp; biochemical aspects of drug actions, receptors, drug receptor interactions, factors modifying drug effects.</li> <li>Classify recently available drugs; explain mechanism of action, target receptors, adverse effects, drug interaction, contraindication and therapeutic uses of drugs in autonomic nervous system</li> <li>Explain the principle and design of official bioassays.</li> </ul>
3T	Pharmaceutical Microbiology And Immunology I (Old Syllabus)	2017-18	Upon completion of the course the student shall be able to  • Understand the scope, classification, historical developments, importance and application of microbiology in pharmaceutical sciences and environment.

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**Pharmaceutical** 

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Satoli \* No

Date:

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 Understand and describe the principle and applications of compound as well as electron microscopy along with sem and tem.

the Explain microbiology of bacterial bacteria. genetics the and etiology, pathophysiology, symptoms, prevention treatment and diseases with its effect on environment and society.

 Describe the microbiology of fungi and viruses along with the etiology, pathophysiology, symptoms, prevention and treatment of viral diseases and fungal infections with its effect on environment and society.

 Study and describe equipment's, preparation and sterilization of culture media, aseptic transfer techniques, streak plate, pour plate, spread plate, plate count and direct microscopy methods.

 Identify the bacterial morphology using staining techniques and acquire knowledge on the principles of biochemical tests.

Upon completion of the



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Jurisprudence and ethics

(Old Syllabus)

Date:

course the student shall be able to

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- The students should be able to know and understand the history of pharmacy profession ,scope, objective, new drug policy of pharmaceutical legislation along with principles and significance of code of pharmaceutical ethics drafted by pci
- The students should be able know and understand the rules and regulations framed and amendments made under pharmacy act 1948.
- The students should be able to know and understand the rules and regulations framed and amendments made under drugs and cosmetics act 1940
  - The students should be know and able understand the rules and regulations framed and amendments made under medicinal and preparations toilet (excise duties) act 1955, rules 1976, drug price control order, drugs and remedies magic (objectionable advertisements) 1954, narcotic drugs psychotropic and substances act, and rules under.

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course the able to  Explain imports evapor distilla recall princip and we evapor variou distilla princip mecha  Under crysta .recall	
B.Pharm  drying crysta under constr worki dryers used  • Unde of flo heat princ and excha	ration and and remember ole construction orking of various rators understand as types of ation and their ple and anism restand drying and anism restand principle, and anism restand principle, ruction and anism restand principle, ruction and anism restand principle, ruction and any of heat, laws of transfer and iple, construction working of heat angers and heat
Pharmaceutics IV  (Unit Operation) of Contact Action and	ts and demerits of pments used. erstand and analyse importance of ronmental control prevention of
4T1 (Old Syllabus)  Officiating Principa Bajiraoji Karanjekar College of Pharmacy, S	•

manganga wana-waacamya vikas sansina, magput s



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			pharmaceutical manufacturing.  • Understand humidification, dehumidification, conditioning,
			refrigeration and corrosion. develop knowledge and skill of selecting appropriate equipment for unit operation during pharmaceutical manufacturing  • Understand, evaluate and analyse effect of viscosity on evaporation, determine rate of drying, determine emc,cmc and cfmc.evaluate ,determine and analyse percentage purity by crystallization(with and without seeding).to develop skill of constructing boiling point curve of given set of mixture  • Understand and develop skill of engineering drawings
		2017-18	involving orthographic projection
		2017-10	Upon completion of the course the student shall be able to
4T	Pharmaceutical Chemistry IV (Heterocyclic and Macromolecules) (Old Syllabus)	Colle	Understand the structure, nomenclature, numbering, molecular orbital picture, synthetic procedures, and pharmaceutical
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Learn and understand what are bio-molecules their natural sources, structures, classification and reactions  Learn and understand structure, synthesis of selected polynuclear aromatic compounds  Understand what are lipids, fats, oil, phospholipids, derived lipids and lipoproteins its importance in human life, chemical structure, physical, chemical properties, natural resources and pharmaceutical uses  Synthesize and learn physicochemical characterization of selected organic compounds  Determine some quality parameters of lipids, and quantify the functional groups in some organic compounds.  2017-18  Upon completion of the course the student shall be able to  Understand basic concept and principle of various electrochemical and physical methods of analysis like refractrometry and polarimetry.  Pharmaceutical Analysis	Ref				Date:
Determine some quality parameters of lipids, and quantify the functional groups in some organic compounds.  2017-18 Upon completion of the course the student shall be able to      Understand basic concept and principle of various electrochemical and physical methods of analysis like refractrometry and polarimetry.  Pharmaceutical Analysis  II  Pharmaceutical Analysis  II  Pharmaceutical Analysis  Oraw and acquire knowledge about various instrumentation accepts.	Ref:				<ul> <li>Learn and understand what are bio-molecules their natural sources, structures, classification and reactions</li> <li>Learn and understand structure, synthesis of selected polynuclear aromatic compounds</li> <li>Understand what are lipids, fats, oil, phospholipids, derived lipids and lipoproteins its importance in human life. chemical structure, physical, chemical properties, natural resources and pharmaceutical uses</li> <li>Synthesize and learn physicochemical characterization of selected organic</li> </ul>
2017-18  Upon completion of the course the student shall be able to  Understand basic concept and principle of various electrochemical and physical methods of analysis like refractrometry and polarimetry.  Pharmaceutical Analysis  II					<ul> <li>compounds</li> <li>Determine some quality parameters of lipids, and quantify the functional groups in some organic</li> </ul>
generate					Upon completion of the course the student shall be able to  • Understand basic concept and principle of various electrochemical and physical methods of analysis like refractrometry and polarimetry.  • Draw and acquire knowledge about
		4T3	The second secon	reon	





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2017-18

Pharmacology 11 et at Colle

(Old Syllabus)

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	electrochemical and physical methods of analysis.
•	Know and apply knowledge of applications of various
	methods of analysis like electrochemical and physical methods.
•	Perform the assay procedures for various
	pharmaceuticals for their determination by electrochemical and physical methods.
•	To understand the principle and evaluate the purity of
	pharmaceutical ingredients by performing calculations.
со	pon completion of the urse the student shall be le to
ao	Classification of
	recently available drug, mechanism of action, receptors, adverse
	effect, drug interaction, contradiction and therapeutic uses of drug acting on
•	cardiovascular system Classification of recently available drug,
	mechanism of action, receptors, adverse
	effect, drug interaction, contradiction and therapeutic uses of drug
	acting on renal system

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classification

recently available drug,

of



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mechanism of action receptors, adverse effect, drug interaction contradiction and therapeutic uses of agents acting a autocoids and their blockers  classification or recently available drug mechanism of action receptors, adverse effect, drug interaction contradiction and therapeutic uses of drug acting on haemopoeiti system  Demonstration of different routes of drug administration and techniques of blood withdrawal in rats and mice  recording of cumulative dose response curvand determination unknown concentration of acetylcholine using different bioassa method  2017-18  Upon completion of the course the student shall be to  Understand different methods of sterilization sterilization indicat and sterility testing pharmaceutical	Ref:			Date:
course the student shall to able to  • Understand differe methods of sterilizatio sterilization indicat and sterility testing pharmaceutical				receptors, adverse effect, drug interaction, contradiction and therapeutic uses of agents acting as autocoids and their blockers  classification of recently available drug, mechanism of action, receptors, adverse effect, drug interaction, contradiction and therapeutic uses of drug acting on haemopoeitic system  Demonstration of different routes of drug administration and techniques of blood withdrawal in rats and mice  recording of cumulative dose response curve and determination of unknown concentration of acetylcholine using different bioassay method
Pharmaceutical Microbiology And Immunology II  applications in society for health benefits.  Understand and explay various classifications.	ATS	Pharmaceutical Microbiology And	017-18	course the student shall be able to  • Understand different methods of sterilization, sterilization indicator and sterility testing of pharmaceutical products and its applications in society for health benefits.  • Understand and explain various classification



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					disinfectants, along with the various aseptic techniques useful in hospitals and domestic.  • Understand and describe various fundamentals of immunology and
					antigen- antibody reaction with its effects on human health.  • Explain hypersensitivity reactions and immunological preparation with its
					preparation with its effects on human health.  • Study different biochemical tests, antimicrobial sensitivity testing, and antimicrobial activity of plant extract
					Evaluate the microbiological assay of antibiotics, sterility testing as well as bacteriological examination of air, water and milk.
		Pharmaceutical Management	jekar (	2017-18	Upon completion of the course the student shall be able to  • Understand and explain the concept, principles and functions of management and human resource management along with evaluation techniques for job and career planning.
	4T6	(Old Syllabus)	Zariekar (	oc o Phar	• Know and understand



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Ref:		Date:
		the principles and functions of material management and inventory control and also understand the concept of production management in detail.  Recall and explain the functions of pharmaceutical marketing and understanding salesmanship and activities related to it like recruitment, selection, training, compensation.  Know and understand the basic principles of accountancy and methods of preparations of financial accounts and also to understand the principles of economics, insurance and its applications
5T1	Pharmaceutics V (Old Syllabus)	Upon completion of the course the student shall be able to  Describe the fundamental and derived properties of powders  Explain properties and principles of interfacial phenomena and surface active agents  Describe theoretic considerations, formulation consideration, stability and assessment of shelf life of suspensions and emulsions

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		<ul> <li>Explain the properties, stability and applications of colloidal systems.</li> <li>Demonstrate the use of physicochemical properties in the formulation development and evaluation of dosage forms</li> <li>Understand various physicochemical properties of drug molecules</li> </ul>
B.Pharm Semester V	Pharmaceutical Medicinal Chemistry I (Old Syllabus)	
5T2	opjied * Sakoli * New York	Design and adopt the reaction schemes for  Officiating Principal Bajiraoji Karanjekar College of Pharmacy, Sakoli



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Ref:		Date:
		the synthesis of diverse medicinal compounds along with their characterizations.  To know the principle, procedure to estimate the actual amount of drug present in pharmaceutical formulations
5T3	Pharmacology III (Old Syllabus) Pharmacogness and	course the student shall be able to  Classify drugs; understand the moa and contraindication for cns disorders.  Understand the drawbacks of alcohol and drug abuse with its pharmacology.  Understand the evolution, ethics and process of clinical research.  Explain various drugs used for respiratory and gastrointestinal disorders.  Demonstrate and identify the biological activity of unknown drug sample using basic behavioral pharmacology experimentation.  Demonstrate and identify the biological activity of given drug sample using anti-inflammatory and analgesic models.
5T4	Phytochemi <b>ghy</b> /_      \~.\\	7-18 Upon completion of the course the student shall be
	OBJILE & Sakoli & Sak	Officiating Principal Bajiraoji Karanjekar College of Pharmacy, Sakoli



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Ref:	Date:
(Old Syllabus)	
W:	shall be able to estimate



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Ref:				Date:
				balsamic acid, cineole, citral, carvone content in balsom, eucalyptus oil, lemongrass oil, dill/caraway oil respectively
	5T5	Clinical Pharmacy (Old Syllabus)	2017-18	Upon completion of the course the student shall be able to  • Students should be able to understand the basic concept in toxicology and piosioning.  • Describe the mechanisms of drug interaction, adverse drug reaction and therapeutic drug monitoring  • Understand and explain the pathophysiology of drug induced diseases.  • Understand the concept of pharmacoeconomics and application of it in clinical pharmacy  • To determine and interprit biochemical data from biological samples  • Interprit the given prescription for different case studies.
	5T6	Regulatory Affairs And Intellectual Property	2017-18	Upon completion of the course the student shall be able to  • Understand the scope, importance, functions of regulatory affairs; apply drug regulatory strategy and acquire knowledge of regulatory authorities and agencies.
		(Old Syllabus)		Officiating Principal



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Ref:				Date:
				<ul> <li>Explain the types, requirements, content and formats of inda, nda, anda and dmf.</li> <li>Understand and describe the importance and applications of ipr, ipr laws in india, patent legislation and patent prosecution.</li> <li>Describe the international treaties, conventions on ipr, hatch-waxman act, importance of compulsory licensing and evaluate the patent infringement</li> </ul>
B.Pharm Semester VI	6T1	Pharmaceutics IV (Physical Pharmacy) (Old Syllabus)	2017-18	issues/cases  Upon completion of the course the student shall be able to  Describe the process of solubility of solids, diffusion, and dissolution and distribution phenomena for application in the design of drugs  Describe the types of flow (rheology) and their measurement, thixotropic/stability of dispersions, semisolids systems  Describe the reaction kinetics, rate, order and factors affecting the rate of reaction; prevent degradation, stabilization of drugs and shelf-life assessment and to explain the reaction



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Ref:			Date:
			kinetics of dosage forms  Explain the methods of detection of complexes and describe the properties and applications of polymers  Evaluate solvent cosolvency, distribution coefficient of drug and explain its importance in the formulation development of dosage forms  Evaluate the physicochemical
		0015.10	properties of drugs and solvents
6T2	Pharmaceutical Medicinal Chemistry (Old Syllabus)	2017-18	Upon completion of the course the student shall be able to  Classify the medicinal compound and acquire knowledge about IUPAC names along with mechanism of action of them or the class to which they belongs.  Apply scientific knowledge about relationship between biological activity and structure of various chemotherapeutic agents and antibiotics  Outline the synthetic route for selective medicinal compounds along with their stereo chemical aspects, stability and related issues.

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		<ul> <li>Understand various concepts of drug design, qsar studies, combinotorial chemistry and genetic engineering in medicinal chemistry.</li> <li>Design and adopt the reaction scheme for synthesis of diverse medicinal compounds along with their characterization.</li> <li>Know the principle, procedure to estimate the actual amount of drug present in formulation.</li> </ul>
	Pharmacology IV Onjekar College (Old Syllabus)	Upon completion of the course the student shall be able to  Understand the pharmacology and resistance mechanism of antibiotics.  Explain the pharmacodynamics and pharmacodynamics and pharmacokinetics for endocrine disorders.  Describe the details of anticancer drugs and immunomodulatory drugs  Understand the details of clinical trials: hi9story, processing, ethics and legal aspects.  Determine the pa2 value of given antagonist.  Demonstrate the biological screening techniques for analgesic
6T3	(Old Syllabus)	and anti-inflammatory

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course the student shall lable to  upon completion of the course, the student shall be able understand and classiful the drugs containing glycosides and tannins  Upon completion of the course, the student shall be able to isolate the important phytoconstituents of the therapeutic value.  Upon completion of the course, the student shall be able to isolate and estimate phytoconstituents.  Upon completion of the course, the student shall be able to estimate the isolate shall be able to estimate the isolate shall be able to estimate the isolate phytoconstituents by spectroscopical methods (UV, IR).  Upon completion of the course, the student shall be able to identify and differentiate the drugs of natural origin by morphological and	Ref:		Date:
course the student shall lable to  upon completion of the course, the student shall be able understand and classified the drugs containing glycosides and tanning the drugs of the student shall be able to isolate the important phytoconstituents of the trapeutic value.  Upon completion of the course, the student shall be able to isolate and estimat phytoconstituents.  Upon completion of the course, the student shall be able to estimate the isolate phytoconstituents by spectroscopical methods (UV, IR).  Upon completion of the course, the student shall be able to identify and differentiate the drugs of natural origin by morphological and			drugs.
and by chemical tests.  Upon completion of the course, the students shall be able to understand the tild	Ref:		drugs.  Upon completion of the course the student shall be able to  upon completion of the course, the students shall be able to understand and classify the drugs containing glycosides and tannins  Upon completion of the course, the students shall be able to isolate the important phytoconstituents of therapeutic value.  Upon completion of the course, the students shall be able to isolate and estimate phytoconstituents.  Upon completion of the course, the students shall be able to estimate the isolated phytoconstituents by spectroscopical methods (UV, IR).  Upon completion of the course, the students shall be able to identify and differentiate the drugs of natural origin by morphological and histological characters, and by chemical tests.  Upon completion of the course, the students shall be able to understand the tlc

\* Sakoli \* P



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6T5

6T6

Bajiradi

Sakoli \*

Web Site: www.bkcp.in Date: 2017-18 Upon completion of the course the student shall be able to Understand the rational behind the use of drugs in clinical practices Understand the etiopathogenesis of cardiovascular, respiratory and respectively as well as understand the pharmacotherapy of these disorders Explain the etiopathogenesis and therapy for gastrointestinal and central nervous system disorders. Understand and explain pathophysiology and therapy for urogenital system and musculoskeletal system disorders respectively. Analyzed prescription related patient oriented problem via case studies Clinical Understand the basic Pharmacotherapeutics I concept in clinical (Old Syllabus) practices. 2017-18 Upon completion of the course the student shall be able to Understand describe validation of pharmaceutical processes To viekar College Pharmaceutical validation options, Validation committee, master plan, (Old Syllabus) protocol, report



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Ref:				Date:
				explain preapproval inspection, pilot plant scale up, change control and its importance in pharmaceutical company.  Explain and analyze prospective process validation, organization, documentation, product development, experimental design and parameters of analytical method validation.  Describe the retrospective validation strategies, product selection criteria, documentation and evaluation of processing data of drug a to e, caad, and packaging data.  Understand the guidelines for validation of raw material, analytical method, equipment/facilities, process variables, tablets, and capsule and design the validation of new solid dosage forms.
B.Pharm Semester VII	7T1	Pharmaceutics (DFT-1) (Conventional) (Old Syllabus)	2017-18	Upon completion of the course the student shall be able to  • Understand the concept of Preformulations  • Understand the chemical properties of
		Viorilled * Sako	Ph.	Officiating Principal Bajiraoji Karanjekar College of Pharmacy, Sakoli



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2017-18

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7T2

Pharmaceutical

Medicinal Chemistry-III

(Old Syllabus)

danjekar C

Sakoli \*

Baliraoji

Date: stabilities in formulation Knowledge about various manufacturing process if different dosage forms Able to know about the quality control process Able to know evolution techniques of different dosage forms Able to know formulation and development of sterile dosage forms Upon completion of the course the student shall be able to Understand chemistry of drugs with respect to their pharmacological activity Understand the drug metabolic pathways adverse effect and therapeutic value of drugs Know the structural activity relationship of different class of drugs Study the chemical synthesis of selected dugs Understand the writing techniques of chemical

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nomenclature of drugs

sterile aspects of drugs

the

and

Understand

physiochemical



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7T3 Pharmaceutical Analysis- III (Separation Techniques) (Old Syllabus)	Upon completion of the course the student shall be able to  • Understand the interaction of matters with chromatographic techniques and its application  • Understand the chromatographic separation of drug during analysis  • Understand the
	qualitative and quantitative analysis of drugs  Understand the solvent extraction techniques and their application  Demonstrate evaluation and interpretation of experimental data  Understand the polarity of different solvent for analytical techniques
Pharmacotherapeutics-II (Old Syllabus)	Upon completion of the course the student shall be able to  • Understand the guidelines for handling prescription  • Ability to design a dosage regimen of drug based on its route of administration  • Discuss the preparation of individualized

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7T5

Pharmacognosy and

Phytochemistry-V

(Phytopharmacutical/Her

bal Technology)

(Old Syllabus)

anjekardo

Web Site: www.bkcp.in Date: therapeutic plans based on diagnosis Discuss the physiology of selected disease states and explain the rational for drug therapy Summarize the therapeutic approach management of diseases including references to the latest available evidence Discuss the controversies in drug therapy Upon completion of the course the student shall be able to To attain detailed knowledge about chemistry of medicinal compound from natural origin To attain knowledge regarding isolation and purification medicinal compounds from natural origin • To understand general method of screening of medicinally active natural compounds Appreciate patenting of herbal drugs

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To know the use of

To identify different

natural products starting materials



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Ref:	_		5-10	Date:
				types of natural products, their occurrence, structure, biosynthesis and properties
	7T6	Biopharmaceutics and pharmacokinetics (Old Syllabus)	2017-18	Upon completion of the course the student shall be able to  • Ability to apply the concepts of pharmacokinetics to individualize the drug dosage regimen in clinical setting  • Ability to design a dosage regimen of a drug based on its route of administration  • Ability to design and implement pharmacokinetics method  • Broader understanding about the significance of pharmacokinetics and bioequivalence  • Understand how the drugs are metabolized in human body  • Ability to assess the compartment models for pharmacokinetics
B.Pharm Semester VIII	8T1	Pharmaceutics (DFT-1) (NDDS) (Old Syllabus)	2017-18	Upon completion of the course the student shall be able to  • Students shall be able to understand the common practice in the pharmaceutical
		ileg aranjek	as College of	industry developments in controlled drug



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			<ul> <li>delivery system</li> <li>To apply the knowledge to develop new procedure of their own design controlled drug delivery system</li> <li>To need, concept, design and evaluation of various customized, sustained and controlled release dosage forms.</li> <li>To formulate and evaluate various novel drug delivery system</li> <li>Understand the polymer properties in designing sustained or controlled release drug product</li> <li>Understand the biological factors affecting in designing of drug products</li> </ul>
8T2	Pharmaceutical Biotechnology and molecular Biology (Old Syllabus)  (Old Syllabus)	2017-18	Upon completion of the course the student shall be able to  • Understand the importance of immobilized technology in Pharmaceutical Industries  • Genetic engineering application in relation to pharmaceuticals  • Importance of monoclonal antibodies in industry  • Understand the use of microorganisms in fermentation  ficiating Principal ajiraoji Karanjekar



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		Date:
		<ul> <li>technology</li> <li>Understand the tools and technique of rDNA technology</li> </ul>
Pharmaceutical Analysis- IV (Spectroscopy) (Old Syllabus)	2017-18	Upon completion of the course the student shall be able to  Understand the interaction of matter with electromagnetic radiation and its application in drug analysis  Understand spectrophotometric analysis of drug  Understand the advanced instrument used in drug analysis  Understand the calibration in analytical instrument  Qualitative and quantitative estimation of newer drugs by spectrophotometric
Pharmacognosy and phytochemistry-VI (Industrial Pharmacognosy) (Old Syllabus)	2017-18	Upon completion of the course the student shall be able to  To attain knowledge regarding herbal formulations of medicinal compounds from natural origin  Know the regulatory Requirements for nutraceutical with the regulation for registration and labeling of nutraceutical and food supplements in India
	Pharmacognosy and phytochemistry-VI (Industrial Pharmacognosy) (Old Syllabus)	Pharmacognosy and phytochemistry-VI (Industrial Pharmacognosy) (Old Syllabus)



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			Date:
			<ul> <li>Cosmetics regulations in regulated and semi regulated countries</li> <li>Various key ingredients and basic science to develop cosmetic and cosmeceuticals</li> <li>They will acquire operative know-how and be able to carry out technical and management tasks and professional activities in the areas of transformation of medicinal herbs, management of the quality of the process</li> <li>The recognition of marine drugs with, identification and their application in various diseases.</li> </ul>
	ovigilance (Drug Safety) Id Syllabus)	2017-18	Upon completion of the course the student shall be able to  • Writing case narratives of adverse events and their quality  • ICH Guidelines for ICSR, PSUR, expedited reporting and Phamacovigilance Planning  • Phamacovigilance program in India  • Drug safety evaluation
( c)	geo	Buha	in pediatrics, geriatrics, pregnancy and lactation



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2017-18

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**Industrial Pharmacy** 

(Old Syllabus)

**Project** 

8T6

8T7

mieka

Web Site: www.bkcp.in Date: Adverse drug reaction reporting system and communication Phamacovigilance International standards classification of drugs and diseases Upon completion of the course the student shall be able to Understand the approval process and regulatory requirement for drug products Know different laws and acts that regulates pharmaceutical industries Understand the regulatory importance of cGMP Selection and evaluation of pharmaceutical packaging materials Optimization parameters in pharmaceutical formulations Know about manufacturing and stabilities in pilot plant scale Upon completion of the course the student shall be able to

The basic theoretical

knowledge

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2017-18



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Ref:	Date:
	document compilation created on small
	project work.  • Practical skills for the
	analysis of drugs and excipients using
	various instrumentation
	techniques.  • To make accurate
	analysis and report the
	results in defined formats to learn
	documentation and express the
	observations with conclusion.
	• The pilot plant
	procedure for the manufacture of Active
	Pharmaceutical Ingredients and new
	chemical entities for the drug development
	phases.
	Upon completion of project work the
	student will know the formulation aspects of
	different dosage forms to do different
	pharmaceutical calculations involved
	in formulation and
	appreciate the importance of good
taranjekar College o	formulation for effectiveness.
Bajira Olimbia	• Student will able to
A You to Washington	Officiating Principal Bajiraoji Karanjekar Calles of Phormacy, Sakoli
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	develop dynamics of motivation and concept development by increasing the knowledge to handle the challenges in project work.



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Date:

#### Academic Session 2018-19

Program	Course	Course Name	Year of	Course Outcomes
Name	code		Introduction	
				Upon completion of the course the student shall be able to  • Students would have studied about the gross morphology, structure and functions of cell,
	BP101T	Human Anatomy and Physiology I (New Syllabus)	2018-19	skeletal, muscular, cardiovascular system of the human body.  They would have understood the various homeostatic mechanisms and their imbalances.
,				<ul> <li>Students would able to identify the different types of bones in human body.</li> </ul>
				<ul> <li>Students would be able to identify the various tissues of different systems of human body.</li> </ul>
				<ul> <li>Students would learn about the various experimental techniques related to physiology.</li> </ul>
B.Pharm Semester				<ul> <li>They would have learnt various techniques like blood group determination, blood pressure measurement,</li> </ul>
	anjek	ar College		blood cells counting
	H +º	Te l	Daha_	Upon completion of the



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Ref:				Date:
	BP102T	Pharmaceutical Analysis I (New Syllabus)	2018-19	course the student shall be able to  Learning this subject content will develop the ideas with the fundamental of analytical chemistry among the pupil.  It constructs the fundamental methodology to prepare different strength of solutions.  It facilitates the fellow pupil to predict the sources of mistakes and errors.  It helps to develop the fundamentals of volumetric analytical skills.  It peculates the basic knowledge in the principles of electrochemical analytical techniques  The student interpretation skills will be improve by the course content in terms of choice of analytical techniques to perform the estimation of different category drugs.
F	3P103T	Pharmaceutics I (New Syllabus)	2018-19	Upon completion of the course the student shall be
	A STATE OF THE PARTY OF THE PAR	ranjekar		able to  To know the historical
200	Balina	) lege o	fficiating Princ	ipal

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**BP 104T** 

Pharmaceutical

Inorganic Chemistry

(New Syllabus)

varanjekar

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pharmaceuticals.

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				<ul> <li>Knowledge about the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals</li> <li>Understand the medicinal and pharmaceutical importance of inorganic compounds</li> <li>To have been introduced to a variety of inorganic drug classes.</li> </ul>
	BP105T	Communication skills (New Syllabus)	2018-19	Upon completion of the course the student shall be able to  • Understand the behavioral needs for a Pharmacist to function effectively in the  • areas of pharmaceutical operation  • Communicate effectively (Verbal and Non Verbal)  • Effectively manage the team as a team player  • Develop interview skills  • Develop Leadership qualities and essentials
	BP106R T	Remedial Mathematics (New Syllabus)	2018-19	Upon completion of the course the student shall be able to  • Understand to apply Computations for pharmaceutical sciences.
		E	-002	• Know the applications



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**BP201T** 

Human Anatomy and

Physiology II

(New Syllabus)

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Date: of mathematical concepts for pharmacy • Understand to create,

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and use analyze mathematical representations and Mathematical relationships

 Understand to communicate mathematical knowledge understanding to help In the field of clinical pharmacy

• Understand to perform abstract mathematical reasoning

 Understand to solve the different types problems by applying theory

Upon completion of the course the student shall be able to

Understand the gross morphology, structure functions various organs of the human body.

Learnt details about various tissues and organs of different systems of human

body.

Understand elaborate coordinated working pattern different organs of each system.

Learnt interlinked mechanisms in the

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2018-19



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Ref:				Date:
				maintenance of normal functioning (homeostasis) of human.  • Understand some hematological tests like blood cell counts, hemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume.
B.Pharm Semester II	BP202T	Pharmaceutical Organic Chemistry I (New Syllabus)	2018-19	Upon completion of the course the student shall be able to  Write the structure, name of the organic compound  Knowledge about the type of isomerism  Write the reaction, name the reaction and orientation of reactions  Account for reactivity/stability of compounds,  Identify/confirm the unknown organic compound  Knowledge about the naming reactions of carbonyl compounds  To perform common laboratory techniques including reflux, distillation, recrystallization,
	BP203T	Biochemistry	2018-19	vacuum filtration, etc. Upon completion of the
		(New Syllabus)		course the student shall be able to  Understand history of
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Ва

Macy \* 1/04

Web Site: www.bkcp.in Date: Biochemistry and introduction, classification, chemical & biological nature role of Biomolecules. Understand introduction. classification, preparation and importance the of bioenergetics molecules. Understand the electron transport chain and biological oxidation process. Understand the introduction, metabolism and catabolism of nutrient molecules Biomolecules in physiological and pathological conditions. Understand the different disorders related to Biomolecules in which involve introduction, precautions and treatment. Understand the genetic information mammalian genome and introduction & functions of DNA. RNA. proteins and enzymes. **BP204T** Pathoplasiokoweka, 2018-19 Upon completion of the



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Ref:			Date:
	(New Sy		course the student shall be able to  Understand mechanism of cell injury and process of inflammation and repair.  Learnt the sign and symptoms of the disease.  Understand the etiology and complications of disease.  Know most commonly encountered path physiological state.  Know the disease mechanism and clinical testing requirements.  Understand the importance of systems working in human body.
BI	Computer Apin Phari (New Syl	nacy (labus)	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  Understand to solve and work with a professional context pertaining to ethics,
	ge of	Officiating Bajiraoji	g Principal Karanjekar



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2018-19

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**BP206T** 

Environmental sciences

(New Syllabus)

aranjekar College

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Web Site: www.bkcp.in Date: social, cultural regulations with regard to pharmacy Understand to integrate and apply efficiently the contemporary IT tools to pharmaceutical related activities Understand to design and develop solutions analyze pharmaceutical problems using computers Upon completion of the course the student shall be able to Understand to create the awareness about environmental problems among learners Understand to develop basic knowledge about the environment and its allied problems Understand to develop an attitude of concern for the environment Learn participation in environment protection and environment improvement Acquire skills to help the concerned individuals identifying and solving environmental

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Bajiraoji Karanjekar
College of Pharmacy, Sakoli

problems



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В	3P301T	Pharmaceutical Organic Chemistry II (New Syllabus)	2018-19	Strive to attain     harmony with Nature  Upon completion of the course the student shall be able to     Understand basic knowledge about common methods of
В	3P301T	Chemistry II	2018-19	Upon completion of the course the student shall be able to  • Understand basic knowledge about common methods of
B.Pharm Semester III				preparation of organic compounds.  Understand the reactions of organic compounds.  Understand the reactivity and orientation in organic chemistry.  Understand the mechanism of organic reactions.  To acquire knowledge about electrophilic substitution reactions of aromatic compounds.  Understand the reactions and methods of analysis of fats and oils.
BI	3P302T	Physical Pharmaceutics I (New Syllabus)	2018-19	Upon completion of the course the student shall be able to  • Understand the descriptive terms for solubility, their meaning and various
	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	ottaranjekar College	Alah	type of solution.  Understand the role of surfactants, interfacial phenomenon and

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Ref:		1000		Date:
				thermodynamics.
				Understand the role of state of matter and change in the state of
				<ul><li>matter</li><li>Understand the</li></ul>
				properties of matter including liquid crystal, crystalline and amorphous
				<ul> <li>Understand the physical properties of solutions, buffers, isotonicity, disperse systems and principle of relative humidity, glass transition temperature</li> <li>Understand various physicochemical properties of drugs molecules in the designing the dosage form</li> </ul>
	BP303T	Pharmaceutical Microbiology (New Syllabus)	2018-19	Upon completion of the course the student shall be able to  • Understand structure of
				bacteria and different types of microscopes.  • Understand methods of identification, cultivation and preservation of various microorganisms.
				• Understand the
				importance and implementation of
	f.	taranjekar College		sterilization in pharmaceutical
	11.58	1	· OSI	processing and industry.
	#	Sakoli * Noewig	Officiating Pr Bajiraoji Kara College of Pharm	njekar



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Ref:				Date:
				<ul> <li>Learn sterility testing of pharmaceutical products.</li> <li>Carried out microbiological standardization of Pharmaceuticals.</li> <li>Understand the cell culture technology and its applications in pharmaceutical industries.</li> </ul>
	BP304T	Pharmaceutical Engineering (New Syllabus)	2018-19	Upon completion of the course the student shall be able to  Know about the various unit operation processes used in pharmaceutical industry.  Comprehend the various materials handling technique.  Carry out the various processes involved in pharmaceutical manufacturing process.  Understand the various tests for preventing the environmental pollution.  Appreciate and understand the significance of plant lay out design for optimal uses of resources.  Know about the various preventive methods for corrosion control used in pharmaceutical industries.
	BP401T	Pharmaceutical Organic	2018-19	Upon completion of the
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Ref:	. 2025			Date:
		Chemistry III (New Syllabus)		course the student shall be able to  Understand the various nomenclature systems in stereochemistry and its application.  Understand the various stereo chemical aspects of organic compounds.  Understand the detail mechanism of some useful organic reactions.  To acquire knowledge about structures of different heterocyclic compounds.  Understand the nomenclature rules in heterocyclic chemistry.  Understand preparations, reactions and medicinal uses of various heterocyclic compounds.
B.Pharm Semester IV	BP402T	Medicinal Chemistry I (New Syllabus)	2018-19	Upon completion of the course the student shall be able to  Understand the history of Medicinal Chemistry and introduction & importance of physicochemical properties related to biological actions of drugs.  Understand the phases present in drug



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Ref:				Date:
				metabolism with
				chemical reactions.
				Understand different
				classes of drugs
				according to mechanism of action of
				drugs.
				Understand synthetic
				procedures of drug
				molecules with
				chemical reactions.
				• Understand structure,
				nomenclature, mode of
				action and uses of drug
				molecules.
				Understand structure
				activity relationship of selective class of drugs.
	BP403T	Physical Pharmaceutics	2018-19	Upon completion of the
		II (New Syllabus)	2010 17	course the student shall be
				able to
				• Understand various
				physicochemical
				properties of drug
				molecules in the
				designing the dosage
				forms.
				• Understand the
				principles of colloidal
,				dispersion, deformation of solids and coarse
				dispersion.
				• Understand the
				physical properties of
				solutions, buffers,
				isotonicity, disperse
				systems, colloidal and
				rheology.  • Understand the
				Understand the chemical stability of
		taranjekar		various drug product.
		taranjekar Co		Understand the role of
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Ref:			Date:
			optical, kinetic & electrical properties.  • Understand the principles of chemical kinetics and to used them for stability testing and determination of expiry date of formulation
	BP404T	Pharmacology I (New Syllabus)  2018	course the student shall be able to  • Understand the pharmacological actions of different categories of drugs.  • Understand the mechanism of drug action at organ system/sub cellular/macromolecular levels.  • Understand how to apply the basic pharmacological knowledge in the prevention and treatment of various diseases.  • Understand the adverse drug reactions and drug interactions.  • Understand correlation of pharmacology with other bio medical sciences  • Understand the signal transduction mechanism of various receptors
	BP405T	Phytochemistry Tanjek	8-19 Upon completion of the course the student shall be
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Ref:		Date:
	(New Syllabus)	able to  • Know techniques in the cultivation and production of crude drugs
		<ul> <li>Know the crude drugs, their uses and chemical nature.</li> </ul>
		Know evaluation techniques for evaluation of drugs.
d.		Understand     microscopic &     morphological     evaluation of crude     drugs.
		Understanding     traditional system of     medicine along     primary & secondary     metabolite.
		Understand recognition of medicinal plants, identification of adulteration & contamination
	2018	opon completion of the
		course the student shall be able to
		Describe the fundamental and derived properties of powders
		Explain properties and principles of interfacial phenomena and surface active agents
	Pharmaceutics V (Old Syllabus)	Describe theoretic considerations, formulation consideration, stability
5T1	(Old Syllabus) (313 Peka)	and assessment of shelf
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B.Pharm Semester V  2018-19  Pharmaceutical Medicinal Chemistry 1 (Old Syllabus)  B. T2  If of suspensions and emulsions  Explain the properties, stability and applications of colloidal systems.  Demonstrate the use of physicochemical properties in the formulation development and evaluation of dosage forms  Upon completion of the course the student shall be able to  Understand basic concept of medicinal chemistry related to drug action including prodrug design.  Explain the various reaction of phase i and phase ii in drug metabolism metabolism  Classify the therapeutic agents, outline the synthetic route for the selective medicinal compounds of each category and acquire knowledge on the mechanism of action of pharmacodynamics agents.  Acquire knowledge about the relationship between the biological activity and structure of therapeutic agents.	Ref:				Date:
B.Pharm Semester V  Pharmaceutical Medicinal Chemistry I (Old Syllabus)  Pharmaceutical Medicinal Chemistry I (Old Syllabus)  Description  Descri					<ul> <li>emulsions</li> <li>Explain the properties, stability and applications of colloidal systems.</li> <li>Demonstrate the use of physicochemical properties in the formulation development and evaluation of dosage forms</li> <li>Understand various physicochemical properties of drug</li> </ul>
	Semester	5T2	Medicinal Chemistry I	2018-19	Upon completion of the course the student shall be able to  Understand basic concept of medicinal chemistry related to drug action including prodrug design.  Explain the various reaction of phase i and phase ii in drug metabolism metabolism  Classify the therapeutic agents, outline the synthetic route for the selective medicinal compounds of each category and acquire knowledge on the mechanism of action of pharmacodynamics agents.  Acquire knowledge about the relationship between the biological



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2018-19

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Pharmacology III

5T3

(Old Syllabus) jekar

Date: design and adopt the reaction schemes for the synthesis of diverse medicinal compounds along with characterizations. To know the principle, procedure to estimate the actual amount of drug present pharmaceutical formulations Upon completion of the course the student shall be able to Classify drugs, understand the moa and contraindication for ens disorders. Understand the drawbacks of alcohol and drug abuse with its pharmacology. Understand the evolution, ethics and clinical process of research. Explain various drugs used for respiratory and gastrointestinal disorders. Demonstrate identify the biological activity of unknown drug sample using basic behavioral pharmacology

experimentation.

Demonstrate

sample

inflammatory

analgesic models.

identify the biological activity of given drug

using

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Ref: Date: 2018-19 Upon completion of the course the student shall be able to Upon completion of the course, the students shall be able to explain the modern extraction, isolation purification techniques of phytoconstituents Upon completion of the course, the students shall be able to describe biosynthetic the pathways classification of volatile oil containing drugs and resin and balsam containing drugs. Upon completion of the course, the students shall be able to identify the drugs under volatile oil containing drugs and and resin balsam containing drugs from characters morphological and histological) and chemical constituents. uses of. Upon completion of the course, the students shall be able to explain the structure elucidation camphor, taxol. eugenol, artemisinine. Upon completion of the course, the students shall be able to identify the crude drugs by Pharmacognosy And morphological, Phytochemistryjek organoleptic (Old Syllabus) 5T4 histological characters



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Ref:			Date:
			Upon completion of the course, the students shall be able to estimate balsamic acid, cineole, citral, carvone content in balsom, eucalyptus oil, lemongrass oil, dill/caraway oil respectively
5775	Clinical Pharmacy	2018-19	<ul> <li>Upon completion of the course the student shall be able to</li> <li>Students should be able to understand the basic concept in toxicology and piosioning.</li> <li>Describe the mechanisms of drug interaction, adverse drug reaction and therapeutic drug monitoring</li> <li>Understand and explain the pathophysiology of drug induced diseases.</li> <li>Understand the concept of pharmacoeconomics and application of it in clinical pharmacy</li> <li>To determine and interprit biochemical data from biological samples</li> <li>Interprit the given prescription for different case studies.</li> </ul>
5T5	(Old Syllabus)	2018-19	Upon completion of the
	Regulatory Affairs And Intellectual Property Right		course the student shall be able to  • Understand the scope, importance, functions of regulatory affairs; apply drug regulatory
5T6	Right (Old Syllabus)		strategy and acquire



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Ref:				Date:
				knowledge of regulatory authorities and agencies.  Explain the types, requirements, content and formats of inda, nda, anda and dmf.  Understand and describe the importance and applications of ipr, ipr laws in india, patent legislation and patent prosecution.  Describe the international treaties, conventions on ipr, hatch-waxman act, importance of compulsory licensing and evaluate the patent infringement issues/cases
B.Pharm Semester VI	6T1	Pharmaceutics IV (Physical Pharmacy) (Old Syllabus)	2018-19	Upon completion of the course the student shall be able to  Describe the process of solubility of solids, diffusion, and dissolution and distribution phenomena for application in the design of drugs  Describe the types of flow (rheology) and their measurement, thixotropic/stability of dispersions, semisolids systems  Describe the reaction kinetics, rate, order and factors affecting the rate of reaction; prevent degradation, stabilization of drugs

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2018-19

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Pharmaceutical

(Old Syllabus)

Medicinal Chemistry II

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Date: and shelf-life assessment and explain the reaction kinetics of dosage forms Explain the methods of detection of complexes and describe properties and applications of polymers Evaluate solvent cosolvency, distribution coefficient of drug and explain its importance the formulation development of dosage forms Evaluate the physicochemical properties of drugs and solvents Upon completion of the course the student shall be able to • Classify the medicinal compound and acquire knowledge about IUPAC names along with mechanism action of them or the class to which they belongs. Apply scientific knowledge about relationship between biological activity and structure of various chemotherapeutic

agents and antibiotics
Outline the synthetic

for

medicinal compounds

with

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along

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Ref:			Date:
			stereochemical aspects, stability and related issues.  • Understand various concepts of drug design, qsar studies, combinotorial chemistry and genetic engineering in medicinal chemistry.  • Design and adopt the reaction scheme for synthesis of diverse medicinal compounds along with their characterization.  • Know the principle, procedure to estimate the actual amount of drug present in formulation.
Karanieka, Colleganie Abemieng	Pharmacology IV (Old Syllabus)	2018-19	Upon completion of the course the student shall be able to  Understand the pharmacology and resistance mechanism of antibiotics.  Explain the pharmacodynamics and pharmacodynamics and pharmacokinetics for endocrine disorders.  Describe the details of anticancer drugs and immunomodulatory drugs  Understand the details of clinical trials: hi9story, processing, ethics and legal aspects.  Determine the pa2 value of given antagonist.  Demonstrate the
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Karanjeka,

Pharmacognosy and

Phyto Chemistry IV

(Old Syllabus)

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2018-19

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Date: biological screening techniques for analgesic and anti-inflammatory drugs. Upon completion of the course the student shall be able to upon completion of the course, the students shall be able understand and classify the drugs containing glycosides and tannins Upon completion of the course, the students shall be able to isolate important the phytoconstituents therapeutic value. Upon completion of the course, the students shall be able to isolate estimate and phytoconstituents. Upon completion of the course, the students shall be able to estimate isolated the phytoconstituents spectroscopical methods (uv, ir). Upon completion of the course, the students shall be able to identify and differentiate the drugs of natural origin by morphological and histological characters, and by chemical tests. Upon completion of the

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Ref:			Date:
			apply in the identification of phytoconstituents.
6T5	Clinical Pahrmacotherapeutics I (Old Syllabus)	2018-19	Upon completion of the course the student shall be able to  • Understand the rational behind the use of drugs in clinical practices  • Understand the etiopathogenesis of cardiovascular, respiratory and respectively as well as understand the pharmacotherapy of these disorders  • Explain the etiopathogenesis and therapy for gastrointestinal and central nervous system disorders.  • Understand and explain the pathophysiology and therapy for urogenital system and musculoskeletal system disorders respictively.  • Analyzed the prescription related patient oriented problem via case studies  • Understand the basic concept in clinical practices.
aoi Karany	ekar	2018-19	Upon completion of the course the student shall be able to
Sotos & Balling	Pharmaceutical Valadation		<ul> <li>Understand and describe validation of pharmaceutical processes such as</li> </ul>
OSCV *		Officiating Prin	-



B.Pharm

Semester

VII

TI Karanjeka College

Pharmaceutics (DFT-1)

(Conventional)

(Old Syllabus)

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Web Site: www.bkcp.in Date: validation options, committee, master plan, protocol, report and explain preapproval inspection, pilot plant scale up, oos, change control and its importance in pharmaceutical company. Explain and analyze prospective process validation, organization,

- documentation, product development, experimental design and parameters analytical method validation. Describe retrospective validation
- strategies, product selection criteria. documentation and evaluation of processing data of drug toe, caad. and packaging data.
- Understand the guidelines for validation of raw material, analytical method, equipment/facilities. process variables, tablets, and capsule and design the validation of

new solid dosage forms. Upon completion of the course the student shall be able to Understand the concept of

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2018-19



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7T2

Pharmaceutical

Medicinal Chemistry-III

(Old Syllabus)

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College

Date: Preformulations Understand the chemical properties of drug for their stabilities in formulation Knowledge about various manufacturing process if different dosage forms • Able to know about the quality control process Able to know evolution techniques of different dosage forms Able to know formulation development of sterile dosage forms Upon completion of the course the student shall be able to Understand chemistry of drugs with respect to their pharmacological activity Understand the drug metabolic pathways adverse effect and therapeutic value of drugs • Know the structural activity relationship of different class of drugs Study the chemical synthesis of selected dugs

Understand the writing techniques of chemical

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2018-19



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Ref:	U1188.0550 A		Date:
			<ul> <li>nomenclature of drugs</li> <li>Understand the physiochemical and sterile aspects of drugs</li> </ul>
7T3	Pharmaceutical Analysis-III (Separation Techniques) (Old Syllabus)	2018-19	Upon completion of the course the student shall be able to  • Understand the interaction of matters with chromatographic techniques and its application  • Understand the chromatographic separation of drug during analysis  • Understand the qualitative and quantitative analysis of drugs  • Understand the solvent extraction techniques and their application  • Demonstrate evaluation and interpretation of experimental data  • Understand the polarity of different solvent for analytical techniques
7T4	Clinical Pharmacotherapeutics-II (Old Syllabus)	2018-19	Upon completion of the course the student shall be able to
* Bajirao	njekar College of	ا م	<ul> <li>Understand the guidelines for handling prescription</li> <li>Ability to design a dosage regimen of drug based on its route</li> </ul>



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7T5

Bajiraoji.

Poli & Ko

Pharmacognosy and

phytochemistry-V

(Phytopharmacutical/He

rbal Technology)

(Old Syllabus)

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Web Site: www.bkcp.in Date: of administration **Discuss** the preparation of individualized therapeutic plans based on diagnosis Discuss the path physiology of selected disease states explain the rational for drug therapy Summarize the therapeutic approach management these diseases including references to the latest available evidence Discuss the controversies in drug therapy Upon completion of the course the student shall be able to attain To detailed knowledge about chemistry of medicinal compound from natural origin To attain knowledge regarding isolation and purification medicinal compounds from natural origin To understand general method of screening of medicinally active natural compounds Appreciate patenting

of herbal drugs

Officiating Principal Bajiraoji Karanjekar College of Pharmacy, Sakoli



B.Pharm

Semester

VIII

8T1

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Biopharmaceutics and

pharmacokinetics

(Old Syllabus)

Pharmaceutics (DFT-1)

(NDDS)

karanjeka (Old Syllabus)

**7T6** 

Date: To know the use of natural products starting materials To identify different types of natural products, their occurrence, structure, biosynthesis properties Upon completion of the course the student shall be able to Ability to apply the concepts pharmacokinetics to individualize the drug dosage regimen clinical setting Ability to design a dosage regimen of a drug based on its route of administration Ability to design and implement pharmacokinetics method Broader understanding about the significance pharmacokinetics and bioequivalence Understand how the drugs are metabolized in human body Ability to assess the compartment models for pharmacokinetics Upon completion of the course the student shall be able to

Students shall be able

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8T2

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Pharmaceutical

Biotechnology and

molecular Biology

(Old Syllabus)

karanjekar College Of

Web Site: www.bkcp.in Date: understand the common practice in pharmaceutical the industry developments controlled delivery system To apply the knowledge to develop new procedure of their own design controlled drug delivery system need, concept, design and evaluation of various customized, sustained and controlled release dosage forms. To formulate evaluate various novel drug delivery system Understand polymer properties in designing sustained or controlled release drug product Understand biological factors affecting in designing of drug products Upon completion of the course the student shall be able to Understand the importance of immobilized technology in Pharmaceutical **Industries** Genetic engineering application in relation to pharmaceuticals Importance of

monoclonal antibodies

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Ref: Date: in industry Understand the use of microorganisms fermentation technology Understand the tools technique rDNA technology 8T3 Pharmaceutical 2018-19 Upon completion of the Analysis-IV course the student shall be (Spectroscopy) able to (Old Syllabus) Understand interaction of matter with electromagnetic radiation and application in drug analysis Understand spectrophotometric analysis of drug Understand the advanced instrument used in drug analysis Understand the calibration analytical instrument **Qualitative** quantitative estimation of newer drugs by spectrophotometric 8T4 Pharmacognosy and 2018-19 Upon completion of the phytochemistry-VI course the student shall be (Industrial able to Pharmacognosy) To attain knowledge (Old Syllabus) regarding herbal formulations of kanjekar College medicinal compounds from natural origin Bajiraoji Know the regulatory Requirements nutraceutical with the regulation for Officiating Principal Bajiraoji Karanjekar

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Ref:			Date:
			registration and labeling of nutraceutical and food supplements in india  Cosmetics regulations in regulated and semi regulated countries  Various key ingredients and basic science to develop cosmetic and cosmeceuticals  They will acquire operative know-how and be able to carry out technical and management tasks and professional activities in the areas of transformation of medicinal herbs, management of the quality of the process  The recognition of marine drugs with, identification and their application in various diseases.
8T5	(Drug Safety) (Old Syllabus)	2018-19	Upon completion of the course the student shall be able to  • Writing case narratives of adverse events and their quality  • ICH Guidelines for ICSR, PSUR, expedited reporting and Phamacovigilance Planning
	Ptoli # KD BY	Officiating Pri	incipal



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Ref:		Date:
		<ul> <li>Phamacovigilance program in India</li> <li>Drug safety evaluation in pediatrics, geriatrics, pregnancy and lactation</li> <li>Adverse drug reaction reporting system and communication in Phamacovigilance</li> <li>International standards for classification of drugs and diseases</li> </ul>
8T6 Industrial Pharmacy (Old Syllabus)  Rata (Analysis of Control	2018-19	Upon completion of the course the student shall be able to  • Understand the approval process and regulatory requirement for drug products  • Know different laws and acts that regulates pharmaceutical industries  • Understand the regulatory importance of cGMP  • Selection and evaluation of pharmaceutical packaging materials  • Optimization parameters in pharmaceutical formulations  • Know about manufacturing and stabilities in pilot plant scale
8T7 Project	2018-19	Upon completion of the course the student shall be



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Ref:	Date:
	able to  The basic theoretical knowledge on document compilation created on small project work.
	<ul> <li>Practical skills for the analysis of drugs and excipients using various instrumentation techniques.</li> <li>To make accurate analysis and report the results in defined formats to learn documentation and express the observations with</li> </ul>
taranjeka-Corregge	conclusion.  The pilot plant procedure for the manufacture of Active Pharmaceutical Ingredients and new chemical entities for the drug development phases.  Upon completion of project work the student will know the formulation aspects of different dosage forms to do different pharmaceutical calculations involved in formulation and
of sholi + hoewi	appreciate the importance of good  Officiating Principal Bajiraoji Karanjekar College of Pharmacy, Sakoli



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	formulation for effectiveness.		
	Student will able to develop dynamics of motivation and concept development by increasing the knowledge to handle the challenges in		
	project work.		





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#### **Academic Session 2019-20**

Program Name	Course	Course Name	Year of Introduction	Course Outcomes
Name	BP101T	Human Anatomy and Physiology I (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  • Understand the gross morphology, structure and functions of cell, skeletal, muscular, cardiovascular system of the human body.  • Understood the various homeostatic mechanisms and their imbalances.  • Identify the different types of bones in human body.  • Identify the various tissues of different systems of human body  • Learn about the various experimental techniques related to physiology.  Learnt various techniques  • measurement, blood cells counting
B.Pharm Semester I		to anjekar College	of P	Upon completion of the course the student shall be able to  To develop the fundamentals of volumetric and instrumental analytical skills.  Understand the fundamental

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RCI.			Date.
BP102T	Pharmaceutical Analysis I (New Syllabus)	2019-20	methodology to prepare different strength of solutions.  To understand and develop skill to minimize the sources of mistakes and errors in Analytical chemistry.  Understand the principle of fundamental of analytical chemistry and its scope in Pharmaceutical field.  Understand the principles and application of electrochemical analytical techniques in pharmacy.  Understand to improve skills by the course content in terms of selection analytical Techniques to perform the estimation of different class of drugs.
BP103T	Pharmaceutics I (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  • To know the historical background and profession of pharmacy and basics of Pharmaceutical dosage forms.  • To understand the importance of
	0 0		prescription and



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Ref:			Date:
			posology.  To solve pharmaceutical calculations and understand the formulation of powders and Liquid dosage forms.  To develop monophasic and biphasic liquid dosage forms.  To explain the concepts of suppositories and pharmaceutical in compatibilities.  To Formulate and Evaluate semi solid dosage form
BP 10	Pharmaceutical Inorganic Chemistry (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  • Understand the history of Pharmaceutical Inorganic Chemistry, principles of limit Tests and introduction & handling of Indian Pharmacopoeia.  • Understand introduction, properties, preparation and uses of inorganic Pharmaceuticals.  • Understand introduction, sources and identification tests for impurities in inorganic Pharmaceuticals.  • Understand introduction



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Ref:			Date:
ROI.			<ul> <li>Understand to apply mathematical concepts and principles to perform Computations for pharmaceutical sciences.</li> <li>Know the applications of mathematical concepts for pharmacy</li> <li>Understand to create, use and analyze mathematical representations and Mathematical relationships</li> </ul>
			<ul> <li>Understand to communicate mathematical knowledge and understanding to help In the field of clinical pharmacy</li> <li>Understand to perform abstract mathematical reasoning</li> <li>Understand to solve the different types of problems by applying theory</li> </ul>
BP201T	Human Anatomy and Physiology II (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  • Understand the gross morphology, structure and functions of various organs of the human body.  • Learnt details about various tissues and organs of different systems of human
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Ref:				Date:
B.Pharm Semester	ВР202Т	Pharmaceutical Organic Chemistry I (New Syllabus)	2019-20	body.  Understand to elaborate coordinated working pattern of different organs of each system.  Learnt interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human.  Understand some hematological tests like blood cell counts, hemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume.  Upon completion of the course the student shall be able to  To Know and recall the
	307	* 13	Officiating Prince Bajiraoji Karanje ege of Pharmac	fundamental principles of organic chemistry that include nomenclature, structural isomerism, stereochemistry, chemical reactions and mechanism.  Name the functional groups and different class of organic compounds.  To know the reaction of various of alkane, alcohol, carbonyl



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Ref:				Date:
				compound, amines and carboxylic acid.  • Understand the
	BD2027			reactivity and stability of organic compounds.  To know the name, structure of organic compound and its use in pharmacy.  Illustrate stereochemistry of organic reaction.
	101	Biochemistry (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  • Understand history of Biochemistry and introduction, classification, chemical nature & biological role of Biomolecules.  • Understand introduction, classification, preparation and importance of the bioenergetics molecules.  • Understand the electron transport chain and biological oxidation process.  • Understand the introduction, metabolism and catabolism of nutrient molecules & Biomolecules in physiological conditions.  • Understand the different disorders
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Ref:			Date:
			related to Biomolecules in which involve introduction, precautions and treatment.  Understand the genetic information of mammalian genome and introduction & functions of DNA, RNA, proteins and enzymes.
BP204T	Pathophysiology (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  Understand mechanism of cell injury and process of inflammation and repair.  Learnt the sign and symptoms of the disease.  Understand the etiology and complications of disease.  Know most commonly encountered path physiological state.  Know the disease mechanism and clinical testing requirements.  Understand the importance of systems working in human body.
BP205T	Computer Applications in Pharmacy (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  Know the various types of application of
	(19) (19) (19) (19) (19) (19) (19) (19)	Officiating Pri Bajiraoji Kara ollege of Pharmi	ncinal

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Ref:				Date:
				computers in pharmacy
				• Know the various types
				of databases
				• Know the various
				applications of
				databases in pharmacy
				• Understand to solve
				and work with a
				professional context
			]	pertaining to ethics,
		İ		social, cultural and
				regulations with regard
				to pharmacy
1				Understand to integrate
				and apply efficiently
				the contemporary IT
				tools to all
				pharmaceutical related
				activities
				Understand to design
				and develop solutions to analyze
				to analyze pharmaceutical
				problems using
				computers
	BP206T	Environmental sciences (New	2019-20	Upon completion of the
		Syllabus)		course the student shall be
				able to
				Understand to create
				the awareness about
				environmental
				problems among
				learners
				Understand to develop
				basic knowledge about
				the environment and its
				allied problems
		i oka		Understand to develop
		Talauleval Coll		an attitude of concern
		taranjekar Come	1	for the environment
		of of	July	



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Ref:			Date:
			<ul> <li>Learn participation in environment protection and environment improvement</li> <li>Acquire skills to help the concerned individuals in identifying and solving environmental problems</li> <li>Strive to attain harmony with Nature</li> </ul>
B.Pharm Semester III	BP301T	Pharmaceutical Organic Chemistry II (New Syllabus)	Upon completion of the course the student shall be able to  Understand basic knowledge about common methods of preparation of organic compounds.  Understand the reactions of organic compounds.  Understand the reactivity and orientation in organic chemistry.  Understand the mechanism of organic reactions.  To acquire knowledge about electrophilic substitution reactions of aromatic compounds.  Understand the reactions of aromatic compounds.  Understand the reactions of aromatic compounds.  Understand the reactions and methods of analysis of fats and oils.
	BP302T	Physical Pharmaceutics I	2019-20 Upon completion of the
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(New Syllabus)

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**BP303T** 

Pharmaceutical Microbiology

(New Syllabus)

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Web Site: www.bkcp.in Date: course the student shall be able to Understand the descriptive terms for solubility, their meaning and various type of solution. Understand the role of surfactants, interfacial phenomenon thermodynamics. Understand the role of state of matter and change in the state of matter Understand the properties of matter including liquid crystal, crystalline and amorphous Understand the physical properties of solutions. buffers. isotonicity, disperse systems and principle of relative humidity, glass transition temperature Understand various physicochemical properties of drugs molecules in the designing the dosage form 2019-20 Upon completion of the course the student shall be able to

Understand structure of

bacteria and different types of microscopes.



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Ref:		**		Date:
				<ul> <li>Understand methods of identification, cultivation and preservation of various microorganisms.</li> <li>Understand the importance and implementation of sterilization in pharmaceutical processing and industry.</li> <li>Learn sterility testing of pharmaceutical products.</li> <li>Carried out microbiological standardization of Pharmaceuticals.</li> <li>Understand the cell culture technology and its applications in pharmaceutical industries.</li> </ul>
	BP304T	Pharmaceutical Engineering (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  • Know about the various unit operation processes used in pharmaceutical industry.  • Comprehend the various materials handling technique.  • Carry out the various processes involved in pharmaceutical manufacturing process.  • Understand the various tests for preventing the environmental pollution.  • Appreciate and



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Ref:	4.5			Date:
				understand the significance of plant lay out design for optimal uses of resources.  • Know about the various preventive methods for corrosion control used in pharmaceutical industries.
	BP401T	Pharmaceutical Organic Chemistry III (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  • Understand the various nomenclature systems in stereochemistry and its application.  • Understand the various stereo chemical aspects of organic compounds.  • Understand the detail mechanism of some useful organic reactions.  • To acquire knowledge about structures of different heterocyclic compounds.  • Understand the nomenclature rules in heterocyclic chemistry.  • Understand preparations, reactions and medicinal uses of various heterocyclic
B.Pharm Semester IV	BP402T	Medicinal Chemistry I (New Syllabus)	2019-20	compounds.  Upon completion of the course the student shall be able to  Understand the history



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Ref: Date: of Medicinal Chemistry and introduction 28 importance of physicochemical properties related biological actions of drugs. Understand the phases present in drug metabolism with chemical reactions. Understand different classes of drugs according mechanism of action of drugs. Understand synthetic procedures of drug molecules with chemical reactions. Understand structure, nomenclature, mode of action and uses of drug molecules. Understand structure activity relationship of selective class of drugs. Physical Pharmaceutics II **BP403T** 2019-20 Upon completion of the (New Syllabus) course the student shall be able to Understand various physicochemical properties of drug molecules in designing the dosage forms. taranjekar College Understand the principles of colloidal dispersion,

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**BP404T** 

Pharmacology I

(New Syllabus)

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Web Site: www.bkcp.in Date: deformation of solids and coarse dispersion. Understand physical properties of solutions, buffers, isotonicity, disperse systems, colloidal and rheology. Understand the chemical stability of various drug products. Understand the role of optical. kinetic electrical properties. Understand principles of chemical kinetics and to used them for stability testing and determination of expiry date of formulation Upon completion of the course the student shall be able to Understand the pharmacological actions of different categories of drugs. Understand the mechanism drug of action at organ system/sub cellular/ macromolecular levels. Understand how to apply the basic pharmacological knowledge the prevention and treatment of various diseases. Understand the adverse

drug reactions and drug

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of pharmacology with other bio medical sciences  • Understand the signal transduction mechanism of various receptors  BP405T Pharmacognosy and Phytochemistry I (New Syllabus)  2019-20 Upon completion of the course the student shall be able to  • Know techniques in the cultivation and production of crude drugs their uses and chemical nature.  • Know evaluation techniques for evaluation of drugs.  • Understand microscopic & morphological evaluation of crude drugs.  • Understanding traditional system of medicine along primary & secondary metabolite.  • Understand recognition of medicinal plants, identification of adulteration & contamination  BP501T Medicinal Chemistry II (New Syllabus)  BP501T Medicinal Chemistry II (New Syllabus)  BP501T Medicinal Chemistry II (New Syllabus)	Ref:		298.185		Date:
Phytochemistry I (New Syllabus)  Phytochemistry I (New Syllabus)  Room the crude drugs their uses and chemical nature.  Know the crude drugs their uses and chemical nature.  Know evaluation techniques for evaluation of drugs.  Understand microscopic & morphological evaluation of crude drugs.  Understanding traditional system of medicine along primary & secondary metabolite.  Understand recognition of medicinal plants, identification of adulteration of adulteration ocontamination  BP501T Medicinal Chemistry II (New Syllabus)  Description of the course the student shall be able to understand the					<ul> <li>Understand correlation of pharmacology with other bio medical sciences</li> <li>Understand the signal transduction mechanism of various</li> </ul>
Syllabus)  Course the student shall be able to  Understand the		BP405T	Phytochemistry I	2019-20	<ul> <li>Know techniques in the cultivation and production of crude drugs</li> <li>Know the crude drugs, their uses and chemical nature.</li> <li>Know evaluation techniques for evaluation of drugs.</li> <li>Understand microscopic &amp; morphological evaluation of crude drugs.</li> <li>Understanding traditional system of medicine along primary &amp; secondary metabolite.</li> <li>Understand recognition of medicinal plants, identification of adulteration</li> </ul>
able to  Understand the			C11-1\ \	2019-20	Upon completion of the
			taranjekar Colle	1	able to
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Ref:		1/48	34/6	Date:
				structure of various drugs and their IUPAC names.  To acquire basic knowledge about different diseases.  To acquire knowledge about synthesis of some drugs.  To know the structure activity relationship of different classes of drugs.  To understand the mode of action of medicinal compounds.  To acquire knowledge about uses of different medicinal agents
B.Pharm Semester V	BP502T	Industrial Pharmacy I (New Syllabus)	2019-20	medicinal agents.  Upon completion of the course the student shall be able to  • Understand the various drug delivery system and its mechanisms.  • Students will learn advanced drug delivery system early stage.  • Developing a preparation of the drug which is both stable and acceptable to the patient.  • They know very well about orally administered drugs, injectable, aerosol and semisolid preparations with standard protocols.
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Ref:				Date:
				<ul> <li>Formulated drugs are stored in a suitable container closure system for extended periods of time.</li> <li>Also they know the stability study and its standard evaluation procedure for better storage conditions.</li> </ul>
	BP503T	Pharmacology II (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  • Understand the mechanism of drug action and its relevance in the treatment of different diseases.  • Understand isolation of different organs and tissues from the laboratory animals by simulated experiments.  • Understand the various receptor actions using isolated tissue preparation.  • Understand correlation of pharmacology with related medical sciences.  • Understand the cell communication mechanism.  • Understand the newer targets of several disease conditions for treatment.
	BP504T	Pharmacognosy and	2019-20	Upon completion of the course the student shall be
	1	Phytochemistry II		able to
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Web Site: www.bkcp.in Date: To outline the metabolic pathway in higher plants and their biogenetic studies. To the Pharmacognostical study of secondary metabolites like alkaloids, glycosides, tannins, volatile oils etc. To demonstrate the different types and involved steps in isolation, identification analysis and Phytoconstituents like terpenoids, glycosides, alkaloids and resins. To plan the industrial production, estimation and utilization **Phytoconstituents** To assess the crude drug by modern methods of extraction, spectroscopy, chromatography, isolation and purification. Understand Ethno botany and Ethno pharmacology in drug discovery process 2019-20 Upon completion of the course the student shall be able to Know the Pharmaceutical legislations and their implications the development and

marketing

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				<ul> <li>Know various Indian pharmaceutical Acts, Laws and schedule</li> <li>Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals</li> <li>Know code of ethics during the pharmaceutical practice</li> <li>Understand the knowledge of IPR.</li> <li>Know the narcotic drugs and psychotropic substances act-1985</li> </ul>
B.Pharm Semester VI	BP601T	Medicinal Chemistry III (New Syllabus)	2019-20	and rules  Upon completion of the course the student shall be able to  To acquire knowledge about microbial and parasitic diseases.  Understand the structure of various drugs and their IUPAC names.  Understand the SAR and mode of action of various drugs used in the treatment of different microbial and parasitic diseases.  To acquire knowledge about synthesis of some drugs.  Understand physicochemical properties of drugs and



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Web Site: www.bkcp.in Ref: Date: different techniques for development of drugs. To acquire knowledge about uses of different medicinal agents. **BP602T** Pharmacology III 2019-20 Upon completion of the (New Syllabus) course the student shall be able to • Understand mechanism of drug action and its relevance in treatment of different infectious diseases. Understand the principles of toxicology and treatment of various poisonings Understand the methods of toxicity studies. Understand study about symptoms several poisonings Understand the toxicity profile of each drugs Understand classification of each drug used in treatment of cancer and compare and contrast the mechanisms action. uses. and adverse effects. **BP603T** Herbal Drug Technology 2019-20 Upon completion of the (New Syllabus) course the student shall be able to To recall aranjekar College fundamental concepts of herbal raw materials biodynamic and



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KeI:			agriculture techniques.  To understand the concept of nutraceutical and herbal food interactions.  To apply the knowledge for evaluation and preparation of herbal
			formulations.  To remember the regulatory guidelines for the assessment of herbal drugs and patenting.  To illustrate the scope and future prospects of the herbal drug industry.  To establish and follow the SOP's, infrastructure of industries as per GMP.
BP604T	Pharmacokinetics (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  Basic understanding about the concepts of bio pharmaceutics and pharmacokinetics and their significance.  Determine the various pharmacokinetic parameters from either plasma concentration or urinary excretion data for drug and also describe the kinetics of drug absorption, distribution,
	off Phase off Ba	iciating Princip jiraoji Karanjeka e of Pharmacy,	ar



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Ref:			-38 - 59	Date:
				elimination.
				• Understand about the
				concepts of
				bioavailability and
			ŀ	bioequivalence of drug
				products and their
			i	significance.
				Ability to calculate the
				various
·				pharmacokinetic
				parameters, their significance and
				significance and applications
ļ				Understand the various
				multi component
				models.
				• To know the
				Knowledge about
				nonlinear
	BP605T	Pharmaceutical Biotechnology	2019-20	pharmacokinetics.
	B1 0051	(New Syllabus)	2019-20	Upon completion of the
				course the student shall be
				Understand the various
				techniques used in
				modern biotechnology.
				• Design research
				strategy with step -by -
				step instructions to
				address a research
				problem
				• Provide examples of
			}	current applications of
				biotechnology and
				advances in the
				different areas like
				medical, microbial,
		aranjekar Cou		environmental,
	A A	Laranjekar Com	0.01	bioremediation,
			Suha	-
	100	Offi *Sakoli * Koewin College	ciating Princip	
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Ref:			Date:
			agricultural, plant, animal, and forensic  Explain the concept and application of monoclonal antibody technology  Demonstrate and Provide examples on how to use microbes and mammalian cells for the production of pharmaceutical products  Explain the general principles of generating transgenic plants, animals and microbes
BP606T	Quality Assurance (New Syllabus)	2019-20	Upon completion of the course the student shall be able to  Understand the importance of quality in pharmaceutical products.  Explored into importance of Good practices such as GMP, GLP  The factors affecting the quality of pharmaceuticals  Understands the regulatory aspects of pharmaceutical taught to the student  Process involved in manufacturing of
		ating Principal	pharmaceuticals different

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Ref:				Date:
				section/department and activity is learnt.  • Understand the various documentation processes is highlighted to the student.
B.Pharm Semester VII	711	Pharmaceutics (DFT-1) (Conventional) (Old Syllabus)	2019-20	Upon completion of the course the student shall be able to  Understand the concept of Preformulations  Understand the chemical properties of drug for their stabilities in formulation  Knowledge about various manufacturing process if different dosage forms  Able to know about the quality control process  Able to know the evolution techniques of different dosage forms  Able to know the evolution techniques of different dosage forms  Able to know formulation and development of sterile dosage forms
	7T2	Pharmaceutical Medicinal Chemistry-Ill (Old Syllabus)	2019-20	Upon completion of the course the student shall be able to  • Understand the chemistry of drugs with respect to their pharmacological activity
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Ref: Date: Understand the drug metabolic pathways adverse effect and therapeutic value of drugs Know the structural activity relationship of different class of drugs Study the chemical synthesis of selected dugs Understand the writing techniques of chemical nomenclature of drugs Understand physiochemical and sterile aspects of drugs 7T3 Pharmaceutical Analysis-III 2019-20 Upon completion of the (Separation Techniques) course the student shall be (Old Syllabus) able to Understand interaction of matters with chromatographic techniques and its application Understand the chromatographic separation of drug during analysis Understand the qualitative and quantitative analysis of drugs Understand the solvent extraction techniques and their application Demonstrate evaluation and taranjekar College interpretation of experimental data Understand the of Phan



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			polarity of different solvent for analytical techniques
7T4	Clinical Pharmacotherapeutics-II (Old Syllabus)	2019-20	Upon completion of the course the student shall be able to  • Understand the guidelines for handling prescription  • Ability to design a dosage regimen of drug based on its route of administration  • Discuss the preparation of individualized therapeutic plans based on diagnosis  • Discuss the path physiology of selected disease states and explain the rational for drug therapy  • Summarize the therapeutic approach to management of these diseases including references to the latest available evidence  • Discuss the controversies in drug therapy
7T5	Pharmacognosy and phytochemistry-V (Phytopharmacutical/Herbal Technology) (Old Syllabus)	2019-20	Upon completion of the course the student shall be able to  To attain detailed knowledge about chemistry of medicinal compound from



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7T6

Biopharmaceutics and

pharmacokinetics

(Old Syllabus)

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Web Site: www.bkcp.in Date: To attain knowledge regarding isolation and purification medicinal compounds from natural origin • To understand general method of screening of medicinally active natural compounds Appreciate patenting of herbal drugs • To know the use of natural products as starting materials To identify different types of natural products, their occurrence, structure, biosynthesis properties Upon completion of the course the student shall be able to Ability to apply the concepts of pharmacokinetics to individualize the drug dosage regimen clinical setting • Ability to design a dosage regimen of a drug based on its route of administration Ability to design and implement pharmacokinetics method Broader understanding about the significance

pharmacokinetics

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Web Site: www.bkcp.in Ref: Date: and bioequivalence Understand how the drugs are metabolized in human body Ability to assess the compartment models for pharmacokinetics B.Pharm 8T1 Pharmaceutics (DFT-1) 2019-20 Upon completion of the Semester (NDDS) course the student shall be VIII (Old Syllabus) able to Students shall be able understand common practice in the pharmaceutical industry developments controlled delivery system To apply the knowledge to develop new procedure of their own design controlled drug delivery system To need, concept, design and evaluation of various customized. sustained and controlled release dosage forms. formulate evaluate various novel drug delivery system Understand the polymer properties in designing sustained or controlled release drug product Understand the biological factors affecting in designing of drug products 8T2 Pharmaceutical 2019-20 Upon completion of the Biotechnology and course the student shall be (anjekar Cholecular Biology able to , ao,

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Pharmacognosy and

Web Site: www.bkcp.in Date: Understand the importance of immobilized technology in Pharmaceutical Industries Genetic engineering application in relation to pharmaceuticals Importance monoclonal antibodies in industry • Understand the use of microorganisms fermentation technology Understand the tools and technique of rDNA technology Pharmaceutical Analysis-IV 2019-20 Upon completion of the (Spectroscopy) course the student shall be (Old Syllabus) able to Understand interaction of matter with electromagnetic radiation and application in drug analysis Understand spectrophotometric analysis of drug Understand the advanced instrument used in drug analysis Understand the calibration analytical instrument Oualitative quantitative estimation of newer drugs by spectrophotometric

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Upon completion of the



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phytochemistry-VI

(Industrial Pharmacognosy) (Old Syllabus)

Date: course the student shall be To attain knowledge regarding herbal formulations of medicinal compounds from natural origin Know the regulatory Requirements nutraceutical with the regulation for registration and labeling nutraceutical and food supplements in india

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Cosmetics regulations in regulated and semi regulated countries

Various key ingredients and basic science to develop cosmetic and cosmeceuticals

They will acquire operative know-how and be able to carry technical out management tasks and professional activities the areas of transformation of medicinal herbs. management of the quality of the process

The recognition of marine drugs with, identification and their application in various diseases.

Pharmacovisilence (Drug

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2019-20

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	Safety) (Old Syllabus)		course the student shall be able to  • Writing case narratives of adverse events and their quality  • ICH Guidelines for ICSR, PSUR, expedited reporting and Pharmacovigilance Planning
			<ul> <li>Phamacovigilance program in India</li> <li>Drug safety evaluation in pediatrics, geriatrics, pregnancy and lactation</li> <li>Adverse drug reaction reporting system and communication in Phamacovigilance</li> <li>International standards for classification of drugs and diseases</li> </ul>
8T6	Industrial Pharmacy (Old Syllabus)	2019-20	Upon completion of the course the student shall be able to  • Understand the approval process and regulatory requirement for drug products  • Know different laws and acts that regulates pharmaceutical
	Satoli * Koen College	Aguna- iciating Princip	industries  • Understand the regulatory importance of cGMP  • Selection and evaluation of



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2019-20

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Project

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8T7

Web Site: www.bkcp.in Date: pharmaceutical packaging materials Optimization parameters in pharmaceutical formulations Know about manufacturing and stabilities in pilot plant Upon completion of the course the student shall be able to The basic theoretical knowledge document compilation created on small project work. Practical skills for the analysis of drugs and excipients using various instrumentation techniques. make To accurate analysis and report the results in defined formats to learn documentation and express the observations with conclusion. The pilot plant procedure for the manufacture of Active Pharmaceutical Ingredients and new chemical entities for the drug development

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	<ul> <li>Upon completion of project work the student will know the formulation aspects of different dosage forms to do different pharmaceutical calculations involved in formulation and appreciate the importance of good formulation for effectiveness.</li> <li>Student will able to develop dynamics of motivation and concept development by increasing the knowledge to handle the challenges in project work.</li> </ul>





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Date:

Academic Session 2020-21 (New Syllabus)

Program Name	Course	Course Name	Year of Introduction	Course Outcomes
тане -	BP101T	Human Anatomy and Physiology I	2020-21	Upon completion of the course the student shall be able to  • Understand the gross morphology, structure and functions of cell, skeletal, muscular, cardiovascular system of the human body.  • Understood the various homeostatic mechanisms and their imbalances.  • Identify the different types of bones in human body.  • Identify the various tissues of different systems of human body  • Learn about the various experimental techniques related to physiology.  Learnt various techniques like blood group determination,  • measurement, blood cells counting
B.Pharm Semester I	BP102T	Pharmaceutical Analysis Janieka	C2920-21	Upon completion of the course the student shall be able to  • To develop the fundamentals of volumetric and instrumental analytical skills.  • Understand the fundamental methodology to prepare different strength of solutions.  • To understand and develop skill to minimize the sources of mistakes and errors in Analytical chemistry.  • Understand the principle of



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D.f.			Date:
BP103T	Pharmaceutics I	2020-21	fundamental of analytical chemistry and its scope in Pharmaceutical field.  Understand the principles and application of electrochemical analytical techniques in pharmacy.  Understand to improve skills by the course content in terms of selection analytical Techniques to perform the estimation of different class of drugs.  Upon completion of the course the student shall be able to  To know the historical background and profession of pharmacy and basics of Pharmaceutical dosage forms.  To understand the importance of prescription and posology.  To solve pharmaceutical calculations and understand the formulation of powders and Liquid dosage forms.  To develop monophasic and biphasic liquid dosage forms.  To explain the concepts of suppositories and pharmaceutical in compatibilities.  To Formulate and Evaluate semi solid dosage form
BP 104T	Pharmaceutical Inorganic Chemistry	2020-21	Upon completion of the course the student shall be able to  • Understand the history of Pharmaceutical Inorganic Chemistry, principles of limit
	aranjekar College		Tests and introduction & handling of Indian



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		mmunication skills	2020-21	Pharmacopoeia.  Understand introduction, properties, preparation and uses of inorganic Pharmaceuticals.  Understand introduction, sources and identification tests for impurities in inorganic Pharmaceuticals.  Understand introduction and applications of pharmaceutical drugs used in different Classes.  Understand the medicinal and pharmaceutical importance of radiopharmaceuticals.  Learnt principles and preparation procedures of inorganic drugs.  Upon completion of the course the student shall be able to  Understand the behavioral needs for a pharmacist to function effectively in the areas of pharmaceutical operation.  Understand to communicate effectively-Verbal and Nonverbal.  Understand effectively manage the team as a team member.  Understand interview skills.  Understand Leadership qualities.  Learnt planning, preparation and delivering techniques of presentations.
	M	athematics	2020-21	Upon completion of the course the student shall be able to
	anjekar Colle			• Understand to apply
1 2	1/200	2	Oshe	Computations for
10e7.168 x	Sal In Page	Of R	ficiating Princip ajiraoji Karanjeka ge of Pharmacy,	



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Ref:	144			Date:
	BP20277 40	Human Anatomy and Physiology II	2020-21	pharmaceutical sciences.  Know the applications of mathematical concepts for pharmacy  Understand to create, use and analyze mathematical representations and Mathematical relationships  Understand to communicate mathematical knowledge and understanding to help In the field of clinical pharmacy  Understand to perform abstract mathematical reasoning  Understand to solve the different types of problems by applying theory  Upon completion of the course the student shall be able to  Understand the gross morphology, structure and functions of various organs of the human body.  Learnt details about various tissues and organs of different systems of human body.  Understand to elaborate coordinated working pattern of different organs of each system.  Learnt interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human.  Understand some hematological tests like blood cell counts, hemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume.  Upon completion of the course the
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		Organic Chemistry I		student shall be able to  To Know and recall the fundamental principles of organic chemistry that include nomenclature, structural isomerism, stereochemistry, chemical reactions and mechanism.
B.Pharm Semester II				<ul> <li>Name the functional groups and different class of organic compounds.</li> <li>To know the reaction of various of alkane, alcohol, carbonyl compound, amines and carboxylic acid.</li> <li>Understand the reactivity and stability of organic compounds.</li> <li>To know the name, structure of organic compound and its use in pharmacy.</li> <li>Illustrate stereochemistry of organic reaction.</li> </ul>
	BP203T	19.11 Of	2020-21	Upon completion of the course the student shall be able to  Understand history of Biochemistry and introduction, classification, chemical nature & biological role of Biomolecules.  Understand introduction, classification, preparation and importance of the bioenergetics molecules.  Understand the electron transport chain and biological oxidation process.  Understand the introduction, metabolism and catabolism of
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				nutrient molecules & Biomolecules in physiological and pathological conditions.  • Understand the different disorders related to Biomolecules in which involve introduction, precautions and treatment.  • Understand the genetic information of mammalian genome and introduction & functions of DNA, RNA, proteins and engages.
	BP204T	Pathophysiology	2020-21	proteins and enzymes.  Upon completion of the course the student shall be able to  Understand mechanism of cell injury and process of inflammation and repair.  Learnt the sign and symptoms of the disease.  Understand the etiology and complications of disease.  Know most commonly encountered path physiological state.  Know the disease mechanism and clinical testing requirements.  Understand the importance of systems working in human body.
	BP205T	Computer Applications in Pharmacy	2020-21	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
		Off	iciating Princip	• Know the various applications



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				<ul> <li>Of databases in pharmacy</li> <li>Understand to solve and work with a professional context pertaining to ethics, social cultural and regulations with regard to pharmacy</li> <li>Understand to integrate and apply efficiently the contemporary IT tools to all pharmaceutical related activities</li> <li>Understand to design and develop solutions to analyze pharmaceutical problems using computers</li> </ul>
E	3P206T	Environmental sciences	2020-21	Upon completion of the course the student shall be able to  Understand to create the awareness about environmental problems among learners  Understand to develop basic knowledge about the environment and its allied problems  Understand to develop an attitude of concern for the environment  Learn participation in environment protection and environment improvement  Acquire skills to help the concerned individuals in identifying and solving environmental problems  Strive to attain harmony with
В	P301T	Pharmaceutical Organic	2020-21	Nature Upon completion of the course the student shall be able to



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**BP302T** 

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Physical

Pharmaceutics I

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Web Site: www.bkcp.in Date: Understand basic knowledge about common methods of preparation of organic compounds. Understand the reactions of organic compounds. • Understand the reactivity and orientation in organic chemistry. Understand the mechanism of organic reactions. To acquire knowledge about electrophilic substitution reactions of aromatic compounds. Understand the reactions and methods of analysis of fats and oils. 2020-21 Upon completion of the course the student shall be able to Understand the descriptive terms for solubility, meaning and various type of solution. Understand the role of surfactants. interfacial phenomenon and thermodynamics. Understand the role of state of matter and change in the state of matter Understand the properties of matter including liquid crystal, crystalline and amorphous Understand the physical properties of solutions, buffers, isotonicity, disperse systems and principle of relative

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Ref: Date: temperature Understand various physicochemical properties of molecules designing the dosage form **BP303T** Pharmaceutical 2020-21 Upon completion of the course the Microbiology student shall be able to Understand structure of bacteria and different types of microscopes. Understand methods identification, cultivation and preservation of various microorganisms. Understand the importance and implementation of sterilization in pharmaceutical processing and industry. Learn sterility testing of pharmaceutical products. • Carried out microbiological standardization of Pharmaceuticals. Understand the cell culture technology and its applications in pharmaceutical industries. **BP304T Pharmaceutical** 2020-21 Upon completion of the course the Engineering student shall be able to Know about the various unit operation processes used in pharmaceutical industry. Comprehend the various materials handling technique. Carry out the various processes involved in pharmaceutical manufacturing process. Understand the various tests preventing environmental pollution. Appreciate and understand the significance of plant lay out design for optimal uses of resources. Karanjeka Know about the various



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				preventive methods for corrosion control used in pharmaceutical industries.
	BP401T	Pharmaceutical Organic Chemistry III	2020-21	Upon completion of the course the student shall be able to  Understand the various nomenclature systems in stereochemistry and its application.  Understand the various stereo chemical aspects of organic compounds.  Understand the detail mechanism of some useful organic reactions.  To acquire knowledge about structures of different heterocyclic compounds.  Understand the nomenclature rules in heterocyclic chemistry.  Understand preparations, reactions and medicinal uses of various heterocyclic compounds.
B.Pharm Semester IV	BP402T	Medicinal Chemistry I	2020-21	<ul> <li>Upon completion of the course the student shall be able to</li> <li>Understand the history of Medicinal Chemistry and introduction &amp; importance of physicochemical properties related to biological actions of drugs.</li> <li>Understand the phases present in drug metabolism with chemical reactions.</li> <li>Understand different classes of drugs according to mechanism of action of drugs.</li> <li>Understand synthetic procedures of drug molecules</li> </ul>



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	BP403T	Physical Pharmaceutics II	2020-21	with chemical reactions.  Understand structure, nomenclature, mode of action and uses of drug molecules.  Understand structure activity relationship of selective class of drugs.  Upon completion of the course the student shall be able to
				<ul> <li>Understand various physicochemical properties of drug molecules in the designing the dosage forms.</li> <li>Understand the principles of colloidal dispersion, deformation of solids and coarse dispersion.</li> <li>Understand the physical properties of solutions, buffers, isotonicity, disperse systems, colloidal and rheology.</li> <li>Understand the chemical stability of various drug product.</li> <li>Understand the role of optical, kinetic &amp; electrical properties.</li> <li>Understand the principles of chemical kinetics and to used them for stability testing and</li> </ul>
	BP404T	Pharmacology I	2020-21	determination of expiry date of formulation  Upon completion of the course the student shall be able to  Understand the
				pharmacological actions of different categories of drugs.  Understand the mechanism of drug action at organ system/sub cellular/macromolecular levels.
		Karar	njekar	Understand how to apply the basic pharmacological



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				knowledge in the prevention and treatment of various diseases.  Understand the adverse drug reactions and drug interactions.  Understand correlation of pharmacology with other bio medical sciences  Understand the signal transduction mechanism of
	BP405T	Pharmacognosy and Phytochemistry I	2020-21	various receptors  Upon completion of the course the student shall be able to  Know techniques in the cultivation and production of crude drugs  Know the crude drugs, their uses and chemical nature.  Know evaluation techniques for evaluation of drugs.  Understand microscopic & morphological evaluation of crude drugs.  Understanding traditional system of medicine along primary & secondary metabolite.  Understand recognition of medicinal plants, identification of adulteration & contamination
	BP501T	Medicinal Chemistry II	2020-21	Upon completion of the course the student shall be able to  • Understand the structure of various drugs and their IUPAC names.  • To acquire basic knowledge
		yaran, e	ekar Calle	about different diseases.  To acquire knowledge about



B.Pharm

Semester

### Wainganga Bahu-Uddeshiya Vikas Sanstha, Nagpur's

## BAJIRAOJI KARANJEKAR COLLEGE OF PHARMACY

2020-21

2020-21

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**BP502T** 

**BP503T** 

Industrial

Pharmacy I

Pharmacology II

Web Site: www.bkcp.in Date: synthesis of some drugs. To know the structure activity relationship of different classes of drugs. To understand the mode of action medicinal ofcompounds. To acquire knowledge about uses of different medicinal agents. Upon completion of the course the student shall be able to Understand the various drug delivery system and its mechanisms.

•	Developi	ng a j	preparat	ion of
	the drug	which	is both	stable
	and accep	otable to	the pat	tient.
•	They kn	ow vei	y well	about

Students will learn advanced drug delivery system early

stage.

orally administered drugs, injectable. aerosol and semisolid preparations with standard protocols.

Formulated drugs are stored in a suitable container closure system for extended periods of time.

Also they know the stability and its standard evaluation procedure for better storage conditions.

Upon completion of the course the student shall be able to

Understand the mechanism of drug action and its relevance in the treatment of different diseases.



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Ref:				Date:
	BP504T	Pharmacognosy	2020-21	<ul> <li>Understand isolation of different organs and tissues from the laboratory animals by simulated experiments.</li> <li>Understand the various receptor actions using isolated tissue preparation.</li> <li>Understand correlation of pharmacology with related medical sciences.</li> <li>Understand the cell communication mechanism.</li> <li>Understand the newer targets of several disease conditions for treatment.</li> </ul>
	BP505T	and Phytochemistry II  Pharmaceutical	2020-21	<ul> <li>Upon completion of the course the student shall be able to</li> <li>To outline the metabolic pathway in higher plants and their biogenetic studies.</li> <li>To the Pharmacognostical study of secondary metabolites like alkaloids, glycosides, tannins, volatile oils etc.</li> <li>To demonstrate the different types and steps involved in isolation, identification and analysis of Phytoconstituents like terpenoids, glycosides, alkaloids and resins.</li> <li>To plan the industrial production, estimation and utilization of Phytoconstituents</li> <li>To assess the crude drug by modern methods of extraction, spectroscopy, chromatography, isolation and purification.</li> <li>Understand Ethno botany and Ethno pharmacology in drug discovery process</li> </ul>
		Jurisprudence kara	njeka	Upon completion of the course the student shall be able to
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B.Pharm

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VI

**BP601T** 

Medicinal

Chemistry III

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Web Site: www.bkcp.in Date: Know the Pharmaceutical legislations and their implications in the development and marketing Know various Indian pharmaceutical Acts, Laws and schedule Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals Know code of ethics during the pharmaceutical practice Understand the knowledge of IPR. Know the narcotic drugs and psychotropic substances act-1985 and rules 2020-21 Upon completion of the course the student shall be able to To acquire knowledge about microbial and parasitic diseases. Understand the structure of various drugs and their IUPAC names. • Understand the SAR and mode of action of various drugs used in the treatment of different microbial and parasitic diseases. To acquire knowledge about synthesis of some drugs. Understand physicochemical properties of drugs and different techniques for development of drugs. To acquire knowledge about karanjekar Co uses of different medicinal

> Officiating Principal Bajiraoji Karanjekar College of Pharmacy, Sakoli

agents.



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**BP602T** 

**BP603T** 

Web Site: www.bkcp.in Date: Pharmacology III 2020-21 Upon completion of the course the student shall be able to Understand mechanism drug action and its relevance in the treatment of different infectious diseases. • Understand the principles of toxicology and treatment of various poisonings Understand the methods of toxicity studies. Understand study about symptoms of several poisonings • Understand the toxicity profile of each drugs Understand the classification of each drug used in the treatment of cancer and compare and contrast the mechanisms of action, uses, and adverse effects. Herbal Drug 2020-21 Upon completion of the course the Technology student shall be able to To recall the fundamental concepts of herbal raw materials and biodynamic agriculture techniques. To understand the concept of nutraceutical and herbal food interactions. To apply the knowledge for evaluation and preparation of herbal formulations. To remember the regulatory guidelines for the assessment of herbal drugs and patenting. To illustrate the scope and future prospects of the herbal drug industry.

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Ref:				Date:
	BP604T	Biopharmaceutics and Pharmacokinetics	2020-21	industries as per GMP.  Upon completion of the course the student shall be able to  Basic understanding about the concepts of biopharmaceutics and pharmacokinetics and their significance.  Determine the various pharmacokinetic parameters from either plasma concentration or urinary excretion data for drug and also describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.  Understand about the concepts of bioavailability and bioequivalence of drug products and their significance.  Ability to calculate the various pharmacokinetic parameters, their significance and applications  Understand the various multi component models.  To know the Knowledge about
	BP605T	Pharmaceutical Biotechnology	2020-21	nonlinear pharmacokinetics.  Upon completion of the course the student shall be able to  • Understand the various techniques used in modern biotechnology.  • Design research strategy with step -by -step instructions to
		(a) (a) (a)	Coll	address a research problem     Provide examples of current applications of biotechnology and advances in the different

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Ref:				Date:
				areas like medical, microbial, environmental, bioremediation, agricultural, plant, animal, and forensic  Explain the concept and application of monoclonal antibody technology  Demonstrate and Provide examples on how to use microbes and mammalian cells for the production of pharmaceutical products  Explain the general principles of generating transgenic plants,
	BP606T	Quality Assurance	2020-21	animals and microbes  Upon completion of the course the student shall be able to  Understand the importance of quality in pharmaceutical products.  Explored into importance of Good practices such as GMP, GLP  The factors affecting the quality of pharmaceuticals  Understands the regulatory aspects of pharmaceutical taught to the student  Process involved in manufacturing of pharmaceuticals different section/department and activity is learnt.  Understand the various documentation processes is highlighted to the student.
B.Pharm Semester VII	BP701T	Instrumental Methods of Analysis	2020-21	Upon completion of the course the student shall be able to  • Understand the basic principles and instrumentation
		(P)	lege	principles and instrumentation



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**BP702T** 

Industrial

Pharmacy II

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Web Site: www.bkcp.in Date: of UV, fluorimeter. flame Photometer and atomic absorption spectroscopy. Understand the basic principles involved in TLC. column chromatography and paper Chromatography. To know the theory and instrumentation of GC, HPLC, chromatography, Exchange chromatography and affinity chromatography. Learn separation and identification of compounds by various chromatographic techniques. Learn applications of various chromatographic techniques for organic, inorganic and Natural products. Instrumentation, know separation and identification of compounds by Electrophoresis technique. 2020-21 Upon completion of the course the student shall be able to Understand the process of pilot plant and scale up of pharmaceutical dosage forms. Know the various pharmaceutical dosage forms and their manufacturing techniques. Understand the process of technology transfer from lab scale to commercial batch. Know different Laws and Acts that regulate pharmaceutical industry.

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Ref:				Date:
				process and regulatory requirements for drug products.  • Understand the process of Quality management systems and Indian Regulatory Requirement.
	BP703T	Pharmacy Practice	2020-21	Upon completion of the course the student shall be able to  Demonstrate knowledge of and ability to use principles of therapeutics, quality improvement, communication, economics, health behavior, social and administrative aspects, health policy and legal issues in the practice of pharmacy.  Use knowledge of drug distribution methods in hospital and apply it in the practice of pharmacy.  Effectively apply principles of drugs to remanagement and inventory control to Medication use.  Provide patient-centered care to diverse patients using the best available evidence And monitor drug therapy of patient through medication chart review, obtain medication history interview and counsel the patients, identify drug related problems.  Engage in innovative activities by making use of the knowledge of clinical trials  Exhibit professional ethics by producing safe and appropriate
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Ref:				Date:
		6.		medication use throughout society
	BP704T	Novel Drug Delivery System	2020-21	Upon completion of the course the student shall be able to  Understand various approaches used for development to novel drug delivery systems.  To know the criteria for selection of drugs and polymers used in the development process of Novel drug delivery systems.  Understand the various criteria for formulation and evaluation of Novel drug delivery systems.  To know about the various microencapsulation methods.  The students will know the latest drug delivery knowledge and think to develop new formulation based on the individual Requirement.  Understand the information for ADME of Drug compound in the body as needed to safely achieve its desired therapeutic effect.
	BP706PS	Practice School	2020-21	<ul> <li>Upon completion of the course the student shall be able to</li> <li>Understand the basic theoretical knowledge on document compilation.</li> <li>Understand the practical skills using various instrumentation techniques.</li> <li>To make analysis and report the results in defined formats to learn documentation and express the observations with conclusion.</li> </ul>



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B.Pharm Semester VIII  Biostatistics and Research Methodology  B. Wharm Semester VIII  British Brobber Will Semester Will Semester VIII  British Brobber Will Semester Will Se	B.Pharm Semester VIII  Biostatistics and Research Methodology  Biostatistics and Community Pharmacue  Methodology  Brown the principles of statistics and community Pharmacue  Without to solve different types of statistics, biostatistics and community Pharmacue  Who where the principles measures of dispersion-dispersion, range, standard deviation, and epication and procedure in formulation of different dosage forms.  Brown the principles measures of dispersion-dispersion, range, standard deviation  Brown the principles measures of dispersion-dispersion, range, standard deviation	Ref:				Date:
Semester VIII  Research Methodology  Now the various statistical methods to solve different types of problems  Understand the importance of computer in Hospital and Community Pharmacy  Know the principles of statistics, biostatistics and frequency distribution  Understand the process of measures of central tendency, regression and probability  Understand the principles measures of dispersion-dispersion, range, standard deviation	Research Methodology  New the various statistical methods to solve different types of problems  Understand the importance of computer in Hospital and Community Pharmacy  Research New the various statistical methods to solve different types of problems  Understand the principles of statistics, biostatistics and frequency distribution  Understand the process of measures of central tendency, regression and probability  Understand the principles measures of dispersion-dispersion, range, standard deviation  Understand the role of correlation, multiple					procedures for the manufacture of Active Pharmaceutical Ingredients and new chemical entities for the drug development phases.  Upon completion of practice school the student will know all the aspects of GLP to do different pharmaceutical procedures involved in formulation, preparation and evaluation of different dosage forms.  Student will able to develop skills by increasing the knowledge which helps in successful completion of project working Pharm final
correlation, multiple		Semester	BP801T	Research Methodology	anjekarCoj	<ul> <li>Upon completion of the course the student shall be able to</li> <li>Know the various statistical methods to solve different types of problems</li> <li>Understand the importance of computer in Hospital and Community Pharmacy</li> <li>Know the principles of statistics, biostatistics and frequency distribution</li> <li>Understand the process of measures of central tendency, regression and probability</li> <li>Understand the principles measures of dispersion-dispersion, range, standard deviation</li> <li>Understand the role of</li> </ul>



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Ref:	<del></del>			Date:
	DDOOT	Contain	2022 21	correlation and parametric test
	BP802T	Social and Preventive Pharmacy	2020-21	Upon completion of the course the student shall be able to  • Acquire high consciousness realization of current issues related to health and pharmaceutical problems within the country and worldwide  • Understand critical way of thinking based on current health care development  • Evaluate alternative ways of solving problems related to health and pharmaceutical issues  • Knowledge about national health programme  • Understand community services  • Understand importance of national health programme to pharmacy field
	BP805ET	Phamacovigilance	2020-21	Upon completion of the course the student shall be able to  Writing case narratives of adverse events and their quality  ICH Guidelines for ICSR, PSUR, expedited reporting and Phamacovigilance Planning  Phamacovigilance program in India  Drug safety evaluation in pediatrics, geriatrics, pregnancy and lactation  Adverse drug reaction reporting system and communication in Phamacovigilance





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Ref:			Date:
			<ul> <li>International standards for classification of drugs and diseases</li> </ul>
BP806E	and Standardization of Herbals	2020-21	<ul> <li>Upon completion of the course the student shall be able to</li> <li>To recall the WHO guidelines for the quality control of herbal drugs.</li> <li>To illustrate and outline the quality assurance in traditional system of medicine including CGMP, GMP and GLP.</li> <li>To compare the quality control parameters of drugs according to European Union and ICH guidelines.</li> <li>To make use of research guidelines for evaluation of safety and efficacy of herbal medicine.</li> <li>To apply the knowledge of chromatography in standardization of herbal drugs and to perform the stability studies.</li> <li>To improve the knowledge on regulatory issues for herbal medicine including GMP,</li> <li>WHO guidelines on safety monitoring of herbal medicine in Phamacovigilance.</li> </ul>
BP809ET	Cosmetic Science	2020-21	Upon completion of the course the student shall be able to  Basic understand the
		nio	classification of cosmetic and cosmeceuticals products.  • Understand the principles and building blocks of skin care
	tar	njekar College	products and there



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Ref:			Date:
BP811E7	Advanced Instrumentation Techniques	2020-21	formulations.  To know the role of herbs used in cosmetics.  Know the principles of Cosmetic Evaluation.  Understand the various cosmetic problems.  Understand the manufacturing procedure used in formulation of cosmetic products.  Upon completion of the course the student shall be able to  Understand the calibration and validation of various analytical instruments like electronic balance, UV-Visible spectrophotometer,
			<ul> <li>To understand the analysis of drugs using various analytical instruments.</li> <li>To understand principle and application of hyphenated techniques-LC-MS/MS,GC-</li> <li>MS/MS, HPTLC-MS.in pharmacy.</li> <li>To know the general principle and procedure involved in the solid phase extraction and liquid-liquid extraction.</li> <li>To know the instrumentation of various method of Thermal</li> </ul>
DD012DW			Methods of Analysis.  To know the basics instrumentation and application of NMR and mass spectroscopy.
BP813PW		2020-21	Upon completion of the course the student shall be able to  The basic theoretical



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Date:

knowledge on document compilation created on small project work.

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- Practical skills for the Analysis of drugs and excipients using various Instrumentation techniques.
- To make accurate analysis and report the results in defined formats to learn Documentation and express the observations with conclusion.
- The pilot plant procedure for the manufacture of Active Pharmaceutical Ingredients and new chemical entities for the drug development phases.
- Upon completion of project work the student will know the formulation aspects of different dosage forms to do different pharmaceutical calculations involved in formulation and appreciate the importance of good formulation for effectiveness.
- Student will able to develop dynamics of motivation and concept development by increasing the knowledge to handle the challenges in project work.

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Academic Session 2021-22 (New Syllabus)

Program	Course	Course Name	Year of	Course Outcomes
Name	code		Introduction	
	BP101T	Human Anatomy and Physiology I	2021-22	Upon completion of the course the student shall be able to  Understand the gross morphology, structure and functions of cell, skeletal, muscular, cardiovascular system of the human body.  Understood the various homeostatic mechanisms and their imbalances.  Identify the different types of bones in human body.  Identify the various tissues of different systems of human body  Learn about the various experimental techniques related to physiology.  Learnt various techniques like blood group determination,  measurement, blood cells
B.Pharm Semester	BP102T	Pharmaceutical Analysis I	ar Gond	counting  Upon completion of the course the student shall be able to  To develop the fundamentals of volumetric and instrumental analytical skills.  Understand the fundamental methodology to prepare different strength of solutions.  To understand and develop skill to minimize the sources of mistakes and errors in Analytical chemistry.
	BP1021	Analysis I	Z004-25	• Understand the principle of

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Ref:				Date:
				fundamental of analytical chemistry and its scope in Pharmaceutical field.  • Understand the principles and application of electrochemical analytical techniques in pharmacy.  • Understand to improve skills by the course content in terms of selection analytical Techniques to perform the estimation of different class of drugs.
	BP103T	Pharmaceutics I	2021-22	Upon completion of the course the student shall be able to  To know the historical background and profession of pharmacy and basics of Pharmaceutical dosage forms.  To understand the importance of prescription and posology.  To solve pharmaceutical calculations and understand the formulation of powders and Liquid dosage forms.  To develop monophasic and biphasic liquid dosage forms.  To explain the concepts of suppositories and pharmaceutical in compatibilities.  To Formulate and Evaluate semi solid dosage form
	BP 104T	Pharmaceutical Inorganic Chemistry	2021-22	Upon completion of the course the student shall be able to  • Understand the history of Pharmaceutical Inorganic Chemistry, principles of limit Tests and introduction &
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Ref:				Date:
	BP105T	Communication skills	2021-22	Pharmacopoeia.  Understand introduction, properties, preparation and uses of inorganic Pharmaceuticals.  Understand introduction, sources and identification tests for impurities in inorganic Pharmaceuticals.  Understand introduction and applications of pharmaceutical drugs used in different Classes.  Understand the medicinal and pharmaceutical importance of radiopharmaceuticals.  Learnt principles and preparation procedures of inorganic drugs.  Upon completion of the course the student shall be able to  Understand the behavioral needs for a pharmacist to function effectively in the areas of pharmaceutical operation.  Understand to communicate effectively-Verbal and Nonverbal.  Understand effectively manage the team as a team member.  Understand interview skills.  Understand Leadership qualities.  Learnt planning, preparation and delivering techniques of presentations.
:	BP106RMT	Remedial Mathematics	2021-22	Upon completion of the course the student shall be able to
		yarani	ekar Co.	Understand to apply     Computations for
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mathematical concepts for pharmacy  Understand to create, use an analyze mathematical representations and Mathematical relationships  Understand to communicate mathematical knowledge and understanding to help in the field of clinical pharmacy  Understand to perform abstrace mathematical reasoning  Understand to solve the different types of problems by applying theory  Upon completion of the course the student shall be able to  Understand the gross morphology, structure and functions of various organs of the human body.  Learnt details about various tissues and organs of different systems of human body.  Understand to elaborate coordinated working pattern of different organs of each system.  Learnt interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human.  Understand some hematological tests like blood cell counts, hemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and	Ref:			Date:
respiratory volume.		and Physiology II		<ul> <li>Know the applications of mathematical concepts for pharmacy</li> <li>Understand to create, use and analyze mathematical representations and Mathematical relationships</li> <li>Understand to communicate mathematical knowledge and understanding to help In the field of clinical pharmacy</li> <li>Understand to perform abstract mathematical reasoning</li> <li>Understand to solve the different types of problems by applying theory</li> <li>Upon completion of the course the student shall be able to</li> <li>Understand the gross morphology, structure and functions of various organs of the human body.</li> <li>Learnt details about various tissues and organs of different systems of human body.</li> <li>Understand to elaborate coordinated working pattern of different organs of each system.</li> <li>Learnt interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human.</li> <li>Understand some hematological tests like blood cell counts, hemoglobin estimation, bleeding/clotting time etc and also record blood</li> </ul>
BP202T Pharmaceutical Spaniska 2021-22 Upon completion of the course the	BP202T	Pharmaceutical	kar 2021-22	



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Ref:				Date:
		Organic Chemistry I		student shall be able to  To Know and recall the fundamental principles of organic chemistry that include nomenclature, structural isomerism, stereochemistry, chemical reactions and mechanism.
B.Pharm Semester II				<ul> <li>Name the functional groups and different class of organic compounds.</li> <li>To know the reaction of various of alkane, alcohol, carbonyl compound, amines and carboxylic acid.</li> <li>Understand the reactivity and stability of organic compounds.</li> <li>To know the name, structure of organic compound and its use in pharmacy.</li> <li>Illustrate stereochemistry of organic reaction.</li> </ul>
	BP203T	Biochemistry	2021-22	Upon completion of the course the student shall be able to  • Understand history of Biochemistry and introduction, classification, chemical nature & biological role of Biomolecules.  • Understand introduction, classification, preparation and importance of the bioenergetics molecules.  • Understand the electron transport chain and biological oxidation process.  • Understand the introduction, metabolism and catabolism of

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Ref:				Date:
	BP204T	Pathophysiology	2021-22	nutrient molecules & Biomolecules in physiological and pathological conditions.  • Understand the different disorders related to Biomolecules in which involve introduction, precautions and treatment.  • Understand the genetic information of mammalian genome and introduction & functions of DNA, RNA, proteins and enzymes.  Upon completion of the course the student shall be able to  • Understand mechanism of cell injury and process of inflammation and repair.  • Learnt the sign and symptoms of the disease.  • Understand the etiology and complications of disease.  • Know most commonly encountered path physiological state.  • Know the disease mechanism and clinical testing requirements.  • Understand the importance of systems working in human body.
	BP205T	Computer Applications in Pharmacy	2021-22	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
			aio!	Know the various applications
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Ref:			Date:
BP20		2021-22	<ul> <li>Of databases in pharmacy</li> <li>Understand to solve and work with a professional context pertaining to ethics, social, cultural and regulations with regard to pharmacy</li> <li>Understand to integrate and apply efficiently the contemporary IT tools to all pharmaceutical related activities</li> <li>Understand to design and develop solutions to analyze pharmaceutical problems using computers</li> <li>Upon completion of the course the</li> </ul>
DD201	sciences		student shall be able to  Understand to create the awareness about environmental problems among learners  Understand to develop basic knowledge about the environment and its allied problems  Understand to develop an attitude of concern for the environment  Learn participation 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
BP301	T Pharmaceutical Organic Chemistry Il	2021-22	Upon completion of the course the student shall be able to
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B.Pharm Semester III	BP302T	Physical Pharmaceutics I	2021-22	<ul> <li>Understand basic knowledge about common methods of preparation of organic compounds.</li> <li>Understand the reactions of organic compounds.</li> <li>Understand the reactivity and orientation in organic chemistry.</li> <li>Understand the mechanism of organic reactions.</li> <li>To acquire knowledge about electrophilic substitution reactions of aromatic compounds.</li> <li>Understand the reactions and methods of analysis of fats and oils.</li> <li>Upon completion of the course the student shall be able to</li> <li>Understand the descriptive terms for solubility, their meaning and various type of solution.</li> <li>Understand the role of surfactants, interfacial phenomenon and thermodynamics.</li> <li>Understand the role of state of matter</li> <li>Understand the properties of matter</li> <li>Understand the physical properties of solutions, buffers, isotonicity, disperse systems and principle of relative humidity, glass transition</li> </ul>



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### Wainganga Bahu-Uddeshiya Vikas Sanstha, Nagpur's

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Kel:				Date:
				<ul> <li>temperature</li> <li>Understand various physicochemical properties of drugs molecules in the designing the dosage form</li> </ul>
	BP303T	Pharmaceutical Microbiology	2021-22	<ul> <li>Upon completion of the course the student shall be able to</li> <li>Understand structure of bacteria and different types of microscopes.</li> <li>Understand methods of identification, cultivation and preservation of various microorganisms.</li> <li>Understand the importance and implementation of sterilization in pharmaceutical processing and industry.</li> <li>Learn sterility testing of pharmaceutical products.</li> <li>Carried out microbiological standardization of Pharmaceuticals.</li> <li>Understand the cell culture technology and its applications in pharmaceutical industries.</li> </ul>
	BP304T	Pharmaceutical Engineering	2021-22	Upon completion of the course the student shall be able to  • Know about the various unit operation processes used in pharmaceutical industry.  • Comprehend the various materials handling technique.  • Carry out the various processes involved in pharmaceutical manufacturing process.  • Understand the various tests for preventing the environmental pollution.  • Appreciate and understand the significance of plant lay out design for optimal uses of resources.  • Know about the various





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				preventive methods for corrosion control used in pharmaceutical industries.
	BP401T	Pharmaceutical Organic Chemistry III  Medicinal	2021-22	Upon completion of the course the student shall be able to  Understand the various nomenclature systems in stereochemistry and its application.  Understand the various stereo chemical aspects of organic compounds.  Understand the detail mechanism of some useful organic reactions.  To acquire knowledge about structures of different heterocyclic compounds.  Understand the nomenclature rules in heterocyclic chemistry.  Understand preparations, reactions and medicinal uses of various heterocyclic compounds.
B.Pharm Semester IV		Chemistry I	2021-22	Upon completion of the course the student shall be able to  Understand the history of Medicinal Chemistry and introduction & importance of physicochemical properties related to biological actions of drugs.  Understand the phases present in drug metabolism with chemical reactions.  Understand different classes of drugs according to mechanism of action of drugs.  Understand synthetic



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			Date:
BP403T	Physical	2021-22	procedures of drug molecules with chemical reactions.  • Understand structure, nomenclature, mode of action and uses of drug molecules.  • Understand structure activity relationship of selective class of drugs.
BP4031	Physical Pharmaceutics II	2021-22	<ul> <li>Upon completion of the course the student shall be able to</li> <li>Understand various physicochemical properties of drug molecules in the designing the dosage forms.</li> <li>Understand the principles of colloidal dispersion, deformation of solids and coarse dispersion.</li> <li>Understand the physical properties of solutions, buffers, isotonicity, disperse systems, colloidal and rheology.</li> <li>Understand the chemical stability of various drug products.</li> <li>Understand the role of optical, kinetic &amp; electrical properties.</li> <li>Understand the principles of chemical kinetics and to used them for stability testing and determination of expiry date of formulation</li> </ul>
BP404T	Pharmacology I	2021-22	Upon completion of the course the student shall be able to  • Understand the pharmacological actions of different categories of drugs.  • Understand the mechanism of drug action at organ system/sub cellular/macromolecular levels.  • Understand how to apply the
		BP404T Pharmacology I	Pharmaceutics II



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	BP405T	Pharmacognosy and Phytochemistry I	2021-22	basic pharmacological knowledge in the prevention and treatment of various diseases.  • Understand the adverse drug reactions and drug interactions.  • Understand correlation of pharmacology with other bio medical sciences  • Understand the signal transduction mechanism of various receptors  Upon completion of the course the student shall be able to  • Know techniques in the
				<ul> <li>cultivation and production of crude drugs</li> <li>Know the crude drugs, their uses and chemical nature.</li> <li>Know evaluation techniques for evaluation of drugs.</li> <li>Understand microscopic &amp; morphological evaluation of crude drugs.</li> <li>Understanding traditional system of medicine along primary &amp; secondary metabolite.</li> <li>Understand recognition of medicinal plants, identification</li> </ul>
	BP501T	Medicinal Chemistry II	2021-22	of adulteration & contamination  Upon completion of the course the student shall be able to  • Understand the structure of various drugs and their IUPAC names.  • To acquire basic knowledge about different diseases.



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				<ul> <li>To acquire knowledge about synthesis of some drugs.</li> <li>To know the structure activity relationship of different classes of drugs.</li> <li>To understand the mode of action of medicinal compounds.</li> <li>To acquire knowledge about uses of different medicinal agents.</li> </ul>
	BP502T	Industrial Pharmacy I	2021-22	Upon completion of the course the student shall be able to  • Understand the various drug delivery system and its mechanisms.
				<ul> <li>Students will learn advanced drug delivery system early stage.</li> <li>Developing a preparation of the drug which is both stable and acceptable to the patient.</li> </ul>
B.Pharm Semester V				<ul> <li>They know very well about orally administered drugs, injectable, aerosol and semisolid preparations with standard protocols.</li> <li>Formulated drugs are stored in</li> </ul>
				<ul> <li>a suitable container closure system for extended periods of time.</li> <li>Also they know the stability study and its standard evaluation procedure for better storage conditions.</li> </ul>
	BP503T	Pharmacology II	2021-22	Upon completion of the course the student shall be able to  • Understand the mechanism of drug action and its relevance in
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different organs and the from the laboratory animal simulated experiments.  • Understand the vireceptor actions using is tissue preparation.  • Understand correlation pharmacology with medical sciences.  • Understand the communication mechanis:  • Understand the newer to five treatment.  BP504T Pharmacognosy and Phytochemistry II  BP504T Pharmacognosy and Phytochemistry II  To outline the metapathway in higher plants their biogenetic studies.  • To the Pharmacognosy study of secondary metablike alkaloids, glycos	Date:				Ref:
To demonstrate the diff types and steps involve isolation, identification analysis of Phytoconstitulike terpenoids, glycos alkaloids and resins.      To plan the induproduction, estimation utilization of Phytoconstitue.      To assess the crude drug modern methods of extraction spectroscopy, chromatogratic isolation and purification.      Understand Ethno botany	<ul> <li>Understand isolation of different organs and tissues from the laboratory animals by simulated experiments.</li> <li>Understand the various receptor actions using isolated tissue preparation.</li> <li>Understand correlation of pharmacology with related medical sciences.</li> <li>Understand the cell communication mechanism.</li> <li>Understand the newer targets of several disease conditions for treatment.</li> <li>Upon completion of the course the student shall be able to</li> <li>To outline the metabolic pathway in higher plants and their biogenetic studies.</li> <li>To the Pharmacognostical study of secondary metabolites like alkaloids, glycosides, tannins, volatile oils etc.</li> <li>To demonstrate the different types and steps involved in isolation, identification and analysis of Phytoconstituents like terpenoids, glycosides, alkaloids and resins.</li> <li>To plan the industrial production, estimation and utilization of Phytoconstituents</li> <li>To assess the crude drug by modern methods of extraction, spectroscopy, chromatography, isolation and purification.</li> <li>Understand Ethno botany and Ethno pharmacology in drug</li> </ul>		and	BP504T	
DDC04TD D1	unje 2021 22 Upon completion of the course the	ran	Pharmaceutical	BP505T	



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Ref:				Date:
B.Pharm Semester VI	BP601T	Jurisprudence  Medicinal Chemistry III	2021-22	student shall be able to  Know the Pharmaceutical legislations and their implications in the development and marketing  Know various Indian pharmaceutical Acts, Laws and schedule  Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals  Know code of ethics during the pharmaceutical practice  Understand the knowledge of IPR.  Know the narcotic drugs and psychotropic substances act-1985 and rules  Upon completion of the course the student shall be able to  To acquire knowledge about microbial and parasitic
		Haranjek	ar College o	<ul> <li>diseases.</li> <li>Understand the structure of various drugs and their IUPAC names.</li> <li>Understand the SAR and mode of action of various drugs used in the treatment of different microbial and parasitic diseases.</li> <li>To acquire knowledge about synthesis of some drugs.</li> <li>Understand physicochemical properties of drugs and different techniques for development of drugs.</li> <li>To acquire knowledge about uses of different medicinal</li> </ul>

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Ref:				Date:
	DDCOOT	Di	200: 55	agents.
	BP602T	Pharmacology III	2021-22	Upon completion of the course the student shall be able to  Understand mechanism of drug action and its relevance in the treatment of different infectious diseases.  Understand the principles of toxicology and treatment of various poisonings  Understand the methods of toxicity studies.  Understand study about symptoms of several poisonings  Understand the toxicity profile of each drugs  Understand the classification of each drug used in the treatment of cancer and compare and contrast the mechanisms of action, uses, and adverse effects.
	BP603T	Herbal Drug Technology	2021-22	Upon completion of the course the student shall be able to  To recall the fundamental concepts of herbal raw materials and biodynamic agriculture techniques.  To understand the concept of nutraceutical and herbal food interactions.  To apply the knowledge for evaluation and preparation of herbal formulations.  To remember the regulatory guidelines for the assessment of herbal drugs and patenting.  To illustrate the scope and future prospects of the herbal drug industry.



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Ref:				Date:
				SOP's, infrastructure of industries as per GMP.
	BP604T	Biopharmaceutics and Pharmacokinetics	2021-22	Upon completion of the course the student shall be able to  Basic understanding about the concepts of Biopharmaceutics and pharmacokinetics and their significance.  Determine the various pharmacokinetic parameters from either plasma concentration or urinary excretion data for drug and also describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.  Understand about the concepts of bioavailability and bioequivalence of drug products and their significance.  Ability to calculate the various pharmacokinetic parameters, their significance and applications  Understand the various multi component models.  To know the Knowledge about nonlinear pharmacokinetics.
	BP605T	Pharmaceutical Biotechnology	2021-22	Upon completion of the course the student shall be able to  Understand the various techniques used in modern biotechnology.  Design research strategy with step by step instructions to address a research problem  Provide examples of current applications of biotechnology



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Ref:				Date:
				and advances in the different areas like medical, microbial, environmental, bioremediation, agricultural, plant, animal, and forensic  Explain the concept and application of monoclonal antibody technology  Demonstrate and Provide examples on how to use microbes and mammalian cells for the production of pharmaceutical products  Explain the general principles of generating transgenic plants,
	BP606T	Quality Assurance	2021-22	upon completion of the course the student shall be able to  Understand the importance of quality in pharmaceutical products.  Explored into importance of Good practices such as GMP, GLP  The factors affecting the quality of pharmaceuticals  Understands the regulatory aspects of pharmaceutical taught to the student  Process involved in manufacturing of pharmaceuticals different section/department and activity is learnt.  Understand the various documentation processes is highlighted to the student.
B.Pharm Semester VII	BP701T	Instrumental Methods of Analysis	2021-22	Upon completion of the course the student shall be able to  Understand the basic



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Ref:				Date:
	BP702T	Industrial Pharmacy II	2021-22	principles and instrumentation of UV, fluorimeter, flame Photometer and atomic absorption spectroscopy.  Understand the basic principles involved in TLC, column chromatography and paper Chromatography.  To know the theory and instrumentation of GC, HPLC, gel chromatography, ion Exchange chromatography and affinity chromatography.  Learn separation and identification of compounds by various chromatographic techniques.  Learn applications of various chromatographic techniques for organic, inorganic and Natural products.  To know Instrumentation, separation and identification of compounds by Electrophoresis technique.  Upon completion of the course the student shall be able to  Understand the process of pilot plant and scale up of pharmaceutical dosage forms.  Know the various pharmaceutical dosage forms and their manufacturing techniques.  Understand the process of technology transfer from lab scale to commercial batch.  Know different Laws and Acts that regulate pharmaceutical industry.
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BP703T Pharmacy Practice 2021-22 Understand the process Quality management syster and Indian Regulato Requirement.  Upon completion of the course to student shall be able to Demonstrate knowledge of and ability to use principles of therapeutics, quality improvement, communication, economics health behavior, social and administrative aspects, health policy and legal issues in the practice of pharmacy.  Use knowledge of drudistribution methods hospital and apply it in the practice of pharmacy.  Effectively apply principles of drugs to remanagement an inventory control to Medication use.  Provide patient-centered car to diverse patients using the best available evidence an monitor drug therapy of patier through medication chair review, obtain medicatio history interview and counse the patients, identify drug related problems.  Engage in innovative activitie	Ref:			Date:
BP703T Pharmacy Practice 2021-22 Upon completion of the course to student shall be able to  Demonstrate knowledge of and ability to use principles of therapeutics, quality improvement, communication, economics health behavior, social and administrative aspects, health policy and legal issues in the practice of pharmacy.  Use knowledge of drugistribution methods hospital and apply it in the practice of pharmacy.  Effectively apply principles of drugs to remanagement and inventory control to Medication use.  Provide patient-centered care to diverse patients using the best available evidence and monitor drug therapy of patient through medication chareview, obtain medication history interview and counse the patients, identify drug related problems.  Engage in innovative activities				process and regulatory requirements for drug products.  • Understand the process of Quality management systems and Indian Regulatory
knowledge of clinical trials		BP703T	2021-22	<ul> <li>Upon completion of the course the student shall be able to</li> <li>Demonstrate knowledge of and ability to use principles of therapeutics, quality improvement, communication, economics, health behavior, social and administrative aspects, health policy and legal issues in the practice of pharmacy.</li> <li>Use knowledge of drug distribution methods in hospital and apply it in the practice of pharmacy.</li> <li>Effectively apply principles of drugs to remanagement and inventory control to Medication use.</li> <li>Provide patient-centered care to diverse patients using the best available evidence and monitor drug therapy of patient through medication chart review, obtain medication history interview and counsel the patients, identify drug related problems.</li> <li>Engage in innovative activities by making use of the</li> </ul>

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				producing safe and appropriate medication use throughout society
	BP704T	Novel Drug Delivery System	2021-22	<ul> <li>Upon completion of the course the student shall be able to</li> <li>Understand various approaches used for development to novel drug delivery systems.</li> <li>To know the criteria for selection of drugs and polymers used in the development process of Novel drug delivery systems.</li> <li>Understand the various criteria for formulation and evaluation of Novel drug delivery systems.</li> <li>To know about the various microencapsulation methods.</li> <li>The students will know the latest drug delivery knowledge and think to develop new formulation based on the individual Requirement.</li> <li>Understand the information for ADME of Drug compound in the body as needed to safely achieve its desired therapeutic effect.</li> </ul>
	BP706PS	Practice School	2021-22	Upon completion of the course the student shall be able to  • Understand the basic theoretical knowledge on document compilation.  • Understand the practical skills using various instrumentation techniques.  • To make analysis and report the results in defined formats to learn documentation and express the observations with



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B.Pharm

Semester

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BP801T

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Date: conclusion. Understand the **GMP** procedures for the manufacture Active Pharmaceutical Ingredients and new chemical entities for the development phases. Upon completion of practice school the student will know all the aspects of GLP to do different pharmaceutical procedures involved formulation, preparation and evaluation of different dosage forms. Student will able to develop skills bv increasing the knowledge which helps in successful completion project working B Pharm Final Upon completion of the course the student shall be able to Know the various statistical methods to solve different types of problems Understand the importance of computer in Hospital Community Pharmacy Know the principles of statistics. biostatistics and frequency distribution Understand the process of measures of central tendency. regression and probability Understand the principles measures of dispersiondispersion, range, standard

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Ref:				Date:
				correlation, multiple
	BP802T	Social and Preventive Pharmacy	2021-22	correlation and parametric test  Upon completion of the course the student shall be able to  Acquire high consciousness / realization of current issues related to health and pharmaceutical problems within the country and worldwide  Understand critical way of thinking based on current health care development  Evaluate alternative ways of solving problems related to health and pharmaceutical issues  Knowledge about national health programme  Understand community services
				Understand importance of national health programme to pharmacy field
	BP805ET	Pharmacovigilance	2021-22	Upon completion of the course the student shall be able to  • Writing case narratives of adverse events and their quality  • ICH Guidelines for ICSR, PSUR, expedited reporting and Phamacovigilance Planning
		Laranjeka		<ul> <li>Pharmacovigilance program in India</li> <li>Drug safety evaluation in pediatrics, geriatrics, pregnancy and lactation</li> <li>Adverse drug reaction reporting system and communication in</li> </ul>



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Ref:				Date:
				Pharmacovigilance International standards for classification of drugs and diseases
	BP806ET	Quality Control and Standardization of Herbals	2021-22	<ul> <li>Upon completion of the course the student shall be able to</li> <li>To recall the WHO guidelines for the quality control of herbal drugs.</li> <li>To illustrate and outline the quality assurance in traditional system of medicine including CGMP, GMP and GLP.</li> <li>To compare the quality control parameters of drugs according to European union and</li> <li>ICH guidelines.</li> <li>To make use of research guidelines for evaluation of safety and efficacy of herbal medicine.</li> <li>To apply the knowledge of chromatography in standardization of herbal drugs and to perform the stability studies.</li> <li>To improve the knowledge on regulatory issues for herbal medicine including GMP,</li> <li>WHO guidelines on safety monitoring of herbal medicine in Pharmacovigilance.</li> </ul>
	BP809ET	Cosmetic Science	2021-22	Upon completion of the course the student shall be able to
			ioka l	Basic understand the classification of cosmetic and cosmeceuticals products.
		( 313h	jekar College	<ul> <li>Understand the principles and</li> </ul>



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Ref:	BP811ET	Advanced Instrumentation Techniques	2021-22	building blocks of skin care products and there formulations.  To know the role of herbs used in cosmetics.  Know the principles of Cosmetic Evaluation.  Understand the various cosmetic problems.  Understand the manufacturing procedure used in formulation of cosmetic products.  Upon completion of the course the student shall be able to  Understand the calibration and validation of various analytical instruments like electronic balance, UV-Visible spectrophotometer, Fluorimeter, Flame Photometer, HPLC and GC.  To understand the analysis of drugs using various analytical instruments.  To understand principle and application of hyphenated techniques-LC-MS/MS,GC-  MS/MS, HPTLC-MS.in pharmacy.  To know the general principle and procedure involved in the solid phase extraction and liquid-liquid extraction.  To know the instrumentation of various method of Thermal
:				<ul><li>Methods of Analysis.</li><li>To know the basics</li></ul>
:				instrumentation and
		aranje	kar Collin	application of NMR and mass
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BP813PW Project Work 2021-22 Upon completion student shall be a	on of the course the
knowledge compilation project work. Practical s Analysis of excipients Instrumentati To make an and report defined forn Documentation the obser conclusion. The pilot pla the manufac Pharmaceutica and new chert the drug devel Upon comple work the stu the formulati different dosa different calculations formulation the important formulation fo Student will a dynamics of r concept dev	asic theoretical on document on created on small rk.  skills for the of drugs and using various ation techniques.  accurate analysis to the results in formats to learn ation and express servations with colant procedure for facture of Active tical Ingredients nemical entities for velopment phases. pletion of project student will know lation aspects of osage forms to do pharmaceutical involved in and appreciate tance of good for effectiveness. I able to develop f motivation and evelopment by the knowledge to challenges in

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